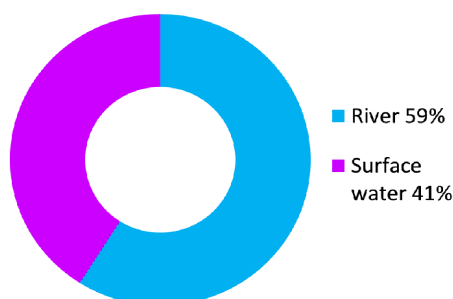


# Cumnock and Catrine (Potentially Vulnerable Area 12/14)

Local Plan District	Local authority	Main catchment
Ayrshire	East Ayrshire Council	River Ayr

## Summary of flooding impacts



### At risk of flooding

- 330 residential properties
- 240 non-residential properties
- £970,000 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>	Property level protection scheme	<i>Site protection plans</i>
Flood protection study	<i>Natural flood management study</i>	<i>Maintain flood warning</i>	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

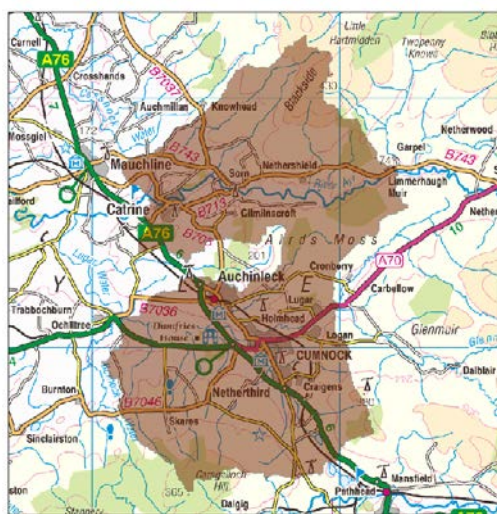
Actions

# Cumnock and Catrine (Potentially Vulnerable Area 12/14)

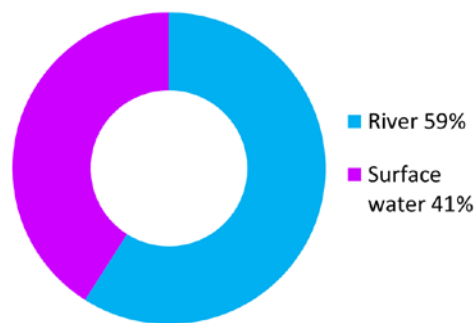
Local Plan District	Local authority	Main catchment
Ayrshire	East Ayrshire Council	River Ayr

## Background

This Potentially Vulnerable Area is located in the east of the Ayrshire Local Plan District and is approximately 130km<sup>2</sup>. This area includes much of Catrine and Sorn in the north as well as Auchinlock, Cumnock and Netherthird in the south (shown below).



There are approximately 330 residential properties and 240 non-residential properties at risk of flooding. The Annual Average Damages are approximately £970,000.



**Figure 1: Annual Average Damages by flood source**

## Summary of flooding impacts

River flooding in this area is attributed to the River Ayr and its tributaries. The River Ayr flows in a westerly direction in the north of the area, impacting upon a number of residential and non-residential properties, community facilities and utilities within Catrine and Sorn. In the south the Lugar Water (a tributary of the River Ayr) flows in a westerly direction through Lugar and Cumnock, affecting a number of residential and non-residential properties. In addition to the Lugar Water, Cumnock is also affected by river flooding from the Glaisnock Burn, a tributary of the Lugar Water which flows in a northerly direction through the centre of the town. The Auchinlock Burn is a further tributary of the Lugar Water and is predicted to impact upon residential properties and non-residential properties in the village of Auchinlock. Sections of railway line and the road network are also at risk of flooding (notably the A70 and A76).

Surface water flooding is generally located in low lying areas adjacent to the various watercourses which flow through the area. Cumnock also has isolated pockets of predicted surface water flooding in areas throughout the town. There is an existing surface water flood attenuation area upstream of Cumnock which can be further utilised if there is to be more development in the town.

Two historic opencast mines, Dalfad and Powharnal, are situated upstream of Potentially Vulnerable Area in proximity to the River Ayr and the Glenmuir Water. There is a potential flood risk relating to water overflowing from these mines should the necessary levels of maintenance and pumping not be provided.

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. The damages associated with floods of different likelihood are shown in Figure 2. Residential properties affected by river flooding experience the highest economic impact at approximately 45% of the damages. Non-residential properties also provide a substantial share of the damages.

The location of the impacts of flooding is shown in Figure 3. Most of the impacts are within Catrine, Sorn and Cumnock with flooding to properties and infrastructure.

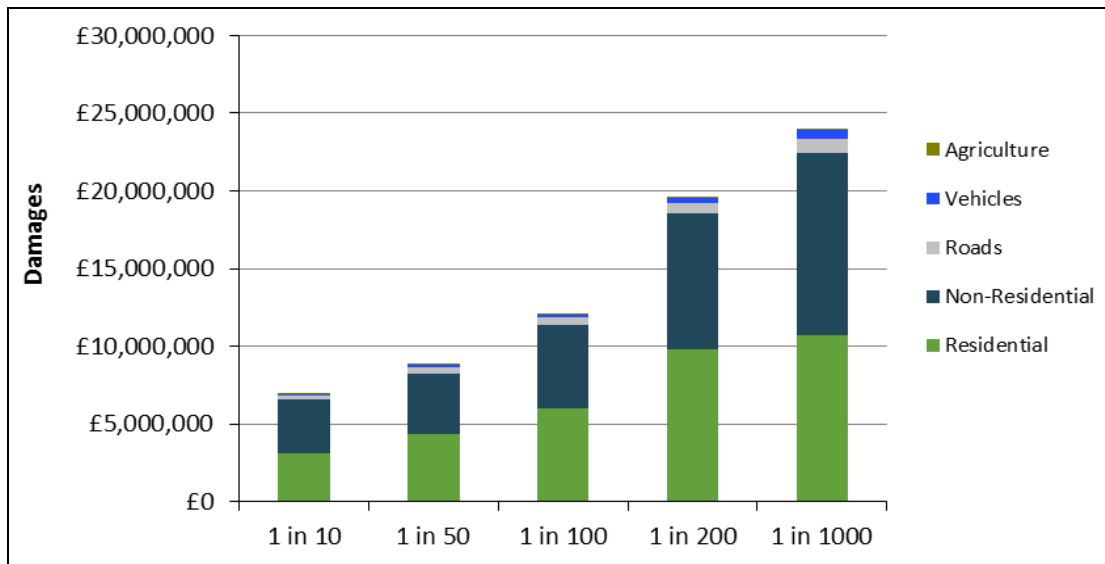
## **History of flooding**

There have been infrequent reports of flooding impacting properties and people in this area. On 31 July 1998 there were reports of a river overtopping and significant surface water run-off from high grounds in Cumnock. On 9 August 1994, river flooding resulted in a massive power loss and the flooding of road and rail transport links near Auchinlock.

Surface water flooding was reported in Mauchline in August 2009 which flooded a primary school playground due to heavy overland flows from farmland.

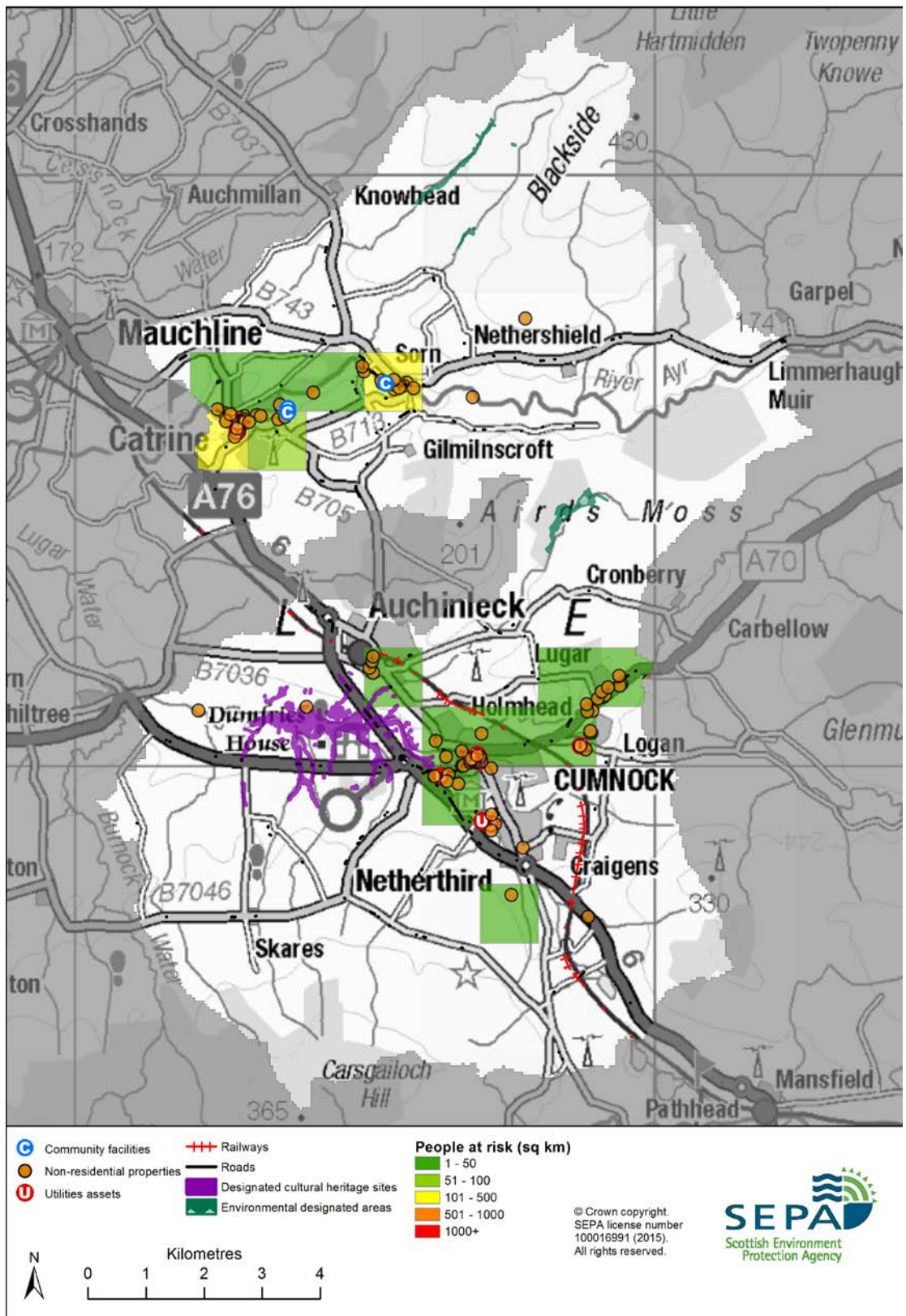
	1 in 10	1 in 200	1 in 1000
	High likelihood	Medium likelihood	Low likelihood
Residential properties (total 8,000)	120	330	350
Non-residential properties (total 1,200)	140	240	280
People	260	730	770
Community facilities	<10 Educational buildings	<10 Educational buildings	<10 Includes: educational buildings and emergency services
Utilities assets	<10	10	10
Transport links - roads (km)	2.1 (of which 0.3 is A road)	4.3 (of which 0.8 is A road)	5.2 (of which 1.0 is A road)
Transport links - rail (km)	2.3	3.8	4.2
Environmental designated areas (km <sup>2</sup> )	0.3	0.5	0.5
Designated cultural heritage sites	9	9	11
Agricultural land (km <sup>2</sup> )	2.1	2.7	2.9

**Table 1:** Summary of flooding impacts<sup>1</sup>



**Figure 2:** Damages by flood likelihood

<sup>1</sup> Some receptors are counted more than once if flooded from multiple sources



**Figure 3: Impacts flooding**

## Objectives to manage flooding in Potentially Vulnerable Area 12/14

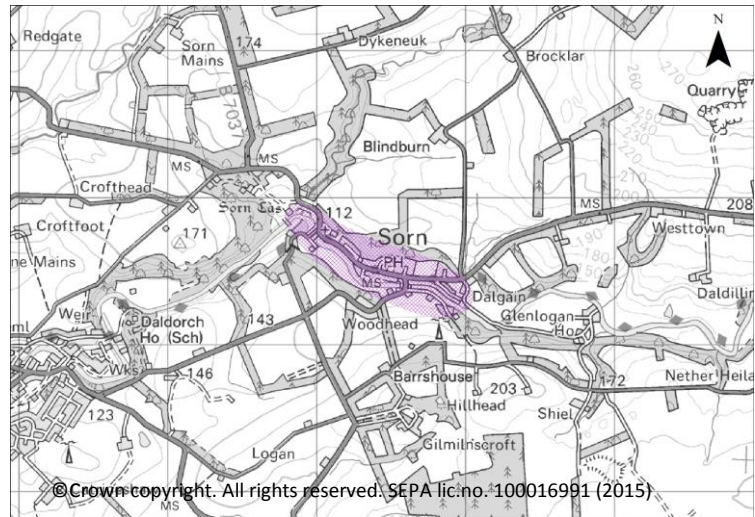
Objectives provide a common goal and shared ambition for managing floods. These objectives have been set by SEPA and agreed with flood risk management authorities following consultation. They were identified through an assessment of the underlying evidence of the causes and impacts of flooding. Target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

### Reduce the risk of the River Ayr flooding to residential properties in Sorn

Indicators:

Target area:

- 60 residential properties
- £90,000 Annual Average Damages



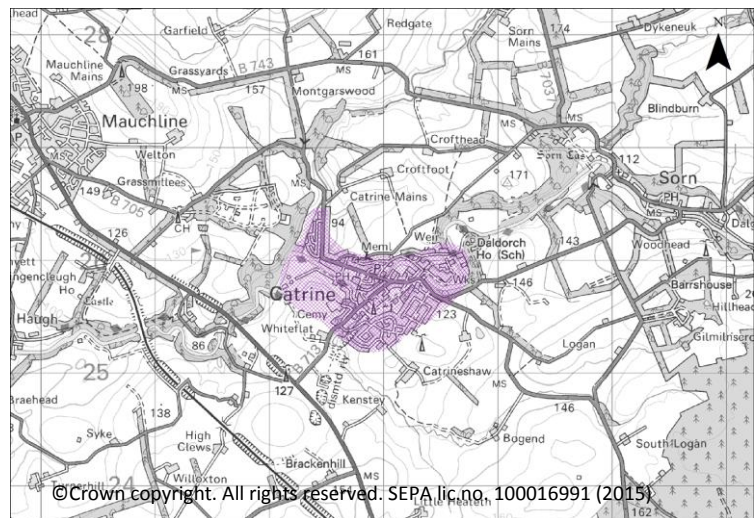
Objective ID: 12029

### Reduce the risk of flooding from the River Ayr to residential properties and non-residential properties in Catrine

Indicators:

Target area:

- 170 residential properties
- 60 non-residential properties
- £260,000 Annual Average Damages



Objective ID: 12030

Target area	Objective	ID	Indicators within PVA
Applies across Ayrshire Local Plan District	Avoid an overall increase in flood risk	12039	<ul style="list-style-type: none"> <li>• 330 residential properties</li> <li>• £970,000 Annual Average Damages</li> </ul>
Applies across Ayrshire Local Plan District	Reduce overall flood risk	12082	<ul style="list-style-type: none"> <li>• 330 residential properties</li> <li>• £970,000 Annual Average Damages</li> </ul>
Applies across Ayrshire 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 12/14

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

<b>Action (ID):</b>	<b>FLOOD PROTECTION STUDY (120300005)</b>		
<b>Objective (ID):</b>	Reduce the risk of flooding from the River Ayr to residential properties and non-residential properties in Catrine (12030)		
<b>Delivery lead:</b>	East Ayrshire Council		
<b>Priority:</b>	National:		Within local authority:
	<b>55 of 168</b>		<b>2 of 4</b>
<b>Status:</b>	<b>Not started</b>	Indicative delivery:	<b>2016-2021</b>
<b>Description:</b>	A study is recommended to further investigate the feasibility of a flood protection scheme along the River Ayr, focusing on sections of river wall and property level protection which could provide some protection against shallow, high frequency floods. Other actions may also be considered to select the most sustainable combination of actions.		
<b>Potential impacts</b>			
<b>Economic:</b>	The flood protection study should consider how to reduce flood risk to 111 residential properties and 45 non-residential properties in this location, with potential damages avoided of up to £5.8 million.		
<b>Social:</b>	A reduction in flood risk would have a positive benefit to the health and wellbeing of the community and socially vulnerable people located within the flood protection study area. In addition there are two educational buildings and two utilities which have been identified as potentially benefitting from this action. There may be negative impacts through disturbance to the local community during the construction phase.		
<b>Environmental:</b>	Flood protection studies should consider the positive and negative impacts of proposed actions on the ecological quality of the environment. There may be negative impacts on the Catrine Voes		



<b>Environmental:</b>	and Woodland Local Nature Reserve through the direct footprint of defences. There is likely to be a loss of natural and semi-natural habitats and displacement of species in the footprint and vicinity of the defences. There is the potential for negative impacts on local water quality downstream of works during the construction period, which have the potential for temporary negative impacts on the Howford Bridge Site of Special Scientific Interest which is downstream on the River Ayr. However, there is the potential for slight positive impacts on water quality from the implementation of sustainable drainage systems in the area. With direct defences there is the potential for impacts upon the setting of the Catrine Heritage Conservation Area, the Catrine Mill Water Works Scheduled Monument, the many listed buildings in the area and views of the river in the town.
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<b>Action (ID):</b>	<b>STRATEGIC MAPPING AND MODELLING (120820016)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	SEPA		
<b>Status:</b>	<b>Not started</b>	Indicative delivery:	<b>2016-2021</b>
<b>Description:</b>	SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 1,300km <sup>2</sup> of improved surface water data is currently available within this Local Plan District. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans and Scottish Water Integrated Catchment Management Studies will be considered as these projects are completed.		

<b>Action (ID):</b>	<b>STRATEGIC MAPPING AND MODELLING (120820019)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	Scottish Water		
<b>Status:</b>	<b>Not started</b>	Indicative delivery:	<b>2016-2021</b>
<b>Description:</b>	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.		

<b>Action (ID):</b>	<b>FLOOD FORECASTING (120820009)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	SEPA		
<b>Status:</b>	<b>Existing</b>	Indicative delivery:	<b>Ongoing</b>
<b>Description:</b>	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.		

<b>Action (ID):</b>	<b>PROPERTY LEVEL PROTECTION SCHEME (120290008)</b>		
<b>Objective (ID):</b>	Reduce the risk of the River Ayr flooding to residential properties in Sorn (12029)		
<b>Delivery lead:</b>	East Ayrshire Council		
<b>Status:</b>	<b>Not started</b>	Indicative delivery:	<b>2016-2021</b>
<b>Description:</b>	Property level protection should be further assessed as it will provide some protection against shallow, high frequency floods.		

<b>Action (ID):</b>	<b>SELF HELP (120820011)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	—		
<b>Status:</b>	<b>Existing</b>	Indicative delivery:	<b>Ongoing</b>
<b>Description:</b>	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.		

<b>Action (ID):</b>	<b>AWARENESS RAISING (120820013)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	Responsible authorities		
<b>Status:</b>	<b>Existing</b>	Indicative delivery:	<b>Ongoing</b>
<b>Description:</b>	<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>		

<b>Action (ID):</b>	<b>MAINTENANCE (120820007)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	East Ayrshire Council, asset / land managers		
<b>Status:</b>	<b>Existing</b>	Indicative delivery:	<b>Ongoing</b>
<b>Description:</b>	<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>		

<b>Action (ID):</b>	<b>EMERGENCY PLANS/RESPONSE (120820014)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	Category 1 and 2 Responders		
<b>Status:</b>	<b>Existing</b>	Indicative delivery:	<b>Ongoing</b>
<b>Description:</b>	<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>		

<b>Action (ID):</b>	<b>PLANNING POLICIES (120390001)</b>		
<b>Objective (ID):</b>	Avoid an overall increase in flood risk (12039) Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	Planning authority		
<b>Status:</b>	<b>Existing</b>	Indicative delivery:	<b>Ongoing</b>
<b>Description:</b>	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.		