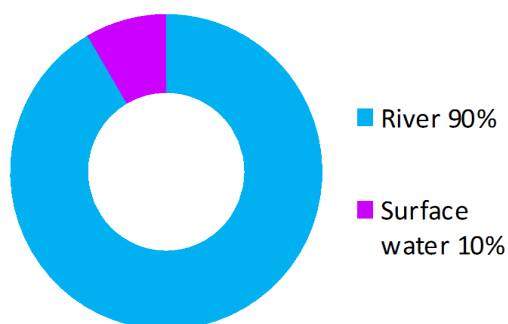


Langholm (Potentially Vulnerable Area 14/04)

Local Plan District	Local authority	Main catchment
Solway	Dumfries and Galloway Council	River Esk (Solway)

Summary of flooding impacts



At risk of flooding

- 180 residential properties
- 20 non-residential properties
- £300,000 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

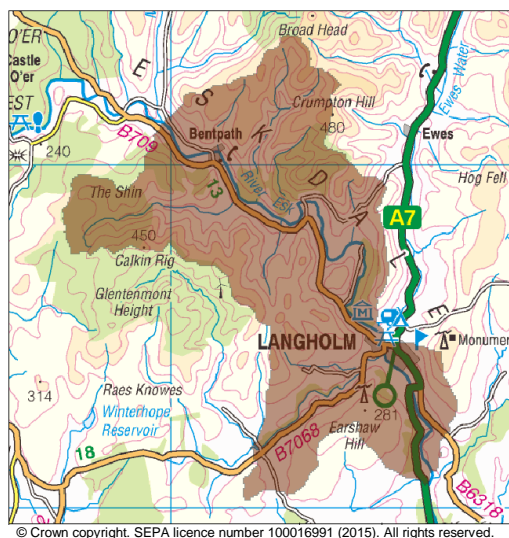
Actions

Langholm (Potentially Vulnerable Area 14/04)

Local Plan District	Local authority	Main catchment
Solway	Dumfries and Galloway Council	River Esk (Solway)

Background

This Potentially Vulnerable Area is located in the east of the Solway Local Plan District. It has almost 70km² and incorporates the town of Langholm (shown below).



There are approximately 180 residential properties and 20 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £300,000.

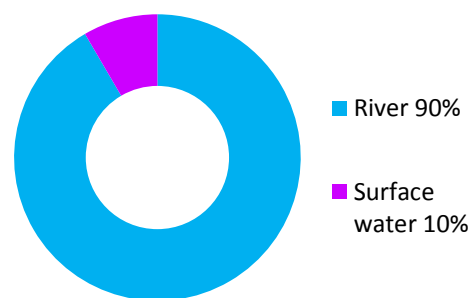


Figure 1: Annual Average Damages by flood source

Summary of flooding impacts

The main catchment is the River Esk (Solway) which flows from the north west to the south east. The Ewes Water flows into Langholm from the north east and joins the Esk in the town centre. The Wauchope Water flows into Langholm from the south-west, joining the Esk downstream of the Ewes Water confluence.

River flooding is primarily from the River Esk and the Ewes Water which may impact residential and non-residential properties in several areas of Langholm. Small sections of the A7 road are also at risk from river and surface water flooding. Field runoff bypassing culvert entrances can contribute to flooding.

Surface water flooding is largely caused by runoff from the steep hillsides above Langholm. Studies indicate capacity issues in the culvert draining the hillside above Holmwood Drive. Flooding can be exacerbated by field runoff to gardens potentially causing internal property damage.

On the east side of the town, drainage from the golf course and fields flows to the River Esk via three culverts. These have become blocked in the past and caused flooding.

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. Most of the receptors at risk of flooding are within Langholm.

Within this Potentially Vulnerable Area it is estimated that climate change will increase the number of residential properties at risk of flooding from approximately 180 to 320 and the number of non-residential properties from approximately 20 to 30.

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. 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 1,400)	10	180	340
Non-residential properties (total 130)	<10	20	30
People	20	390	740
Community facilities	<10 Educational buildings	<10 Educational buildings	<10 Educational buildings
Utilities assets	0	<10	<10
Transport links – roads (km)	2.7 (of which <0.1 is A road)	4.2 (of which 0.1 is A road)	5.1 (of which 0.2 A road)
Environmental designated areas (km ²)	0	0	0
Designated cultural heritage sites	8	9	9
Agricultural land (km ²)	1.1	2.0	2.4

Table 1: Summary of flood impacts¹

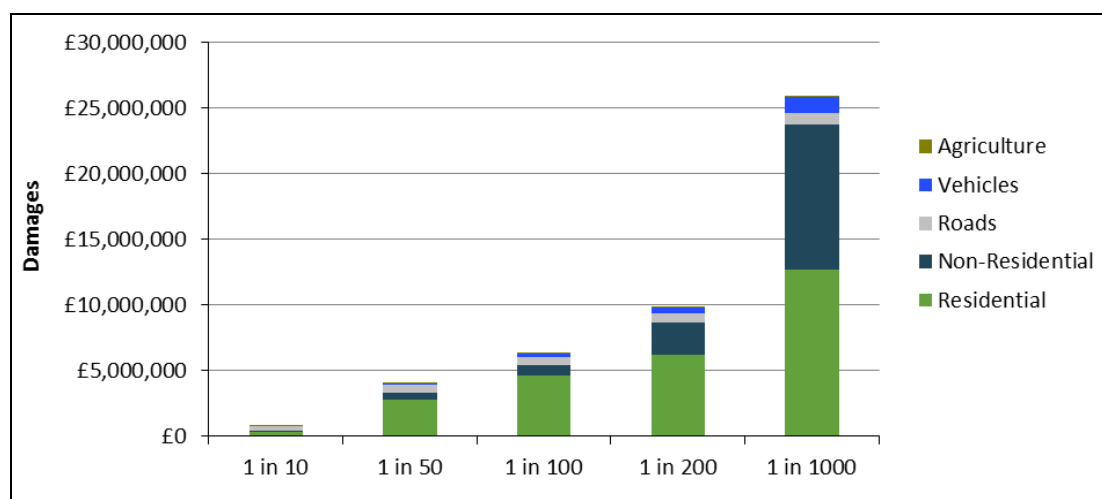


Figure 2: Damages by flood likelihood

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

History of flooding

River flooding has been regularly reported since 24 January 1794. While the flooding has on occasion resulted in significant impacts to people, the vast majority of impacts have been to agricultural land and roads, especially along the A7. River flooding in 1906 and 1990 resulted in the A7 road, local businesses and properties being flooded.

Surface water flooding has contributed to disruption along the A7 in Langholm in August 1994, with drainage issues affecting roads and properties in 2004, 2005, 2006 and 2007. A number of small culverted watercourses in Langholm flooded in 2012 affecting private properties and the A7 Trunk Road.

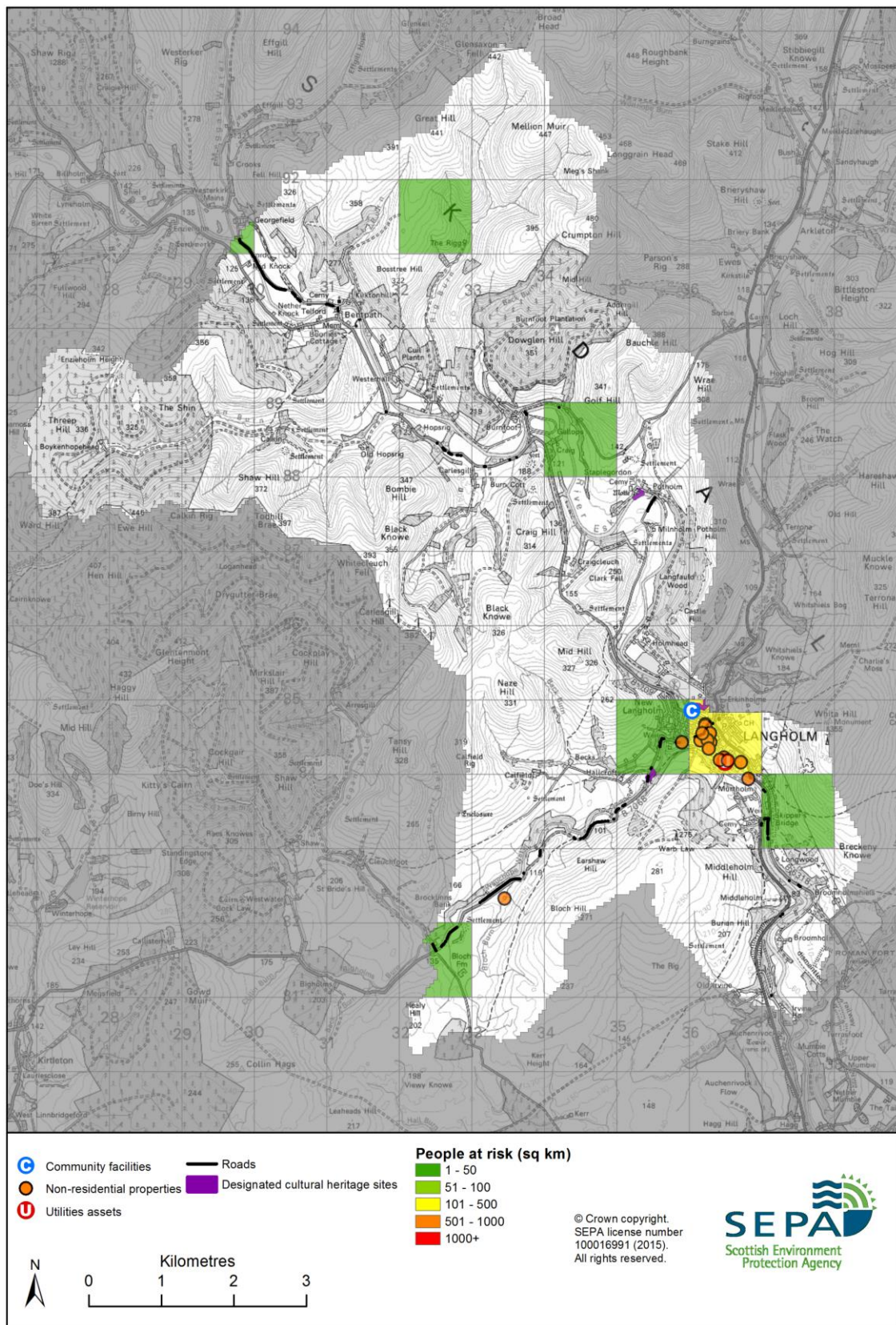
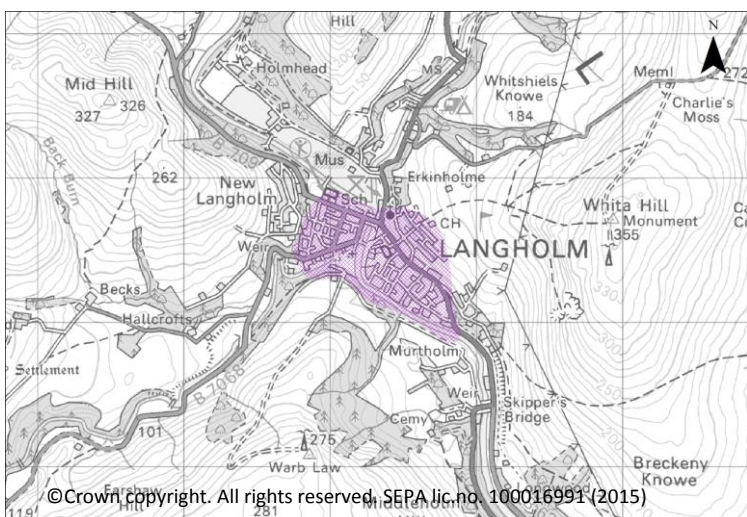


Figure 3: Impacts of flooding

Objectives to manage flooding in Potentially Vulnerable Area 14/04

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 Langholm Potentially Vulnerable Area.

Reduce the risk of river flooding to properties in Langholm	
Indicators:	Target area:
<ul style="list-style-type: none"> 170 residential properties 20 non-residential properties £240,000 Annual Average Damages 	 <p style="font-size: small; text-align: center;">© Crown copyright. All rights reserved. SEPA lic. no. 100016991 (2015)</p>
Objective ID: 14004	

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"> 180 residential properties £300,000 Annual Average Damages
Applies across Solway Local Plan District	Reduce overall flood risk	14040	<ul style="list-style-type: none"> 180 residential properties £300,000 Annual Average Damages
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 14/04

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 Langholm 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 (140040006)				
Objective (ID):	Reduce the risk of river flooding to properties in Langholm (14004)				
Delivery lead:	Dumfries and Galloway Council				
Priority:	National:		Within local authority:		
	24 of 42		3 of 4		
Status:	Under development	Indicative delivery:	2016-2021		
Description:	<p>It is recommended that the council progress work on the proposed flood protection scheme in Langholm. The Langholm Flood Risk Assessment has been completed which identified potential works within Langholm, including construction of flood defences along the River Esk and Wauchope Water.</p> <p>Further work should be carried out to identify the most sustainable combination of actions and further investigation made into the impact of surface water runoff. Design options should take account of the new flood warning scheme and potential use of property level protection.</p>				
Potential impacts					
Economic:	The proposed scheme may benefit 38 residential properties and 29 non-residential properties at risk of flooding in this location, damages avoided are estimated to be £4.1 million. The flood protection scheme has an estimated benefit cost ratio of 2.				
Social:	A reduction in flood risk would have a positive benefit to the health and wellbeing of the community.				
Environmental:	Flood protection schemes can have both positive and negative impacts on the ecological quality of the environment depending on how they are designed. There are no international or national level				

Environmental:	environmental designations that are likely to be impacted by this action. There is likely to be a loss of semi-natural habitat in the footprint and vicinity of the defences. There is the potential for the works to have a negative impact on settings of the Langholm Heritage Conservation Area, Langholm Castle Scheduled Monument and the numerous listed buildings in the area.
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Action (ID):	NEW FLOOD WARNING (140040010)		
Objective (ID):	Reduce the risk of river flooding to properties in Langholm (14004)		
Delivery lead:	SEPA		
Status:	Ongoing	Indicative delivery:	2016-2021
Description:	Continue with the development and implementation of flood warnings on the River Esk at Langholm.		

Action (ID):	STRATEGIC MAPPING AND MODELLING (140400019)		
Objective (ID):	Reduce overall flood risk (14040)		
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):	FLOOD FORECASTING (140400009)		
Objective (ID):	Reduce overall flood risk (14040)		
Delivery lead:	SEPA		
Status:	Existing	Indicative delivery:	Ongoing
Description:	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.		

Action (ID):	SELF HELP (140400011)		
Objective (ID):	Reduce overall flood risk (14040)		
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> <p>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.</p>		

Action (ID):	AWARENESS RAISING (140400013)		
Objective (ID):	Reduce overall flood risk (14040)		
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>SEPA will engage with communities through the Scottish Borders Council Resilient Communities initiative</p> <p>Local authorities will be undertaking additional awareness raising activities. Further details will be set out in the Local FRM Plan.</p>		

Action (ID):	MAINTENANCE (140400007)		
Objective (ID):	Reduce overall flood risk (14040)		
Delivery lead:	Dumfries and Galloway 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 (140400014)		
Objective (ID):	Reduce overall flood risk (14040)		
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. 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.		

Action (ID):	PLANNING POLICIES (140330001)		
Objective (ID):	Avoid an overall increase in flood risk (14033) Reduce overall flood risk (14040)		
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.		