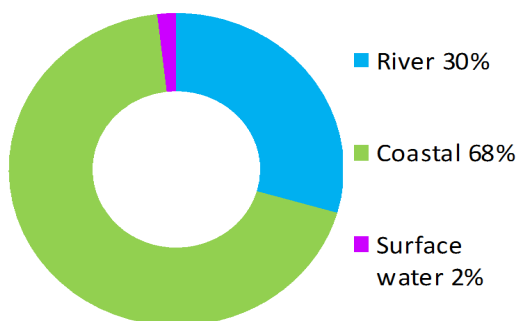


## Isle of Whithorn and Garlieston (Potentially Vulnerable Area 14/24)

Local Plan District	Local authority	Main catchment
Solway	Dumfries and Galloway Council	Isle of Whithorn to Garlieston coastal

### Summary of flooding impacts



#### At risk of flooding

- 90 residential properties
- 30 non-residential properties
- £470,000 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
Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies

Actions

## Isle of Whithorn and Garlieston (Potentially Vulnerable Area 14/24)

Local Plan District	Local authority	Main catchment
Solway	Dumfries and Galloway Council	Isle of Whithorn to Garlieston coastal

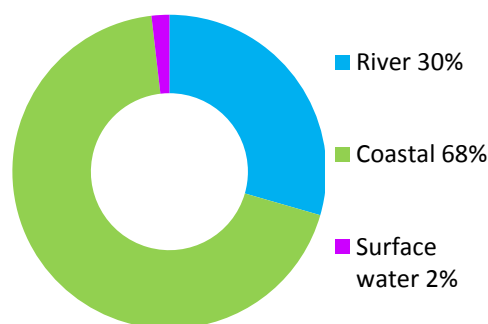
### Background

This Potentially Vulnerable Area is located towards the south west of the Solway Local Plan District and incorporates the towns of Whithorn, Garlieston and Isle of Whithorn (shown below). It is approximately 30km<sup>2</sup>.



There are approximately 90 residential properties and 30 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £470,000.



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

### Summary of flooding impacts

This Potentially Vulnerable Area has extensive frontage onto Wigtown Bay. The area includes only part of Garlieston and Isle of Whithorn and figures for the whole towns are not presented in this report, however the full area of both towns are included in further assessment carried out by Dumfries and Galloway Council.

River flooding is primarily attributed to the Ket Burn. This poses a risk to residential and non-residential properties in Whithorn and the Whithorn Priory. Flooding from the Kevan and Broughton Burns is predicted to affect sections of road network, notably the A746, and agricultural land. There is also a potential risk of flooding from the Drummullin Burn in the Isle of Whithorn, and the Pouton and Inch Burns in Garlieston.

Within this Potentially Vulnerable Area it is estimated that climate change will increase the number of residential properties at risk of flooding from approximately 90 to 100.

The risk of flooding to people and property, as well as to community facilities, utilities,

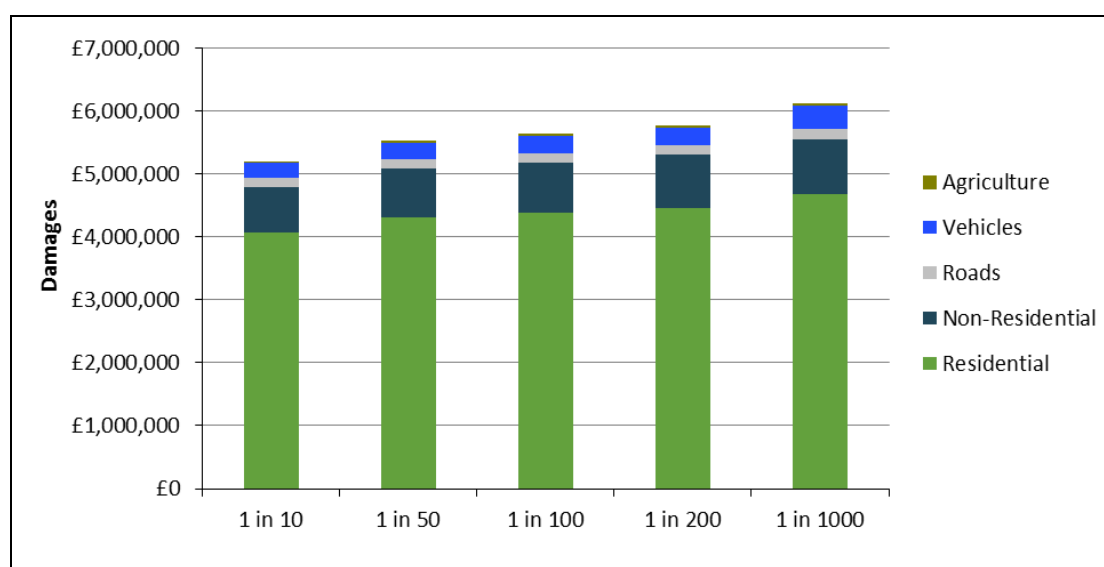
the transport network, designated sites and agricultural land is summarised in Table 1. Nine designated cultural heritage sites are at risk of flooding.

The damages associated with floods of different likelihood are shown in Figure 2. Residential properties affected by coastal flooding experience the highest economic impact at approximately 55% of the damages.

The location of the impacts of flooding is shown in Figure 3. There are further impacts immediately outside the Potentially Vulnerable Area that have been taken into consideration when looking at further actions.

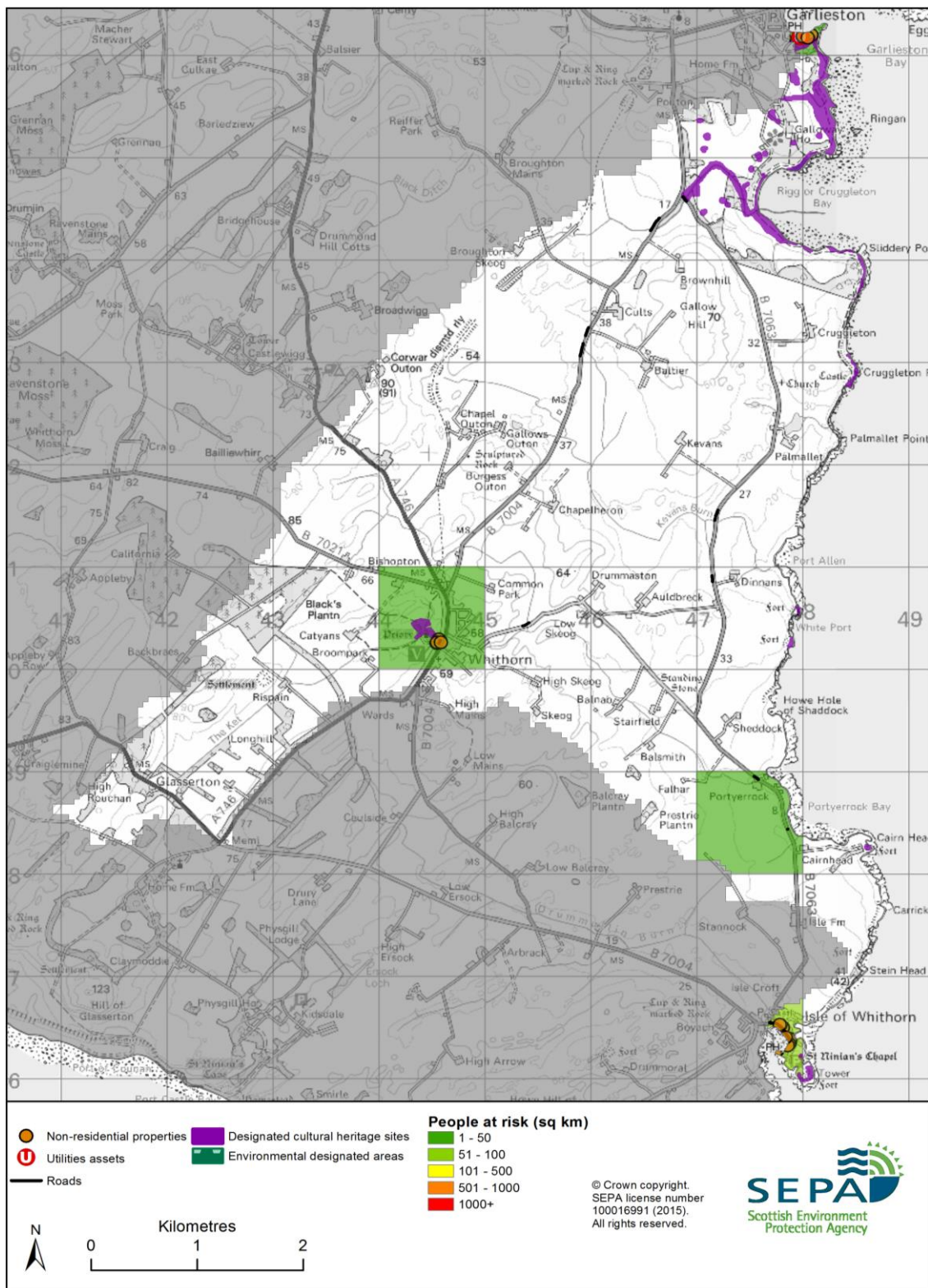
	1 in 10 High likelihood	1 in 200 Medium likelihood	1 in 1000 Low likelihood
Residential properties (total 520)	80	90	90
Non-residential properties (total 90)	30	30	30
People	180	190	200
Community facilities	0	0	0
Utilities assets	<10	<10	<10
Transport links - roads (km)	0.8	1.1	1.1
Environmental designated areas (km <sup>2</sup> )	0	0	0
Designated cultural heritage sites	8	9	11
Agricultural land (km <sup>2</sup> )	0.9	1.0	1.0

**Table 1:** Summary of flood 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 of flooding**

### History of flooding

River flooding occurred in Whithorn in 2005 which affected the A746 major trunk road. The Isle of Whithorn suffered flooding due to a tidal surge on the 3 January 2014, affecting approximately 40 properties. On the 1 February 2014 coastal flooding in the Isle of Whithorn resulted in fire and rescue crews pumping water from properties on Harbour Row and Main Street.

## Objectives to manage flooding in Potentially Vulnerable Area 14/24

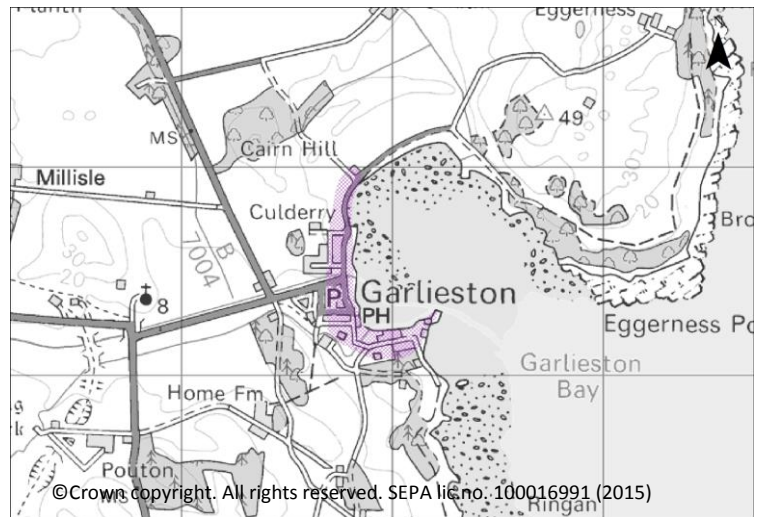
Objectives provide a common goal and shared ambition for managing floods. These objectives have been set by SEPA and agreed with flood risk management authorities following consultation. They were identified through an assessment of the underlying evidence of the causes and impacts of flooding. Target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

### Reduce the risk of coastal flooding to properties in Garlieston

Indicators:

- 80 residential properties
- 20 non-residential properties
- £390,000 Annual Average Damages

Target area:



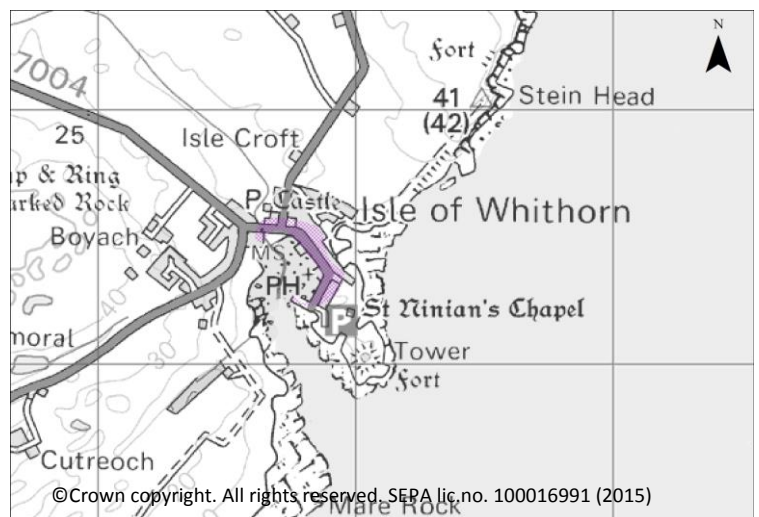
Objective ID: 14032

### Reduce the risk of coastal flooding to properties in Isle of Whithorn

Indicators:

- <10 non-residential properties
- £230,000 Annual Average Damages

Target area:



Objective ID: 14121

Target area	Objective	ID	Indicators within PVA
Applies across Solway Local Plan District	Avoid an overall increase in flood risk	14033	<ul style="list-style-type: none"> <li>• 90 residential properties</li> <li>• £470,000 Annual Average Damages</li> </ul>
Applies across Solway Local Plan District	Reduce overall flood risk	14040	<ul style="list-style-type: none"> <li>• 90 residential properties</li> <li>• £470,000 Annual Average Damages</li> </ul>
Applies across Solway 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 14/24

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 Isle of Whithorn and Garlieston 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
Maintain flood protection scheme	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies

<b>Action (ID):</b>	<b>FLOOD PROTECTION STUDY (141220020)</b>		
<b>Objective (ID):</b>	Reduce the risk of coastal flooding to properties in Isle of Whithorn (14121) Reduce the risk of coastal flooding to properties in Garlieston (14032)		
<b>Delivery lead:</b>	Dumfries and Galloway Council		
<b>Priority:</b>	National: <b>1 of 168</b>	Within local authority: <b>1 of 10</b>	
<b>Status:</b>	<b>Not started</b>	Indicative delivery:	<b>2016-2021</b>
<b>Description:</b>	<p>A study is recommended to further develop the understanding of coastal flooding along the Solway coastline. This study should build on from the previous shoreline management plan to investigate flooding and coastal erosion, wave overtopping and the current coastal protection offered. The study may focus in detail on Potentially Vulnerable Areas however it could also look at the risk to other areas.</p> <p>The study will help to develop an understanding of coastal issues and identify where further work may be required to mitigate against flooding.</p>		
<b>Potential impacts</b>			
<b>Economic:</b>	There are 259 residential properties and 64 non-residential properties at risk of flooding over the extent of this study. The potential damages avoided over this area are estimated to be up to £26.1 million.		
<b>Social:</b>	A reduction in flood risk would have a positive benefit to the health and wellbeing of the community. Natural flood management actions can restore and enhance natural environments and create		

<b>Social:</b>	opportunities for recreation and tourism.
<b>Environmental:</b>	Flood protection studies should consider the positive and negative impacts of proposed actions on the ecological quality of the environment. To be in accord with the flood risk management strategy, the responsible authority should seek to ensure as part of the study that the Solway coastal study will not have an adverse effect on the integrity of the Loch of Inch and Torrs Warren Special Protection Area, Upper Solway Flats and Marshes Special Protection Area, Luce Bay and Sands Special Area of Conservation, and Solway Firth Special Area of Conservation. There is the potential for impacts on several coastal Sites of Special Scientific Interest.

<b>Action (ID):</b>	<b>FLOOD PROTECTION STUDY (140320005)</b>		
<b>Objective (ID):</b>	Reduce the risk of coastal flooding to properties in Isle of Whithorn (14121) Reduce the risk of coastal flooding to properties in Garlieston (14032)		
<b>Delivery lead:</b>	Dumfries and Galloway Council		
<b>Priority:</b>	National:		Within local authority:
	<b>25 of 168</b>		<b>2 of 10</b>
<b>Status:</b>	<b>Not started</b>	Indicative delivery:	<b>2022-2027</b>
<b>Description:</b>	Initial assessment of coastal flooding and erosion issues will be made within the Solway coastal study ID (141220020). Depending on the identified levels of risk from the coastal study, further detailed assessment may be required to investigate actions which would help to reduce the risk at Isle of Whithorn and Garlieston. This study should consider how natural flood management actions could help reduce the impact of coastal flooding along with the potential of property level protection on its own and in combination with other actions.		
<b>Potential impacts</b>			
<b>Economic:</b>	There are 74 residential properties and 20 non-residential properties at risk of flooding in this location, with potential damages avoided of up to £14 million.		
<b>Social:</b>	A reduction in flood risk would have a positive benefit to the health and wellbeing of the community. In addition there is one utility which has been identified as potentially benefitting from this action.		
<b>Environmental:</b>	Flood protection studies should consider the positive and negative impacts of proposed actions on the ecological quality of the environment. Natural flood management actions can have a positive impact by restoring and enhancing natural habitats. There are no international or national level environmental designations that are likely to be impacted by this action, provided the defences are set back from the coastline. There is likely to be a loss of natural mudflat and beach habitat in the footprint and vicinity of the defences, unless they are set back from the coastline. This action has the potential for negative impacts on the setting of numerous heritage buildings along North and South Crescent and the harbour, and Galloway House garden and designed landscape, although the action may offer protection to Galloway House.		



<b>Action (ID):</b>	<b>STRATEGIC MAPPING AND MODELLING (140400016)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (14040)		
<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 develop flood mapping in the Gretna to Portpatrick area to improve understanding of coastal flood risk. The extent and timing of improvements will depend on detailed scoping and data availability. Where this work coincides with local authority studies, SEPA will work collaboratively to ensure consistent modelling approaches are applied.		

<b>Action (ID):</b>	<b>MAINTAIN FLOOD PROTECTION SCHEME (141210017)</b>		
<b>Objective (ID):</b>	Reduce the risk of coastal flooding to properties in Isle of Whithorn (14121)		
<b>Delivery lead:</b>	Dumfries and Galloway Council		
<b>Status:</b>	<b>Existing</b>	Indicative delivery:	<b>Ongoing</b>
<b>Description:</b>	Whithorn Flood Protection Scheme was completed in 1991 and consisted of channel improvements to the Ket Burn and sewer relaying. The standard of protection is not known. Maintenance should be continued. Dumfries and Galloway Council has a number of coastal defences within this area including harbour walls and masonry/concrete walls at the Isle of Whithorn and Portyerrock. There are also privately owned seawalls in Isle of Whithorn and Rigg Bay		

<b>Action (ID):</b>	<b>MAINTAIN FLOOD WARNING (140400030)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (14040)		
<b>Delivery lead:</b>	SEPA		
<b>Status:</b>	<b>Existing</b>	Indicative delivery:	<b>Ongoing</b>
<b>Description:</b>	Continue to maintain the Outer Wigtown Bay flood warning area which is part of the Solway coastal flood warning scheme.		

<b>Action (ID):</b>	<b>FLOOD FORECASTING (140400009)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (14040)		
<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>SELF HELP (140400011)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (14040)		
<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. Dumfries and Galloway Council has a Pilot Flood Product Subsidy Scheme in place, it is recommended that this should be continued. Residential or business properties that are identified as being at risk of flooding are eligible for the scheme. There are various products to reduce the impact of flooding to properties which can be purchased as part of the scheme.		

<b>Action (ID):</b>	<b>AWARENESS RAISING (140400013)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (14040)		
<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>SEPA will engage with the community and promote Floodline in the Outer Wigtown Bay coastal flood warning area. This will be achieved through direct mailing for flood warning areas and education events. 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 (140400007)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (14040)		
<b>Delivery lead:</b>	Dumfries and Galloway 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 (140400014)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (14040)		
<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> <p>Dumfries and Galloway Council along with the Scottish Fire and Rescue Service, SEPA and the Scottish Flood Forum have procured a Flood Pod. The Pod can be deployed to an area at risk of a flood emergency and is filled with flood protection equipment which is issued to the public.</p>		

<b>Action (ID):</b>	<b>PLANNING POLICIES (140330001)</b>		
<b>Objective (ID):</b>	Avoid an overall increase in flood risk (14033) Reduce overall flood risk (14040)		
<b>Delivery lead:</b>	Planning authority		
<b>Status:</b>	<b>Existing</b>	Indicative delivery:	<b>Ongoing</b>
<b>Description:</b>	<p>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.</p>		