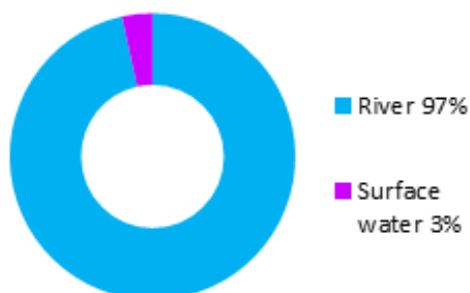


North of Brechin (Potentially Vulnerable Area 07/03)

Local Plan District	Local authority	Main catchment
Tay Estuary and Montrose Basin	Aberdeenshire Council, Angus Council	River North Esk (Tayside)

Summary of flooding impacts



At risk of flooding

- 20 residential properties
- 20 non-residential properties
- £110,000 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>
<i>Flood protection study</i>	<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

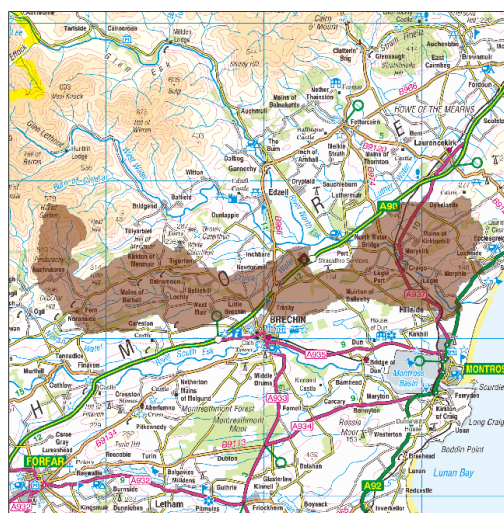
Actions

North of Brechin (Potentially Vulnerable Area 07/03)

Local Plan District	Local authority	Main catchment
Tay Estuary and Montrose Basin	Aberdeenshire Council, Angus Council	River North Esk (Tayside)

Background

This Potentially Vulnerable Area is 124km². It is situated at the mouth of the River North Esk catchment where it meets the North Sea (shown below). It includes Marykirk and the main watercourses are the River North Esk and its tributaries the Cruick Water and Keithock Burn.



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There is a risk of river flooding and surface water flooding, with the majority of damages caused by river flooding.

There are approximately 20 residential properties and 20 non-residential properties at risk of flooding. The Annual Average Damages are approximately £110,000.

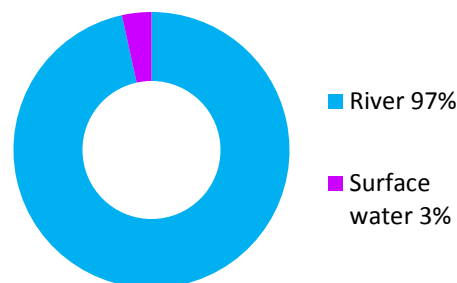


Figure 1: Annual Average Damages by flood source

Summary of flooding impacts

Work carried out since the National Flood Risk Assessment in 2011 has concluded that the risk of flooding in this Potentially Vulnerable Area is now relatively low. The designation of this Potentially Vulnerable Area will be reviewed in the next flood risk management planning cycle.

Flood risk is spread out across the Potentially Vulnerable Area and flooding occurs to small pockets of land adjacent to the River North Esk and its tributaries.

The risk of flooding to people, 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. For this Potentially Vulnerable Area the highest damages are to residential properties followed by damages to non-residential properties. The Dundee to Aberdeen railway line is also notably impacted. The location of the impacts of flooding is shown in Figure 3.

The figures presented for Annual Average Damages include damages to residential properties, non-residential properties, transport and agriculture.

	1 in 10 High likelihood	1 in 200 Medium likelihood	1 in 1000 Low likelihood
Residential properties (total 910)	10	20	20
Non-residential properties (total 160)	10	20	20
People	20	40	50
Community facilities	0	0	0
Utilities assets	<10	<10	<10
Transport links (excluding minor roads)	3 A roads, 1 B road at 13 locations 1 Railway route at 18 locations: Dundee to Aberdeen	3 A roads, 1 B road at 16 locations 1 Railway route at 18 locations: Dundee to Aberdeen	3 A roads, 1 B road at 17 locations 1 Railway route at 18 locations: Dundee to Aberdeen
Environmental designated areas (km ²)	0	0	0
Designated cultural heritage sites	7	7	7
Agricultural land (km ²)	2.5	4.1	4.8

Table 1: Summary of flooding impacts

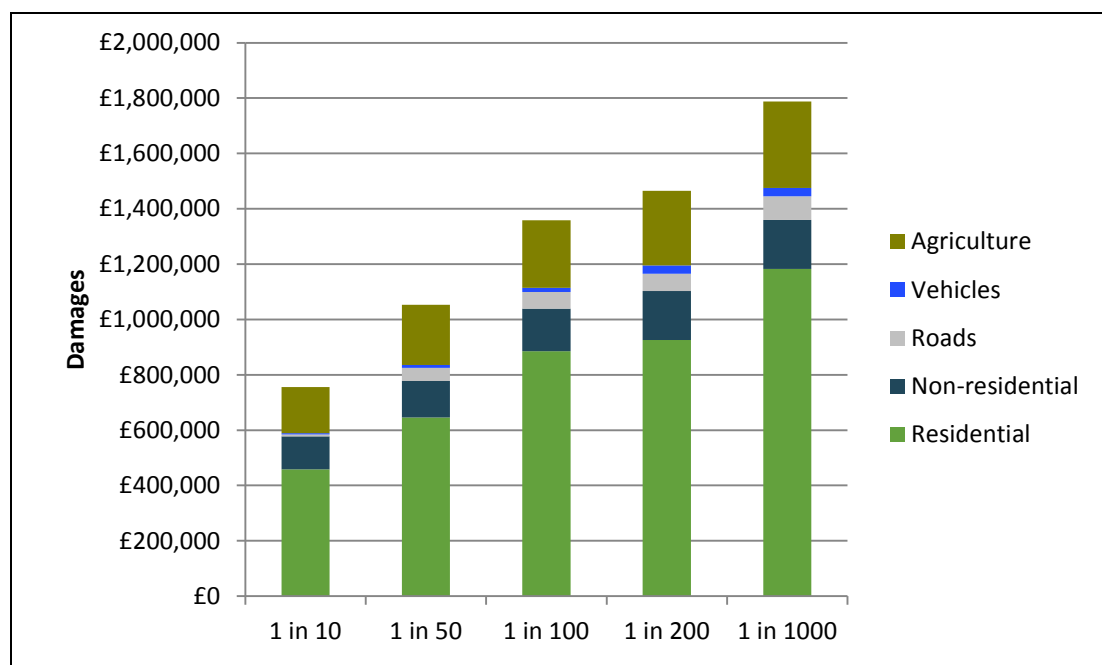


Figure 2: Damages by flood likelihood

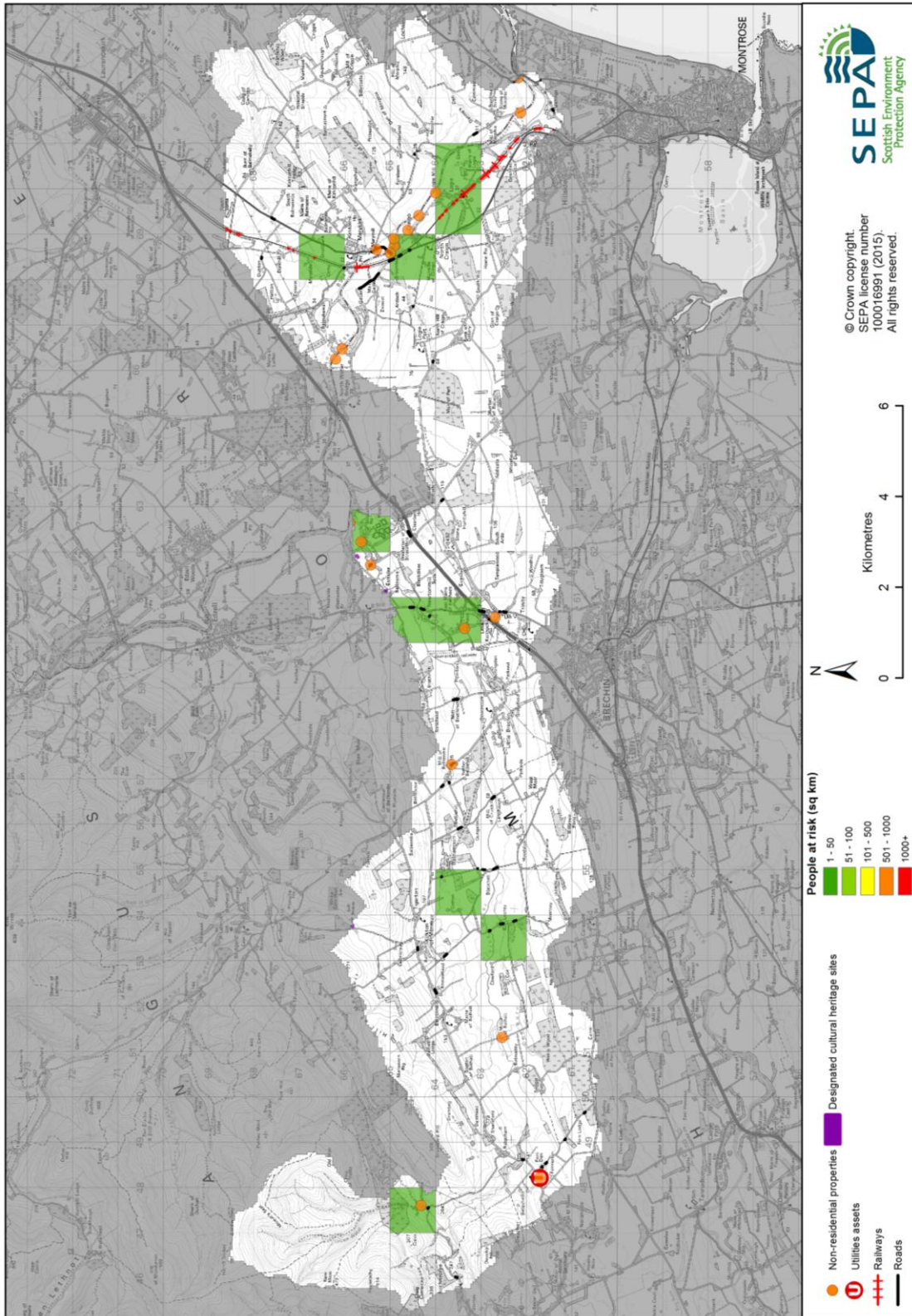


Figure 3: Impacts of flooding

History of flooding

One significant flood has been recorded in this Potentially Vulnerable Area, which occurred on 2 November 2002. The highest river level recorded at the SEPA gauging station on the North Esk at Logie Mill was 4.225m above normal level. The peak flow of 636 m³/s recorded at this time is the highest flow at this gauging station since the start of recording in 1983. People were evacuated in Marykirk and Logie by the emergency services.

Objectives to manage flooding in Potentially Vulnerable Area 07/03

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 the North of Brechin Potentially Vulnerable Area.

Target area	Objective	ID	Indicators within PVA
Applies across Tay Estuary and Montrose Basin Local Plan District	Avoid an overall increase in flood risk	7001	<ul style="list-style-type: none"> • 20 residential properties • £110,000 Annual Average Damages
Applies across Tay Estuary and Montrose Basin Local Plan District	Reduce overall flood risk	7054	<ul style="list-style-type: none"> • 20 residential properties • £110,000 Annual Average Damages
Applies across Tay Estuary and Montrose Basin 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 07/03

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 the North of Brechin 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>
<i>Flood protection study</i>	<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):	STRATEGIC MAPPING AND MODELLING (70540016)		
Objective (ID):	Reduce overall flood risk (7054)		
Delivery lead:	SEPA		
Status:	Not started	Indicative delivery:	2016-2021
Description:	SEPA will seek to develop flood mapping in the Cruick Water and Lower North Esk areas to improve understanding of flood risk. The extent and timing of improvements will depend on detailed scoping and data availability. SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 1,100km ² of improved surface water data is currently available within this Local Plan District.		

Action (ID):	STRATEGIC MAPPING AND MODELLING (70540019)		
Objective (ID):	Reduce overall flood risk (7054)		
Delivery lead:	Scottish Water		
Status:	Not started	Indicative delivery:	2016-2021
Description:	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.		

Action (ID):	MAINTAIN FLOOD WARNING (70540030)		
Objective (ID):	Reduce overall flood risk (7054)		
Delivery lead:	SEPA		
Status:	Existing	Indicative delivery:	Ongoing
Description:	Continue to maintain the Inchbare, Marykirk and the Logie Mill and Craigo flood warning areas which are part of the North Esk river flood warning scheme.		

Action (ID):	FLOOD FORECASTING (70540009)		
Objective (ID):	Reduce overall flood risk (7054)		
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>In this area Aberdeenshire Council also owns and operates two river level gauges on telemetry for Marykirk.</p>		

Action (ID):	SELF HELP (70540011)		
Objective (ID):	Reduce overall flood risk (7054)		
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>Aberdeenshire Council provides a range of flood protection products at cost price with free delivery across Aberdeenshire, available for all types of flooding.</p>		

Action (ID):	AWARENESS RAISING (70540013)		
Objective (ID):	Reduce overall flood risk (7054)		
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 (70540007)		
Objective (ID):	Reduce overall flood risk (7054)		
Delivery lead:	Aberdeenshire Council and Angus Council, asset / land managers		
Status:	Existing	Indicative delivery:	Ongoing
Description:	<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>		

Action (ID):	EMERGENCY PLANS/RESPONSE (70540014)		
Objective (ID):	Reduce overall flood risk (7054)		
Delivery lead:	Category 1 and 2 Responders		
Status:	Existing	Indicative delivery:	Ongoing
Description:	<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>Angus Council operates an emergency response plan in areas of high flood risk.</p>		

Action (ID):	PLANNING POLICIES (70010001)		
Objective (ID):	Avoid an overall increase in flood risk (7001) Reduce overall flood risk (7054)		
Delivery lead:	Planning authority		
Status:	Existing	Indicative delivery:	Ongoing
Description:	<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>		