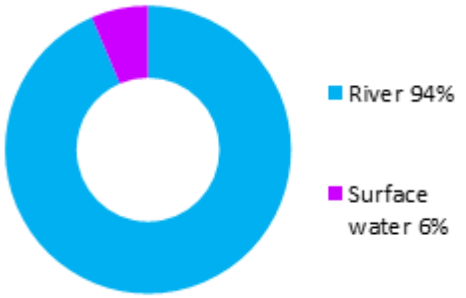
Luncarty, Stanley, Bankfoot, Dunkeld and Birnam (Potentially Vulnerable Area 08/08)

Local Plan District	Local authority	Main catchment
Tay	Perth and Kinross Council	River Tay

Summary of flooding impacts



At risk of flooding

- 360 residential properties
- 130 non-residential properties
- £740,000 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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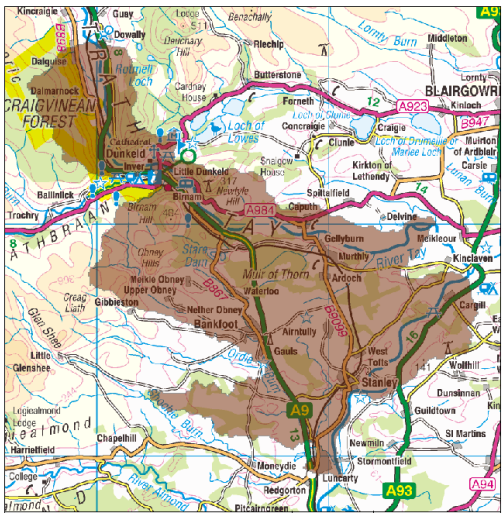
Background

This Potentially Vulnerable Area is 141km^2. It is situated in the lower reaches of the River Tay catchment and includes Dunkeld, Birnam, Bankfoot, Stanley and Luncarty. The main watercourse is the River Tay.



The area has a risk of surface water and river flooding. The majority of flood damages are caused by river flooding.

There are approximately 360 residential properties and 130 non-residential properties at risk of flooding. The Annual Average Damages from flooding are approximately £740,000.

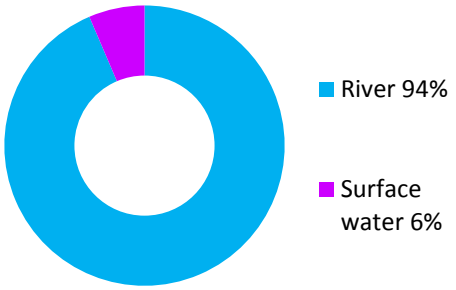


Figure 1: Annual Average Damages by flood source

Summary of flooding impacts

The highest risk of flooding is in Dunkeld from the River Tay and River Braan, and in Bankfoot from the Garry Burn and Glenshauch Burn.

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 Perth to Inverness 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 3,400)	80	360	500
Non-residential properties (total 750)	30	130	170
People	180	790	1,100
Community facilities	0	<10 Educational buildings	<10 Educational buildings
Utilities assets	<10	<10	<10
Transport links (excluding minor roads)	3 A roads, 3 B roads at 62 locations 1 Railway route at 32 locations: Perth to Inverness	3 A roads, 3 B roads at 81 locations 1 Railway route at 33 locations: Perth to Inverness	3 A roads, 3 B roads at 85 locations 1 Railway route at 33 locations: Perth to Inverness
Environmental designated areas (km^2)	4.9	5.5	5.6
Designated cultural heritage sites	11	14	17
Agricultural land (km^2)	3.1	8.0	9.5

Table 1: Summary of flooding impacts

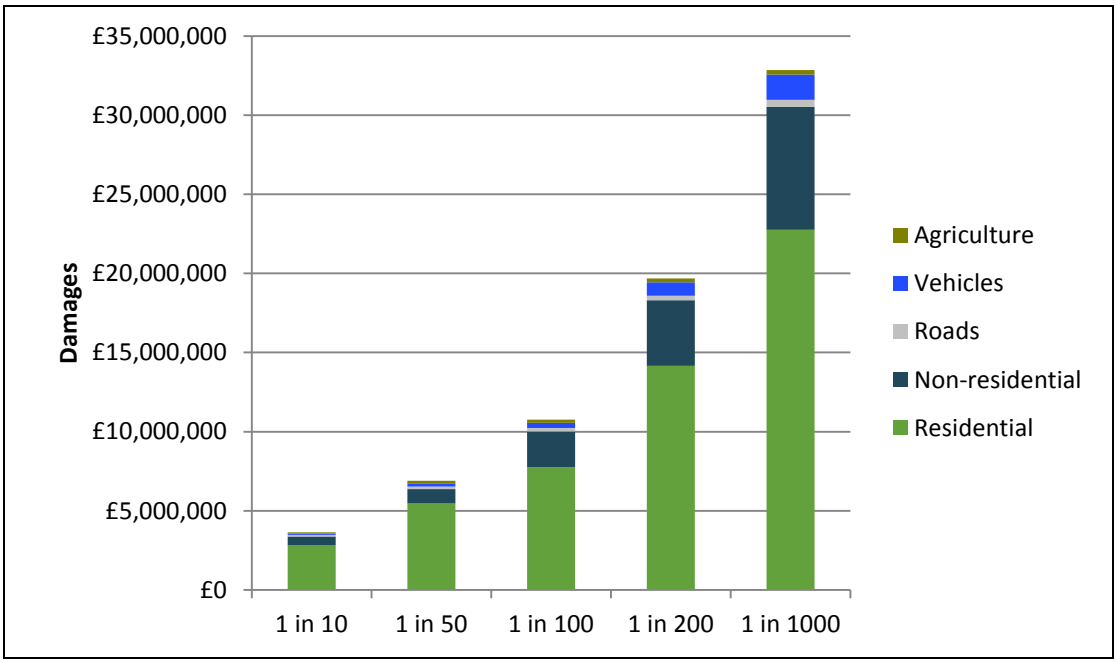


Figure 2: Damages by flood likelihood

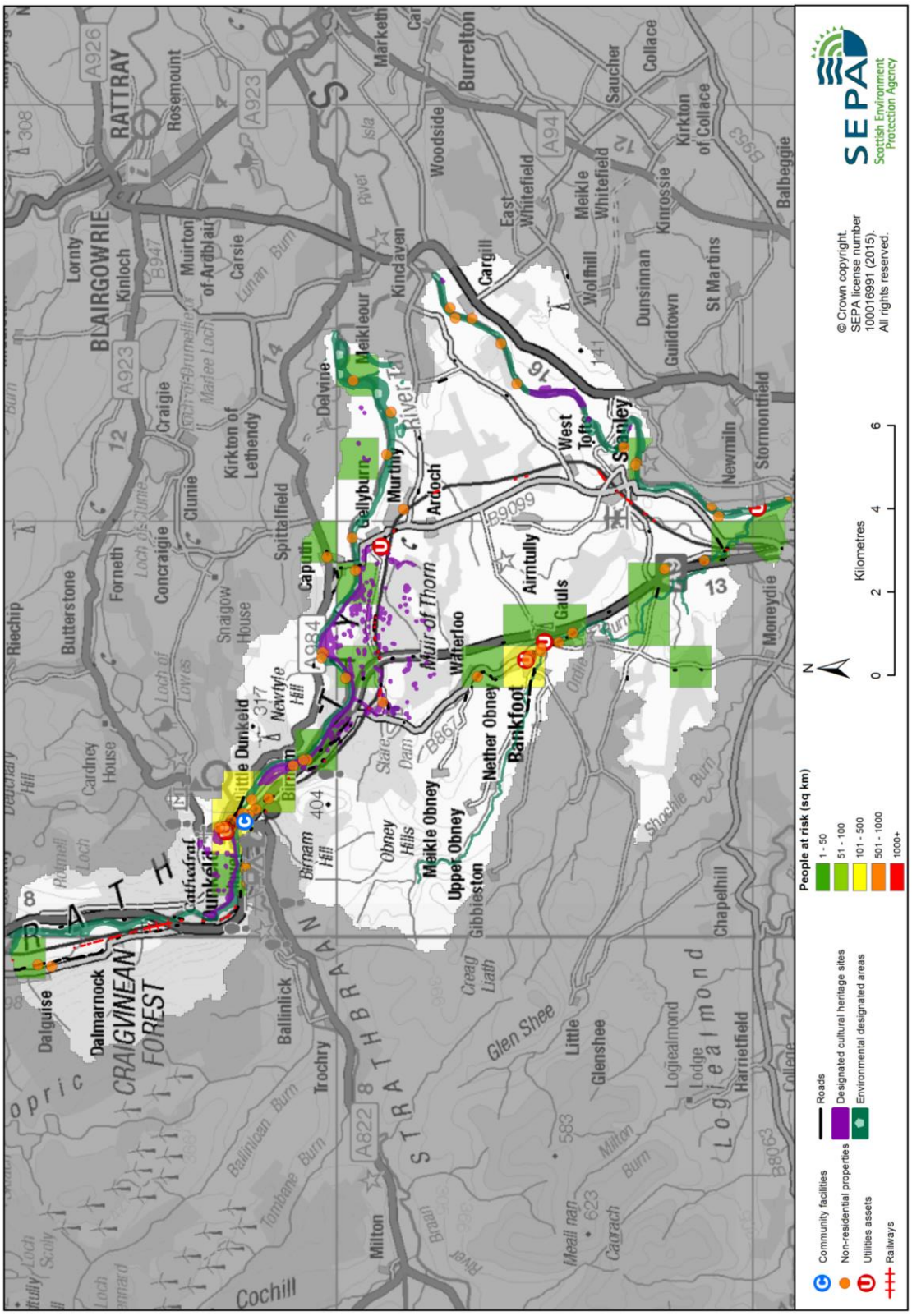


Figure 3: Impacts of flooding

History of flooding

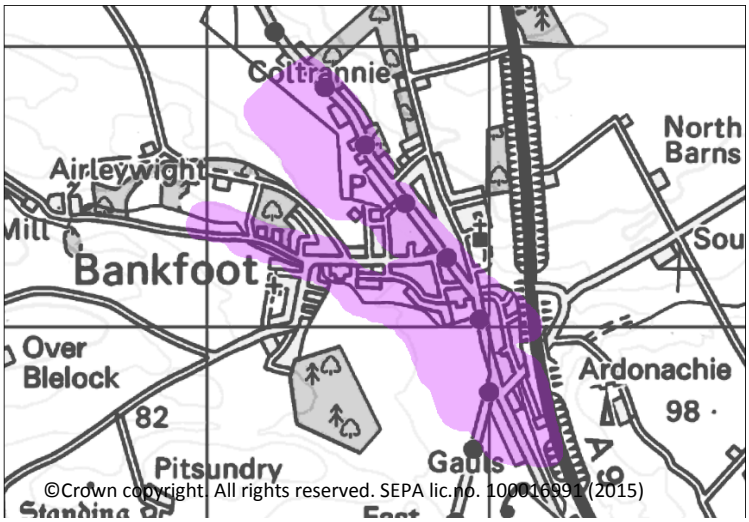
This area has a long history of flooding from the River Tay and its tributaries. The following floods have been recorded:

- 17 July 2015: Heavy rain caused serious flooding in parts of Scotland, including Bankfoot. It has been reported that 20 properties were affected by flooding from the Garry Burn.
- 11 August 2004: 50 people evacuated in Bankfoot due to flooding from the Garry Burn. Properties were flooded on Prieston Road and the boundary wall at Church Hall on Church Lane was destroyed. In Dunkeld, flooding from the Spoutwell Burn and an associated tributary caused flooding to approximately 8-10 properties in the town centre.
- December 1996: Four properties affected in Dalguise due to flooding from the River Tay and extensive damage was caused to the Perth to Inverness railway line.
- 16 January 1993: Widespread flooding across the Tay catchment resulted in over £20 million of damage. The flood is known to have affected Bankfoot and Dalguise. Peak flow at Ballathie Gauging Station was recorded at 2269 m^3/s during this flood event.
- 7 February 1990: Communication networks were disrupted as a result of flooding in the Tay and Earn valleys. Properties, roads and railways were also damaged.
- 24 May 1984: Localised flooding in Bankfoot caused by very heavy hail and rapid thaw. Approximately 5-10 properties flooded on Main Street and Tulliebelton Place.
- 27 January 1961: Heavy overnight rain and quick thaw of lying snow caused flooding along the Garry Burn in Bankfoot. The local primary school and some local farm cottages were affected.
- 17 February 1950: Communication networks were disrupted and properties and several roads were flooded within the Upper Tay. The flood affected a large part of Perth and Kinross.

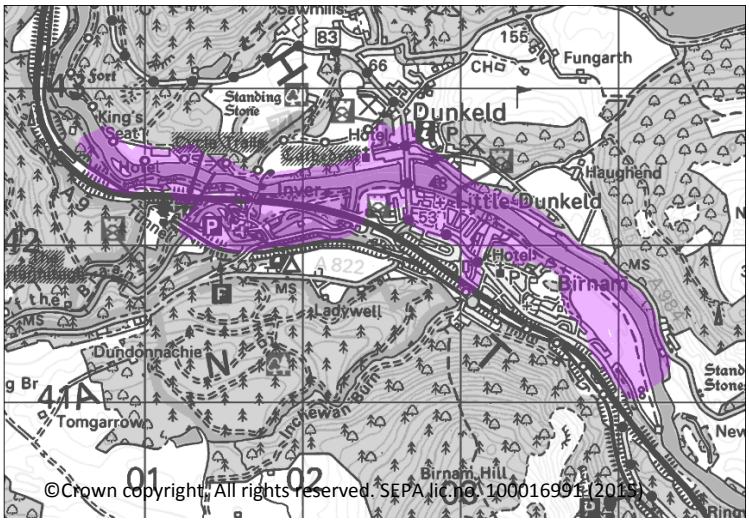
Objectives to manage flooding in Potentially Vulnerable Area 08/08

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 Luncarty, Stanley, Bankfoot, Dunkeld and Birnam Potentially Vulnerable Area.

Reduce economic damages to residential and non-residential properties in Bankfoot from the Garry Burn and Glenshauch Burn

Indicators:	Target area:
• £240,000 Annual Average Damages from residential properties • £17,000 Annual Average Damages from non-residential properties	
Objective ID: 8016	

Reduce economic damages to residential and non-residential properties in Dunkeld from River Tay and River Braan

Indicators:	Target area:
• £190,000 Annual Average Damages from residential properties • £50,000 Annual Average Damages from non-residential properties	
Objective ID: 8017	

Target area	Objective	ID	Indicators within PVA
Dunkeld, Luncarty and Bankfoot	Reduce the physical risk, or disruption risk, related to areas of the A9 at risk of flooding	8302	• 750m of road at 21 locations on the A9
Applies across Tay Local Plan District	Avoid an overall increase in flood risk	8001	• 360 residential properties • £740,000 Annual Average Damages
Applies across Tay Local Plan District	Reduce overall flood risk	8041	• 360 residential properties • £740,000 Annual Average Damages
Applies across Tay 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 08/08

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 Luncarty, Stanley, Bankfoot, Dunkeld and Birnam 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** (8302021)		
Objective (ID):	Reduce the physical risk, or disruption risk, related to areas of the A9 at risk of flooding (8302)		
Delivery lead:	Transport Scotland		
Status:	**Under development**	Indicative delivery:	**2022-2027**
Description:	Transport Scotland will carry out civil engineering work which will reduce the risk of flooding on identified sections of the trunk road.		

Action (ID):	**FLOOD PROTECTION STUDY** (80170005)		
Objective (ID):	Reduce economic damages to residential and non-residential properties in Dunkeld from River Tay and River Braan (8017)		
Delivery lead:	Perth and Kinross Council		
Priority:	National:	Within local authority:	
	67 of 168	**4 of 6**	
Status:	**Not started**	Indicative delivery:	**2016-2021**
Description:	A flood protection study has been recommended for Dunkeld to assess whether modification of conveyance, direct flood defences and sediment management could reduce flood risk. The study should build on previous studies and take a staged approach to allow collaboration with SEPA on strategic mapping and modelling for the Tay. The study should take a catchment approach and consider the potential benefits and disbenefits and interaction between actions		

	upstream and downstream.
Potential impacts	
Economic:	The study could benefit 179 residential properties and 74 non-residential properties at risk of flooding in this location, with potential damages avoided of up to £5.8 million.
Social:	Social impacts will depend on the outcome of the study and recommended actions. A reduction in flood risk would have a positive benefit to the health and wellbeing of the community. In addition there is one educational building located within the study area.
Environmental:	Flood protection studies should consider the positive and negative impacts of proposed actions on the ecological quality of the environment and designated sites. Where possible opportunities to enhance and restore the environment should be sought, for example through natural flood management. To be in accord with the FRM Strategy, the responsible authority should seek to ensure as part of the study that the action will not have an adverse effect on the integrity of the River Tay Special Area of Conservation. Conservation areas, National Scenic Areas, scheduled monuments, Gardens and designed landscapes, listed buildings and ancient woodlands are also present in the study area and could be positively or negatively impacted.

Action (ID):	**STRATEGIC MAPPING AND MODELLING** (80410016)		
Objective (ID):	Reduce overall flood risk (8041)		
Delivery lead:	SEPA		
Status:	**Not started**	Indicative delivery:	**2016-2021**
Description:	SEPA will seek to develop flood mapping in the River Tay area to improve understanding of 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.		

Action (ID):	**STRATEGIC MAPPING AND MODELLING** (80410019)		
Objective (ID):	Reduce overall flood risk (8041)		
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** (80410030)		
Objective (ID):	Reduce overall flood risk (8041)		
Delivery lead:	SEPA		
Status:	**Existing**	Indicative delivery:	**Ongoing**
Description:	Continue to maintain the Boat of Murthly, Caputh to Kinclaven, Dalguise, Dunkeld and Burnmouth Road, Logierait to Victoria Bridge and the Stanley Mills flood warning areas which are part of the Tay river flood warning scheme.		

Action (ID):	**FLOOD FORECASTING** (80410009)		
Objective (ID):	Reduce overall flood risk (8041)		
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** (80410011)		
Objective (ID):	Reduce overall flood risk (8041)		
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. Perth and Kinross Council is piloting a project for flood protection products for properties in flood risk areas.		

Action (ID):	**AWARENESS RAISING** (80410013)		
Objective (ID):	Reduce overall flood risk (8041)		
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. 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.		

Action (ID):	**MAINTENANCE** (80410007)		
Objective (ID):	Reduce overall flood risk (8041)		
Delivery lead:	Perth and Kinross 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** (80410014)		
Objective (ID):	Reduce overall flood risk (8041)		
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.		

Action (ID):	**PLANNING POLICIES** (80010001)		
Objective (ID):	Avoid an overall increase in flood risk (8001) Reduce overall flood risk (8041)		
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.		