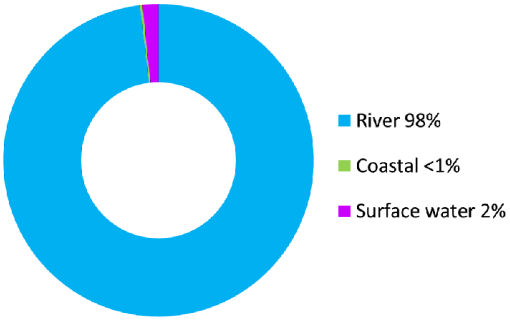
Newton Stewart (Potentially Vulnerable Area 14/12)

Local Plan District	Local authority	Main catchment
Solway	Dumfries and Galloway Council	River Cree

Summary of flooding impacts



At risk of flooding

- 210 residential properties
- 70 non-residential properties
- £540,000 Annual Average Damages

(damages by flood source shown left)

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.

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

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Local Plan District	Local authority	Main catchment
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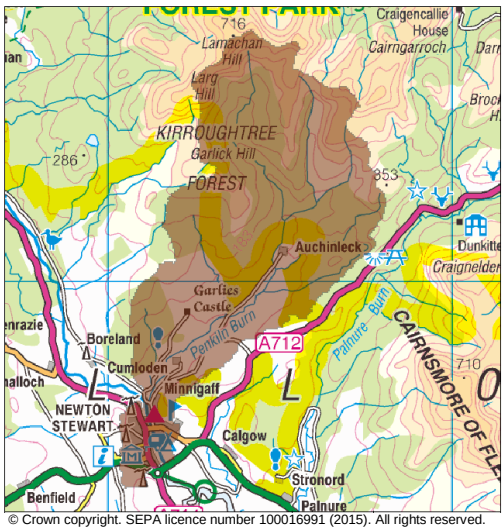
Background

This Potentially Vulnerable Area is located to the west of the Solway Local Plan District. It incorporates the settlements of Newton Stewart, Minnigaff and Auchinleck (shown below). It is approximately 50km^2.



There are approximately 210 residential properties and 70 non-residential properties at risk of flooding. The Annual Average Damages are approximately £540,000.

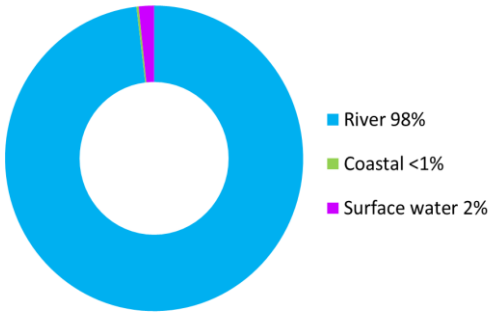


Figure 1: Annual Average Damages by flood source

Summary of flooding impacts

The River Cree originates in the north of Solway Local Plan District and flows south through the centre of Newton Stewart; this is the main source of risk in the area. The Penkiln Burn originates in the north and flows south west towards Minnigaff where it joins the River Cree. The upper reaches of Penkiln Burn are within Kirroughtree Forest above Auchinleck.

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 properties at risk of flooding lie within Newton Stewart and Minnigaff.

Within this Potentially Vulnerable Area it is estimated that climate change will increase the number of residential properties at risk of flooding from approximately 210 to 290 and the number of non-residential properties from approximately 70 to 90.

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 75% of the damages. Non-residential properties also contribute a notable portion of the damages.

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 1,800)	100	210	240
Non-residential properties (total 220)	20	70	90
People	200	450	540
Community facilities	<10 Educational buildings	<10 Includes: educational buildings and emergency services	<10 Includes: educational buildings and emergency services
Utilities assets	<10	<10	<10
Transport links - roads (km)	0.2 (of which <0.1 is A road)	0.7 (of which <0.1 is A road)	1.0 (of which <0.1 is A road)
Environmental designated areas (km^2)	<0.1	<0.1	<0.1
Designated cultural heritage sites	2	2	3
Agricultural land (km^2)	0.1	0.2	0.9

Table 1: Summary of flood impacts[1]

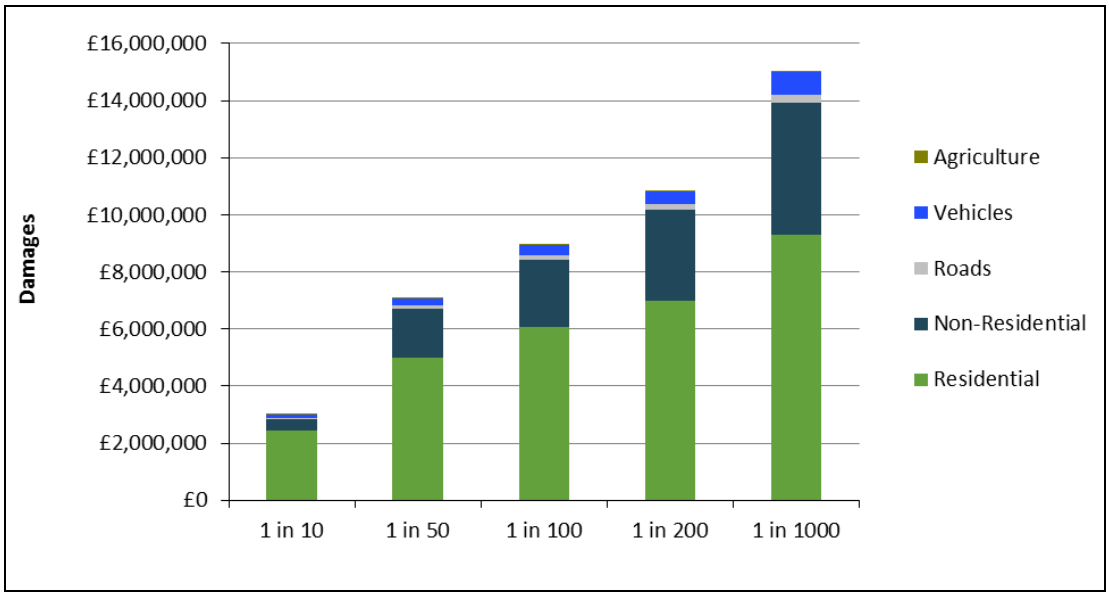


Figure 2: Damages by flood likelihood

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

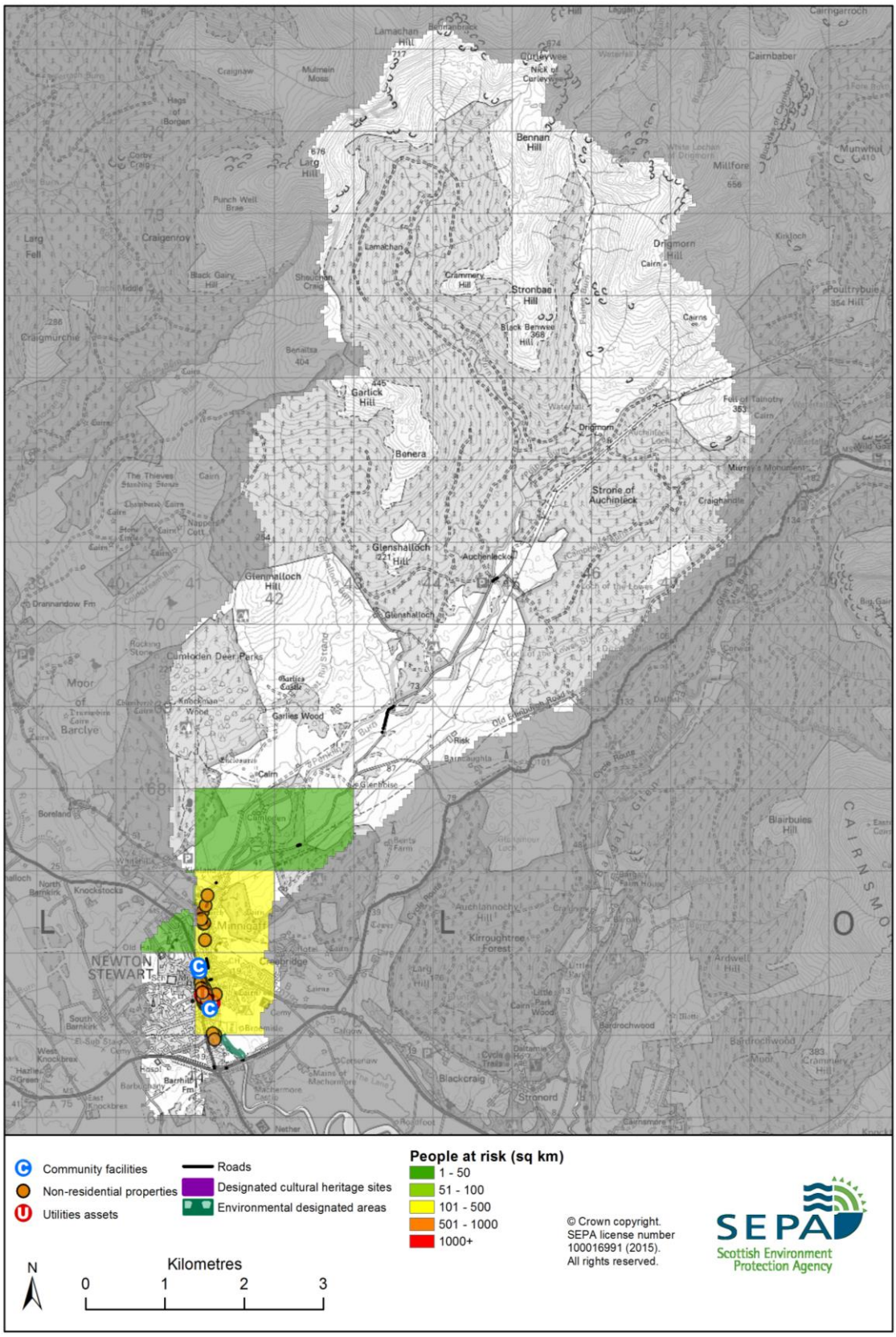


Figure 3: Impacts of flooding

History of flooding

All recorded flooding to properties has occurred in the vicinity of Newton Stewart and Minnigaff. Flooding was recorded on 30 December 2013 and on 19 November 2012 the highest observed water level in the River Cree occurred when it is thought that around 50 properties were affected. The return period has been identified as between 1 in 50 to 1 in 85 years. Two further notable floods in Newton Stewart occurred in October 1988 and August 1960. The former impacted agricultural land, roads and a community facility, while agricultural properties were washed away along with a road bridge in the 1960 flood.

The most recent reported surface water flood was in 2002, which resulted in flooding of the A714 north and B7079 Kirroughtree. Floods in 1950 and 1878 resulted in businesses, residential properties and roads being flooded.

There has been one coastal flood recorded, which occurred in 1854 and resulted in the flooding of agricultural land.

Objectives to manage flooding in Potentially Vulnerable Area 14/12

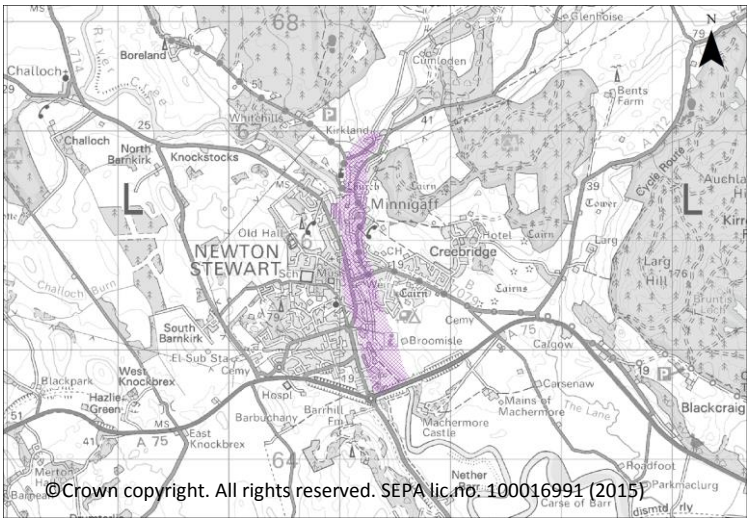
Objectives provide a common goal and shared ambition for managing floods. These objectives have been set by SEPA and agreed with flood risk management authorities following consultation. They were identified through an assessment of the underlying evidence of the causes and impacts of flooding. Target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

Reduce the risk of river flooding to properties in Newton Stewart

Indicators:

- 200 residential properties
- 70 non-residential properties
- £520,000 Annual Average Damages

Target area:



Objective ID: 14016

Target area	Objective	ID	Indicators within PVA
Applies across Solway Local Plan District	Avoid an overall increase in flood risk	14033	• 210 residential properties • £540,000 Annual Average Damages
Applies across Solway Local Plan District	Reduce overall flood risk	14040	• 210 residential properties • £540,000 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 14/12

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 Newton Stewart 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** (140160006)		
Objective (ID):	Reduce the risk of river flooding to properties in Newton Stewart (14016)		
Delivery lead:	Dumfries and Galloway Council		
Priority:	National:	Within local authority:	
	25 of 42	**4 of 4**	
Status:	**Under development**	Indicative delivery:	**2016-2021**
Description:	It is recommended that the council progress work on the proposed flood protection scheme in Newton Stewart. The Newton Stewart Flood Study identified potential works, including construction of direct defences along the River Cree and Penkiln Burn. The study is being further refined to consider actions that increase the level of protection offered. This includes raising of a footbridge over the River Cree in combination with increased direct defences. Other actions may also be considered to select the most sustainable combination of actions.		
Potential impacts			
Economic:	The proposed scheme may benefit 62 residential properties and 63 non-residential properties at risk of flooding in this location, damages avoided are estimated to be £12 million. The economic impact of natural flood management actions is difficult to define. However, these actions can reduce flood risk for high likelihood events. In this location, it has been estimated that 25 residential and non-residential properties could potentially benefit from natural flood management actions. The flood protection scheme has an estimated benefit cost ratio of 1.6.		

Social:	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 scheme area. In addition there are two utilities which have been identified as potentially benefitting from this action. Natural flood management actions can restore and enhance natural environments and create opportunities for recreation and tourism. There may be changes in visual amenity and land use as a result of this action.
Environmental:	Flood protection works can have both positive and negative impacts on the ecological quality of the environment depending on how they are designed. There is potential for impacts on habitats and changes to channel morphology. Opportunities to mitigate any environmental impacts should be identified as part of the study through the design and timing of works.

Action (ID):	**NEW FLOOD WARNING** (140400010)		
Objective (ID):	Reduce overall flood risk (14040)		
Delivery lead:	SEPA		
Status:	**Ongoing**	Indicative delivery:	**2016-2021**
Description:	Continue with the development and implementation of the Newton Stewart flood warning area on the River Cree.		

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):	**COMMUNITY FLOOD ACTION GROUPS** (140160012)		
Objective (ID):	Reduce the risk of river flooding to properties in Newton Stewart (14016)		
Delivery lead:	Community		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	The local community set up the Newton Stewart Flood Action group, to raise awareness of flood risk in the area.		

Action (ID):	**SELF HELP** (140400011)		
Objective (ID):	Reduce overall flood risk (14040)		
Delivery lead:	—		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	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.		

Action (ID):	**AWARENESS RAISING** (140400013)		
Objective (ID):	Reduce overall flood risk (14040)		
Delivery lead:	Responsible authorities		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	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. SEPA will undertake flood risk education and awareness raising activities. In addition, SEPA will engage with community resilience groups and participate in property level protection events delivered by the Scottish Flood Forum where possible. Local authorities will be undertaking additional awareness raising activities. Further details will be set out in the Local FRM Plan.		

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.		