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Cabinet

Additional information:

Appendix 2 referred to in report to Cabinet, 10 May 2016, entitled Local Flood Risk Management Plan

Authorised By	Monica Paterson
Designation	Depute Chief Executive
Date	29/04/16

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Musselburgh (Potentially Vulnerable Area 10/21)

Local Plan District	Local authority	Main catchment
Forth Estuary	The City of Edinburgh Council, East Lothian Council, Midlothian Council	Edinburgh coastal

Background

This Potentially Vulnerable Area is 12km² and is part of the Almond and Edinburgh Group catchment. This is a small, partially urbanised area covering the town of Musselburgh. The main watercourse is the River Esk which passes through the centre of Musselburgh before discharging into the Firth of Forth at Fisherrow Sands.



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There are approximately 1,300 residential properties and 280 non-residential properties at risk of flooding. The Annual Average Damages from flooding are approximately £3.3 million.

The majority of damages are caused by river flooding.

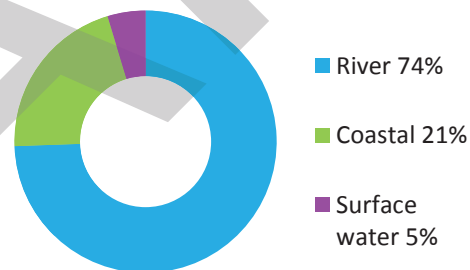


Figure 1: Annual Average Damages by flood source. *Reproduced from Forth Estuary Flood Risk Management Strategy, SEPA (December 2015).*

Summary of flooding impacts

The highest risk of river flooding is from the River Esk to Musselburgh. The highest risk of surface water flooding is in Wallyford and Pinkie Brae in Musselburgh and the highest risk of coastal flooding is from the Firth of Forth to Musselburgh and Inveresk.

Further details of the risk of flooding to people and property, as well as to community facilities, utilities, the transport network, designated sites and agricultural land is available in the Flood Risk Management Strategy for Forth Estuary, (<http://apps.sepa.org.uk/FRMStrategies/forth-estuary.html>), search 'Musselburgh (Potentially Vulnerable Area 10/21)'

History of flooding

The following significant floods have been recorded in this area:

- 30 March 2010: A tidal surge coinciding with the highest mean tides of the year caused extensive flooding along the east coast of Scotland, with the Firth of Forth being one of the worst affected areas. Locations within this coastal area affected included Leith, Musselburgh, Prestonpans, Port Seton, Dunbar and North Berwick. Impacts included flooding of properties, damage to harbours, seawalls and roads.
- 13 August 1948: Evacuation required in Musselburgh after flooding from the River Esk occurred in Eskside West, Eskside East, Shorthope Street, Millhill and areas of the High Street.

There is also a history of groundwater flooding in Musselburgh, particularly around the Pinkie area.

Objectives to manage flooding in Musselburgh

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. The objectives below have been set for the Musselburgh Potentially Vulnerable Area.

- Reduce economic damages to residential and non-residential properties and risk to people in Musselburgh caused by flooding from the River Esk and coastal flooding (Objective ID: 10075, 10076);
- Reduce economic damages and number of residential properties at risk of surface water flooding in Edinburgh, Musselburgh, Penicuik, Lasswade, Loanhead, Newtongrange and Dalkeith where practical (Objective ID: 10052);
- Avoid an overall increase in flood risk (Objective ID: 10001);
- Reduce overall flood risk (Objective ID: 10099);
- 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 flood risk and deliver the objectives are shown in the following section.

Actions to manage flooding in Musselburgh

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. The actions shaded below have been selected as the most appropriate for Musselburgh 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 Policy

The delivery of selected actions over the six-year plan cycle is summarised by year below.

Delivery of selected actions					
Year 1 (2016/17)	Year 2 (2017/18)	Year 3 (2018/19)	Year 4 (2019/20)	Year 5 (2020/21)	Year 6 (2021/22)
Flood protection scheme/works					
Community flood action groups					
					Natural flood management study
Maintain flood warning					
Awareness raising					
Surface water plan/study					
Emergency plans/response					
Strategic mapping and modelling (SEPA)					
Strategic mapping and modelling (Scottish Water)					
Flood forecasting					
Self help					
Maintenance					
Planning Policy					

Action (ID):	FLOOD PROTECTION SCHEME/WORKS (100750006)		
Objective (ID):	Reduce economic damages to residential and non-residential properties and risk to people in Musselburgh caused by flooding from the River Esk and coastal flooding (10075, 10076)		
Delivery lead:	East Lothian Council		
Priority:	National:	Within local authority:	Within LPD 10:
	11 of 42	1 of 2	2 of 7
Delivery Period:	2016/18 Outline Design & Approvals, 2018/19 Detailed Design, 2019/21 Construction. The above dates are subject to confirmation of funding.		
Status:	The scheme is under development with the Option Appraisal Report received at this stage.		
Description:	A flood protection scheme has been proposed for Musselburgh to reduce flood risk from the River Esk. The scheme would consist of flood defences and earth embankments and would provide a 1 in 200 year standard of protection. Part of this proposed scheme is located in Potentially Vulnerable Area 10/22. The benefits and impacts have been assessed for the whole scheme.		
Related Actions:	Awareness raising, Community flood action groups, Flood protection scheme (PVA 10/22), Planning Policy, Strategic mapping and modelling.		
Coordination Arrangement:	East Lothian Council will undertake consultation and engagement exercises with the public and local groups during scheme development. East Lothian Council will liaise with SEPA in the development of the scheme.		
Funding Arrangement:	Musselburgh Flood Protection Scheme will receive 80% of its funding from the Scottish Government General Capital Grant and the remaining funding will be allocated from East Lothian Council's Capital Budget.		

Potential impacts	
Economic:	The proposed scheme may benefit 1489 residential properties and 407 non-residential properties at risk of flooding in this location, with estimated damages avoided of £30 million. The Option Appraisal Report estimates the benefit cost ratio as 3.6 – 4.4.
Social:	A reduction in flood risk would have a positive benefit to the health and wellbeing of the community. In addition there are three educational buildings which have been identified as potentially benefitting from this action. There may be negative impacts through disturbance to the local community during the construction phase.
Environmental:	Flood protection schemes can have both positive and negative impacts on the ecological quality of the environment depending on how they are designed. To be in accord with the Forth Estuary Local Flood Risk Management Plan the competent authority must demonstrate that any proposals coming forward will not have an adverse effect on the integrity of any Natura site (Special Protection Area or Special Area of Conservation) before any consents or permissions are granted. These include conservation areas, scheduled monuments, gardens and designed landscapes, battlefields, listed buildings, Sites of Special Scientific Interest, Ramsar sites and ancient woodlands.

Action (ID):	NATURAL FLOOD MANAGEMENT STUDY (100750003)
Objective (ID):	Reduce economic damages to residential and non-residential properties and risk to people in Musselburgh caused by flooding from the River Esk and coastal flooding (10075, 10076)
Delivery lead:	East Lothian Council
Delivery Period:	2021-2022
Status:	Not started
Description:	A natural flood management study has been recommended for Musselburgh to assess whether wave attenuation could help reduce flood risk. The study should link with the proposed flood protection scheme in Musselburgh. Part of this proposed study is located in Potentially Vulnerable Area 10/22. The benefits and impacts have been assessed for the whole study.
Related Actions:	Awareness raising, Community action groups, Flood protection study (PVA 10/23 and 25), Natural flood management study (PVA 10/22), Planning Policy, Strategic mapping and modelling.
Coordination Arrangement:	The East Lothian Council Flooding Team will liaise with SEPA, Scottish Water, Scottish Natural Heritage and other council departments during the progression of this study.
Funding Arrangement:	The study will be funded from the Scottish Government General Capital Grant which has a 20% allocation for Flood Risk Management projects.

Potential impacts	
Economic:	The economic impact of natural flood management actions is difficult to define. However, these actions can reduce flood risk for high likelihood events.
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. Natural flood management actions can restore and enhance natural environments and create opportunities for recreation and tourism.
Environmental:	Natural flood management actions can have a positive impact on the ecological quality of the environment by restoring and enhancing natural habitats. The Leith Docks to Port Seton coastline (water body ID 200034) is located within the study area and the physical condition of this river is identified by SEPA to be at less than good status. Opportunities to improve the condition of the river should be considered by coordinating with river basin management planning. To be in accord with the Forth Estuary Local Flood Risk Management Plan the competent authority must demonstrate that any proposals coming forward will not have an adverse effect on the integrity of any Natura site (Special Protection Area or Special Area of Conservation) before any consents or permissions are granted.

Action (ID):	SURFACE WATER PLAN/STUDY (100520018)
Objective (ID):	Reduce economic damages and number of residential properties at risk of surface water flooding in Edinburgh, Musselburgh, Penicuik, Lasswade, Loanhead, Newtongrange and Dalkeith where practical (10052)
Delivery lead:	The City of Edinburgh Council, Midlothian Council, East Lothian Council
Delivery Period:	The City of Edinburgh Council, Midlothian Council and East Lothian Council SWMPs will commence towards the end of the cycle (2021).
Status:	Scottish Water is leading on an Integrated Catchment Study (ICS) for The City of Edinburgh, East Lothian and Midlothian Councils and this is progressing well. Scottish Water presented the findings to date in December 2015 to these local authorities as part of their validation exercise. It was concluded that the results presented accurately reflected flooding as understood by these authorities at present. Scottish Water has now entered the Pre-optioneering Phase of this study. The City of Edinburgh, East Lothian and Midlothian Councils' SWMPs depend on the completion of the Edinburgh/Lothians ICS. The work on The City of Edinburgh, East Lothian and Midlothian Councils' SWMPs will start towards the end of the cycle (2021).
Description:	The area will be covered by a surface water management plan or plans (SWMP) that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. Scottish Water will provide local knowledge and understanding of the sewer network. This includes Scottish Water corporate data (as applicable) and, where available, outputs of Section 16 or ICS, to assist with the surface water management planning process. The ICS also covers a large part of PVA 10/23. If issues are identified, these will be addressed in the SWMP.
Related Actions:	Strategic mapping and modelling (Scottish Water).
Coordination Arrangement:	<p>The local authorities will interact with Scottish Water as the ICS will inform the surface water management plan that the local authorities will produce. To ensure that a meaningful SWMP is prepared it is intended to wait until the ICS is complete and to draw on the valuable lessons learned and areas of good practice identified in progressing this study. The local authorities will lead on the development of surface water management plans for their area in partnership with Scottish Water, SEPA and other relevant authorities where required. This will include agreeing the most sustainable actions to manage surface water and coordinating the implementation of these actions.</p> <p>Scottish Water will work with and support surface water management planning through ensuring that best available knowledge and data is used to input into the surface water management plans.</p>
Funding Arrangement:	This will be funded by The City of Edinburgh Council Revenue Budget, East Lothian Council Revenue Budget and Midlothian Council Revenue Budget.

Action (ID):	SURFACE WATER PLAN/STUDY (100520019)
Objective (ID):	Reduce economic damages and number of residential properties at risk of surface water flooding in Edinburgh, Musselburgh, Penicuik, Lasswade, Loanhead, Newtongrange and Dalkeith where practical (10052)
Delivery lead:	Scottish Water in partnership with local authorities
Delivery Period:	AVSE PFI Edinburgh 2016-2019
Status:	Ongoing
Description:	An integrated catchment study covering the Almond Valley, Seafield and Esk Water Private Finance Initiative (AVSE PFI), Edinburgh catchment was carried out in delivery period SR10 (2010-2015) to support the surface water management planning process in SWMP Priority Areas. The study has improved knowledge and understanding of surface water flood risk and interactions between the above ground and below ground drainage network e.g. the sewer network, watercourses and (where applicable) the sea. The Optioneering phase of this study, to establish the preferred solution(s) to the significant flooding issues, will be carried out in delivery period SR15 (2015-2021). The ICS also covers a large part of PVA 10/23. If issues are identified, these will be addressed in the SWMP.
Related Actions:	Surface water plan/study (The City of Edinburgh Council, Midlothian Council, East Lothian Council).
Coordination Arrangement:	Scottish Water will work collaboratively with project partners throughout the studies. Scottish Water will provide project partners with the outputs of the integrated catchment study which, where relevant, may be used to inform surface water management plans.
Funding Arrangement:	This project is being funded by Scottish Water in partnership with The City of Edinburgh Council, East Lothian Council and Midlothian Council. Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers. Contributory funding up to an agreed proportion is to be provided by The City of Edinburgh Council, East Lothian Council and Midlothian Council Revenue Budgets towards the Needs stage cost of the ICS.

Action (ID):	STRATEGIC MAPPING AND MODELLING (100990016)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	SEPA
Delivery Period:	Strategic mapping improvements for the Lower Esk area and Pinkie Burn are dependant on the outputs from a local authority study and the implementation of a flood protection scheme. However, SEPA proposes to undertake river mapping improvements in 2017 to 2018. Due to the large number of third party studies and works in this area there is considerable uncertainty over delivery timescales for this catchment. SEPA will seek to better understand these during 2016 in order to further refine timescales. Wider coastal mapping and modelling improvements may take place in this area and these will be further refined in 2016 with the intention of updating the strategic coastal maps in 2016 to 2019.
Status:	Not started
Description:	SEPA will seek to develop flood mapping in the Lower Esk area and Pinkie Burn areas to improve understanding of flood risk. SEPA will seek to develop flood mapping in the Dunbar to Stirling 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.
Related Actions:	Flood protection scheme, Natural flood management study, Planning Policy, Surface water plan/study.
Coordination Arrangement:	A flood protection scheme and a coastal natural flood management study are proposed for Musselburgh. SEPA will work with the local authority to ensure that strategic mapping and modelling developments reflect the changes in flood risk resulting from the new flood protection scheme and new information about flood risk resulting from the proposed study where appropriate and relevant.
Funding Arrangement:	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.

Action (ID):	STRATEGIC MAPPING AND MODELLING (100990019)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Scottish Water
Delivery Period:	AVSE PFI Edinburgh 2016-2019
Status:	Not started
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. Scottish Water will undertake further investigation and modelling in the Almond Valley, Seafield and Esk Water Private Finance Initiative (AVSE PFI), Edinburgh sewer catchments to improve knowledge and understanding of flood risk in this area, as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.
Related Actions:	Surface water plan/study.
Coordination Arrangement:	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.
Funding Arrangement:	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.

Action (ID):	MAINTAIN FLOOD WARNING (100990030)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	SEPA
Delivery Period:	Ongoing
Status:	Existing
Description:	SEPA will continue to maintain the Musselburgh flood warning area which is part of the Esk (East Lothian) river flood warning scheme. SEPA will continue to maintain the Musselburgh Coastal flood warning area which is part of the Firth of Forth and Tay coastal flood warning scheme. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.
Related Actions:	Awareness raising, Community flood action group, Emergency plans/response, Flood protection scheme, Natural flood management study, Self help.
Coordination Arrangement:	A flood protection scheme and natural flood management study are proposed for Musselburgh. SEPA will work with the local authority to ensure that changes to hydrology and flood risk as a result of the proposed scheme and any new information about flood risk resulting from the proposed study are fully considered in the existing flood warning system.
Funding Arrangement:	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.

Action (ID):	FLOOD FORECASTING (100990009)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	SEPA
Delivery Period:	Ongoing
Status:	Existing
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 flood guidance statements provide an assessment of the risk of flooding for a five day period allowing responders time to put preparations in place to reduce the impact of flooding. 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.□
Related Actions:	Awareness raising, Emergency plans/response, Maintain flood warning, Self help.
Coordination Arrangement:	This is a joint initiative between SEPA and the Met Office. Hydrological information is provided by SEPA and meteorological information is provided by the Met Office. SEPA uses the information to predict the likelihood and timing of river, coastal and surface water flooding.
Funding Arrangement:	SEPA's flood forecasting service is funded through Scottish Government's grant in aid allocation. The Met Office receives funding from the UK Government.

Action (ID):	COMMUNITY FLOOD ACTION GROUPS (100750012)
Objective (ID):	Reduce economic damages to residential and non-residential properties and risk to people in Musselburgh caused by flooding from the River Esk and coastal flooding (10075, 10076)
Delivery lead:	Community
Delivery Period:	Ongoing
Status:	Existing
Description:	East Lothian Tenants and Residents Panel, Musselburgh and Inveresk Community Council and Musselburgh Waterfront Group operate in this area. The groups aim to involve the community in area-specific issues and could help increase community resilience to flooding.
Related Actions:	Awareness Raising, Emergency plans/response, Flood forecasting, Flood protection scheme, Natural flood management study, Maintain flood warning, Maintenance, Self help, Strategic mapping and modelling, Surface water plan/study.
Coordination Arrangement:	East Lothian Council will engage with East Lothian Tenants and Residents Panel, Musselburgh and Inveresk Community Council and Musselburgh Waterfront Groups as well as the wider community to continue to increase community resilience to flooding. This will be done by developing and reviewing emergency plans and facilitating resilient communities' plans. There is also interaction between East Lothian Council Emergency Planning Officer and chair of Community Councils focusing on risks including flooding.
Funding Arrangement:	East Lothian Council engagement with the community will be funded by the East Lothian Council Revenue Budget.

Action (ID):	SELF HELP (100990011)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	—
Delivery Period:	Ongoing
Status:	Existing
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. □
Related Actions:	Awareness raising, Community flood action groups, Flood forecasting, Maintain flood warning, Self help.
Coordination Arrangement:	In the event of severe issues the local authorities will work with the public to support community resilience where appropriate. This will be done by developing and reviewing emergency plans, facilitating community plans, and providing information on property level protection.
Funding Arrangement:	This will be funded by the property owner.

Action (ID):	AWARENESS RAISING (100990013)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Responsible authorities
Delivery Period:	Ongoing
Status:	Existing
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 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. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Where they exist, SEPA will engage with community resilience groups and community safety partnerships.</p> <p>For the new flood protection scheme, SEPA will support the local authority's communications and engagement activities with media activity, local public awareness events and education engagement with schools. SEPA will also deliver joint communications with local authorities for Floodline customers in any newly protected flood warning area. As part of SEPA's education programme and to contribute to community resilience SEPA is sponsoring a play by Rightlines Productions called 'Rapid Departure'. This interactive play about flooding will tour locations in Scotland throughout 2016, including this Potentially Vulnerable Area. The performances aim to lead people to consider how flooding could impact their community and how they can take steps to prepare for it.</p> <p>Local authorities will raise awareness when developing discrete proposals.</p> <p>Scottish Water will support SEPA and responsible authorities with their awareness raising activities as required and provide targeted flooding communications for Scottish Water specific activities. Scottish Water will raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies. More general information and flooding guidance will be available on the Scottish Water website (Annex 4).</p>
Related Actions:	Community flood action groups, Emergency plans/response, Flood protection scheme, Flood forecasting, Maintain flood warning, Self help.
Coordination Arrangement:	<p>A flood protection scheme is proposed for Musselburgh. SEPA's awareness raising activities will be coordinated with the activities of other responsible authorities as required.</p> <p>Awareness raising will be coordinated through the Local Plan District</p>

	(LPD) between SEPA, responsible authorities and community flood action groups. Scottish Water will keep responsible authorities informed of its awareness raising activities through the LPD partnerships.
Funding Arrangement:	SEPA's awareness raising activities are funded by Scottish Government through SEPA's grant in aid settlement. Discrete proposals will be funded by the relevant local authority.

Action (ID):	MAINTENANCE (100990007)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Local authorities, asset / land managers
Delivery Period:	Ongoing
Status:	Existing
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 risk based inspection, maintenance 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. □
Related Actions:	Awareness raising, Emergency plans/response, Maintain flood warning.
Coordination Arrangement:	Local authorities will work with private landowners to ensure that works are coordinated and that local authority owned infrastructure is maintained. The local authorities will liaise with Scottish Water, SEPA and Scottish Natural Heritage etc. Scottish Water will keep responsible authorities informed of large scale capital maintenance work to identify opportunities for coordination.
Funding Arrangement:	The relevant local authority will fund maintenance and repair work from its Revenue Budget, where it has that responsibility. Other asset owners (including the public) will be encouraged to fund works associated with maintenance and repair. Scottish Water is funded by customer charges as set by its economic regulator, all business activities required under this action by Scottish Water are accounted for in its Capital Maintenance expenditure.

Action (ID):	EMERGENCY PLANS/RESPONSE (100990014)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Category 1 and 2 Responders
Delivery Period:	Ongoing
Status:	<p>Existing. The City of Edinburgh Council maintains a Flooding Emergency Plan specifically intended for use in the event of advance warning being received that one or more watercourses in the Edinburgh area may cause flooding. The City of Edinburgh Council's Flood Prevention service in Transport Maintenance regularly assess river levels and flows and liaise with SEPA whenever certain criteria are identified. In the event of a warning of potential river flooding affecting Edinburgh being passed by SEPA to Police Scotland (Edinburgh Division), an assessment of the need to convene a multi-agency Edinburgh Flood Group will be made by the Senior Police Officer. Council representatives on the Edinburgh Flood Group will establish liaison with the Corporate Incident Management Team (if convened) at the Council Incident Coordination Centre, City Chambers and with the Flood Response Group based at Bankhead Depot, Sighthill.</p> <p>East Lothian Council maintains a Severe Weather Response Plan specifically intended for use in the event of advance warning being received that one or more watercourses in the East Lothian area may cause flooding. River levels and flows are monitored and East Lothian Council liaise with SEPA whenever certain criteria are identified. In the event of a warning of potential river flooding affecting East Lothian being passed by SEPA to Police Scotland (J Division), an assessment of the need to convene the multi-agency East Lothian Flood Group will be made by the Senior Police Officer.</p>
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. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations. The City of Edinburgh Council operates Emergency Action Packs to determine where people should be deployed during flood events. The City of Edinburgh Council owns temporary flood barriers and sandbags that can be used to protect properties from river flooding. East Lothian Council strategically deploys temporary flood barriers and sandbags when properties are threatened by flooding.</p>
Related Actions:	Awareness raising, Community flood action groups, Flood forecasting, Maintain flood warning, Maintenance.

Coordination Arrangement:	<p>During severe flooding, local authorities will work in partnership with the Emergency and Health Services, SEPA, Met Office, Scottish Water, Voluntary Organisations and other agencies to coordinate the response to the incident. Local authorities responsibilities may include activating flood defence systems (where appropriate), provision of sandbags and other flood prevention controls, road traffic management – closures and diversions, assisting with warning and alerting arrangements, contributing to media and public information strategies, establishing emergency rest centres for the care and welfare of persons evacuated or affected, coordinating the longer term recovery measures for rehabilitation of the community and restoration of the environment.</p>
Funding Arrangement:	<p>Funding is allocated to Category 1 and 2 responders by the Scottish Government for dealing with emergency response. In extreme cases Scottish Government may reimburse responders after an extreme event. Where required, local authorities responsibilities for emergency response are largely funded by the relevant local authorities' relevant Revenue Budget. SEPA's emergency plan/response activities are funded by Scottish Government through SEPA's grant in aid settlement.</p>

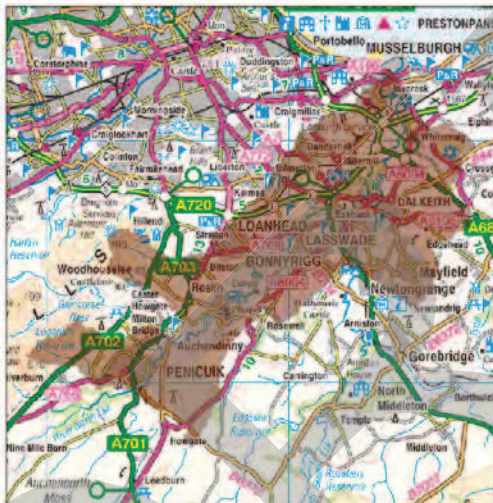
Action (ID):	PLANNING POLICIES (100010001)
Objective (ID):	Avoid an overall increase in flood risk (10001) Reduce overall flood risk (10099)
Delivery lead:	Planning authority
Delivery Period:	Ongoing
Status:	Existing
Description:	<p>Scottish Planning Policy and accompanying Planning Advice Notes set 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 national planning policies see Annex 5. □</p> <p>SEPA has a statutory role in relation to the provision of flood risk advice to planning authorities. This role is expressed in Section 72 of the FRM Act, 2009. SEPA also has a duty to cooperate with planning authorities in the preparation of development plans. When consulted in relation to planning applications for development or for site allocations in development plans, or where the planning authority considers there may be a risk of flooding, SEPA will provide advice. The advice provided by SEPA will be with respect to the risk of flooding and on the basis of the relevant information it holds which is suitable for planning purposes. It will also be in line with the principles and duties set out in the FRM Act. Further information about how SEPA engage in the planning system, including guidance on flood risk and planning is available on SEPA website.</p> <p>Scottish Water is a statutory consultee within the planning legislation and is required to comment on all outline or full planning applications which are referred by a local authority.</p>
Related Actions:	Flood protection scheme, Natural flood management study, Surface water plan/study, Strategic mapping and modelling.
Coordination Arrangement:	<p>The local authorities' Flooding Teams work closely with their Planning colleagues to ensure that appropriate policies and measures are put in place to reduce flood risk.</p> <p>SEPA's land use planning activities will be coordinated with the activities of other responsible authorities as required.</p>
Funding Arrangement:	The responsible authorities' land use planning activities will be funded by the responsible authorities' Revenue Budget. SEPA's land use planning activities are funded by Scottish Government through SEPA's grant in aid settlement.

Lasswade, Penicuik, Dalkeith and Musselburgh (Potentially Vulnerable Area 10/22)

Local Plan District	Local authority	Main catchment
Forth Estuary	The City of Edinburgh Council, East Lothian Council, Midlothian Council	River Esk (Lothian)

Background

This Potentially Vulnerable Area is 97km² and is part of the Almond and Edinburgh catchment (shown below). This is a large, mainly rural area covering southern Musselburgh, Dalkeith, Lasswade, Bonnyrigg and Penicuik.



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The main watercourse is the River Esk, forming after the confluence of the River North Esk and River South Esk on the outskirts of Dalkeith. Other notable watercourses include the Park Burn and the Bilston Burn. The majority of damages are caused by surface water flooding.

There are approximately 320 residential properties and 320 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £1.8 million.

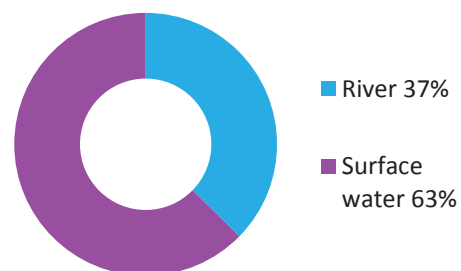


Figure 1: Annual Average Damages by flood source. *Reproduced from Forth Estuary Flood Risk Management Strategy, SEPA (December 2015).*

Summary of flooding impacts

The highest risk of surface water flooding is in Dalkeith, Lasswade and Bonnyrigg. The highest risk of river flooding is from the River Esk, the River South Esk, the River North Esk and the Loan Burn to Musselburgh, Dalkeith and Newbattle,

Lasswade and Bonnyrigg and Penicuik. Musselburgh is also at risk from coastal flooding from the Firth of Forth.

Further details of the risk of flooding to people and property, as well as to community facilities, utilities, the transport network, designated sites and agricultural land is available in the Flood Risk Management Strategy for Forth Estuary, (<http://apps.sepa.org.uk/FRMStrategies/forth-estuary.html>), search 'Lasswade, Penicuik, Dalkeith and Musselburgh (Potentially Vulnerable Area 10/22)'

History of flooding

Two significant floods have been recorded in this area. On 6 October 1990 Musselburgh was affected by flooding from the River Esk. On 13 August 1948 evacuation was required in Musselburgh after flooding occurred in Eskside West, Eskside East, Shorthope Street, Millhill and areas of the High Street.

Objectives to manage flooding in Lasswade, Penicuik, Dalkeith and Musselburgh

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. The objectives below have been set for the Lasswade, Penicuik, Dalkeith and Musselburgh Potentially Vulnerable Area.

- Reduce economic damages to residential and non-residential properties and risk to people in Musselburgh caused by flooding from the River Esk and coastal flooding (Objective ID: 10075, 10076);
- Reduce economic damages to residential and non-residential properties in the Lasswade, Penicuik, Dalkeith and Musselburgh Potentially Vulnerable Area caused by river flooding (Objective ID: 10077);
- Reduce economic damages to residential and non-residential properties in Musselburgh caused by flooding from the River Esk (Objective ID: 10078);
- Reduce risk to people in Bilston, Dalkeith and Musselburgh from river flooding (Objective ID: 10079);
- Reduce economic damages and number of residential properties at risk of surface water flooding in Edinburgh, Musselburgh, Penicuik, Lasswade, Loanhead, Newtongrange and Dalkeith where practical. (Objective ID: 10052);
- Avoid an overall increase in flood risk (Objective ID: 10001);
- Reduce overall flood risk (Objective ID: 10099);
- 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 flood risk and deliver the objectives are shown in the following section.

Actions to manage flooding in Lasswade, Penicuik, Dalkeith and Musselburgh

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. The actions shaded below have been selected as the most appropriate for Lasswade, Penicuik, Dalkeith and Musselburgh Potentially Vulnerable Area.

Selected actions					
Flood protection scheme/works	<i>Natural flood management works</i>	<i>New flood warning</i>	Community flood action groups	<i>Property level protection scheme</i>	<i>Site protection plans</i>
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 Policy

The delivery of selected actions over the six-year plan cycle is summarised by year below.

Delivery of selected actions					
Year 1 (2016/17)	Year 2 (2017/18)	Year 3 (2018/19)	Year 4 (2019/20)	Year 5 (2020/21)	Year 6 (2021/22)
Flood protection scheme/works					
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 (SEPA)					
Strategic mapping and modelling (Scottish Water)					
Flood forecasting					
Self help					
Maintenance					
Planning Policy					

Action (ID):	FLOOD PROTECTION SCHEME/WORKS (100750006)		
Objective (ID):	<p>Reduce risk to people in Bilston, Dalkeith and Musselburgh from river flooding (10079)</p> <p>Reduce economic damages to residential and non-residential properties in Musselburgh caused by flooding from the River Esk (10078)</p> <p>Reduce economic damages to residential and non-residential properties in the Lasswade, Penicuik, Dalkeith and Musselburgh Potentially Vulnerable Area caused by river flooding (10077)</p> <p>Reduce economic damages to residential and non-residential properties and risk to people in Musselburgh caused by flooding from the River Esk and coastal flooding (10075, 10076)</p>		
Delivery lead:	East Lothian Council		
Priority:	National: 11 of 42	Within local authority: 1 of 2	Within LPD 10: 2 of 7
Delivery Period:	2016/18 Outline Design & Approvals, 2018/19 Detailed Design, 2019/21 Construction. The above dates are subject to confirmation of funding.		
Status:	The scheme is under development with the Option Appraisal Report received at this stage.		
Description:	A flood protection scheme has been proposed for Musselburgh to reduce flood risk from the River Esk. The scheme would consist of flood defences and earth embankments and would provide a 1 in 200 year standard of protection. Part of this proposed scheme is located in Potentially Vulnerable Area 10/21. The benefits and impacts have been assessed for the whole scheme.		
Related Actions:	Awareness raising, Community flood action groups, Flood protection scheme (PVA 10/21), Planning Policy, Strategic mapping and modelling.		
Coordination Arrangement:	East Lothian Council will undertake consultation and engagement exercises with the public and local groups during scheme development. East Lothian Council will liaise with SEPA in the development of the scheme.		
Funding Arrangement:	Musselburgh Flood Protection Scheme will receive 80% of its funding from the Scottish Government General Capital Grant and the remaining funding will be allocated from East Lothian Council's Capital Budget.		

Potential impacts	
Economic:	The proposed scheme may benefit 1489 residential properties and 407 non-residential properties at risk of flooding in this location, with estimated damages avoided of £30 million. The Option Appraisal Report estimates the benefit cost ratio as 3.6 – 4.4.
Social:	A reduction in flood risk would have a positive benefit to the health and wellbeing of the community. In addition there are three educational buildings which have been identified as potentially benefitting from this action. There may be negative impacts through disturbance to the local community during the construction phase.
Environmental:	Flood protection schemes can have both positive and negative impacts on the ecological quality of the environment depending on how they are designed. To be in accord with the Forth Estuary Local Flood Risk Management Plan the competent authority must demonstrate that any proposals coming forward will not have an adverse effect on the integrity of any Natura site (Special Protection Area or Special Area of Conservation) before any consents or permissions are granted. In addition, a number of nationally and locally designated sites are also present in the study area and could be positively or negatively impacted. These include conservation areas, scheduled monuments, gardens and designed landscapes, battlefields, listed buildings, Sites of Special Scientific Interest, Ramsar sites and ancient woodlands.

Action (ID):	FLOOD PROTECTION STUDY (100770005)		
Objective (ID):	Reduce economic damages to residential and non-residential properties in the Lasswade, Penicuik, Dalkeith and Musselburgh Potentially Vulnerable Area caused by river flooding (10077)		
Delivery lead:	Midlothian Council		
Priority:	National: 142 of 168	Within local authority: 1 of 1	Within LPD 10: 25 of 26
Delivery Period:	2016-2022		
Status:	A programme will be developed for Midlothian Council to appoint a Consultant to assess the potential protection requirements during 2016/2017, with a view to commencing any construction as soon as possible thereafter.		
Description:	A flood protection study has been recommended for Dalkeith and Lasswade to assess whether flood defences and sediment management could reduce flood risk. The study should also consider the viability of property level protection. The study should take a catchment approach and consider the potential benefits and disbenefits and interaction between actions upstream and downstream.		
Related Actions:	Planning Policy, Strategic mapping and modelling, Surface water plan/study.		
Coordination Arrangement:	Where possible opportunities to enhance and restore the environment will be sought, for example through natural flood management. Conservation areas, gardens and designed landscapes and ancient woodlands are also present in the study area		

	and could be positively or negatively impacted. Midlothian Council will seek advice from SEPA on the data collection/hydraulic modelling elements of the study, and will discuss key elements of the study with Scottish Water.
Funding Arrangement:	This will be funded from the Midlothian Council Revenue Budget and Scottish Government funding as available.
Potential impacts	
Economic:	The study could benefit 11 residential properties and three non-residential properties at risk of flooding in this location, with potential damages avoided of up to £650,000.
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 and socially vulnerable people 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. Conservation areas, gardens and designed landscapes and ancient woodlands are also present in the study area and could be positively or negatively impacted.

Action (ID):	NATURAL FLOOD MANAGEMENT STUDY (100750003)
Objective (ID):	Reduce risk to people in Bilston, Dalkeith and Musselburgh from river flooding (10079) Reduce economic damages to residential and non-residential properties in Musselburgh caused by flooding from the River Esk (10078) Reduce economic damages to residential and non-residential properties in the Lasswade, Penicuik, Dalkeith and Musselburgh Potentially Vulnerable Area caused by river flooding (10077) Reduce economic damages to residential and non-residential properties and risk to people in Musselburgh caused by flooding from the River Esk and coastal flooding (10075, 10076)
Delivery lead:	East Lothian Council
Delivery Period:	2021-2022
Status:	Not started
Description:	A natural flood management study has been recommended for Musselburgh to assess whether wave attenuation could help reduce flood risk. The study should link with the proposed flood protection scheme in Musselburgh. Part of this proposed study is located in Potentially Vulnerable Area 10/21. The benefits and impacts have been assessed for the whole study.
Related Actions:	Awareness raising, Community action groups, Flood protection study (PVA 10/21 and 22), Natural flood management study (PVA 10/21), Planning Policy, Strategic mapping and modelling.

Coordination Arrangement:	The East Lothian Council Flooding Team will liaise with SEPA, Scottish Water, Scottish Natural Heritage and other council departments during progression of this study.
Funding Arrangement:	The study will be funded from the Scottish Government General Capital Grant which has a 20% allocation for Flood Risk Management projects.
Potential impacts	
Economic:	The economic impact of natural flood management actions is difficult to define. However, these actions can reduce flood risk for high likelihood events.
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. Natural flood management actions can restore and enhance natural environments and create opportunities for recreation and tourism.
Environmental:	Natural flood management actions can have a positive impact on the ecological quality of the environment by restoring and enhancing natural habitats. The Leith Docks to Port Seton coastline (water body ID 200034) is located within the study area and the physical condition of this river is identified by SEPA to be at less than good status. Opportunities to improve the condition of the river should be considered by coordinating with river basin management planning. To be in accord with the Forth Estuary Local Flood Risk Management Plan the competent authority must demonstrate that any proposals coming forward will not have an adverse effect on the integrity of any Natura site (Special Protection Area or Special Area of Conservation) before any consents or permissions are granted.

Action (ID):	SURFACE WATER PLAN/STUDY (100520018)
Objective (ID):	Reduce economic damages and number of residential properties at risk of surface water flooding in Edinburgh, Musselburgh, Penicuik, Lasswade, Loanhead, Newtongrange and Dalkeith where practical (10052)
Delivery lead:	The City of Edinburgh Council, Midlothian Council, East Lothian Council
Delivery Period:	The City of Edinburgh Council and East Lothian Council SWMPs will commence towards the end of the cycle (2021). Midlothian Council SWMP will commence in 2016-2017.
Status:	Scottish Water is leading on an Integrated Catchment Study (ICS) for City of Edinburgh, East Lothian and Midlothian Councils and this is progressing well. Scottish Water presented the findings to date in December 2015 to these local authorities as part of their validation exercise. It was concluded that the results presented accurately reflected flooding as understood by these authorities at present. Scottish Water has now entered the Pre-optioneering Phase of this study. The City of Edinburgh Council, East Lothian and Midlothian Councils' SWMPs depend on the completion of the Edinburgh/Lothians ICS. The work on The City of Edinburgh Council's and East Lothian Council's SWMPs will start towards the end of the cycle (2021). Midlothian Council will commence work on SWMP for their area in 2016-2017 and will feed outputs into the programme to suit other local authorities timescales.
Description:	The area will be covered by a surface water management plan or plans (SWMP) that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. Scottish Water will provide local knowledge and understanding of the sewer network. This includes Scottish Water corporate data (as applicable) and, where available, outputs of Section 16 or ICS, to assist with the surface water management planning process. The ICS also covers a large part of PVA 10/23. If issues are identified, these will be addressed in the SWMP.
Related Actions:	Strategic mapping and modelling (Scottish Water).
Coordination Arrangement:	The local authorities will interact with Scottish Water as the ICS will inform the surface water management plan that the local authorities will produce. To ensure that a meaningful SWMP is prepared it is intended to wait until the ICS is complete and to draw on the valuable lessons learned and areas of good practice identified in progressing this study. The local authorities will lead on the development of surface water management plans for their area in partnership with Scottish Water and SEPA and other relevant authorities where required. This will include agreeing the most sustainable actions to manage surface water and coordinating the implementation of these actions. Scottish Water will work with and support surface water management planning through ensuring that best available knowledge and data is used to input into the surface water management plans.
Funding Arrangement:	This will be funded by The City of Edinburgh Council Revenue Budget, East Lothian Council Revenue Budget and Midlothian

Council Revenue Budget.

Action (ID):	SURFACE WATER PLAN/STUDY (100520019)
Objective (ID):	Reduce economic damages and number of residential properties at risk of surface water flooding in Edinburgh, Musselburgh, Penicuik, Lasswade, Loanhead, Newtongrange and Dalkeith where practical (10052)
Delivery lead:	Scottish Water in partnership with local authorities
Delivery Period:	AVSE PFI Edinburgh 2016-2019. Penicuik 2017-2020. Rosewell 2016-2019. Roslin 2016-2019.
Status:	Ongoing
Description:	An integrated catchment study covering the Almond Valley Seafield Esk Water Private Finance Initiative (AVSE PFI), Edinburgh catchment was carried out in delivery period SR10 (2010-2015) to support the surface water management planning process in SWMP Priority Areas. The study has improved knowledge and understanding of surface water flood risk and interactions between the above ground and below ground drainage network e.g. the sewer network, watercourses, and (where applicable) the sea. The Optioneering phase of this study, to establish the preferred solution(s) to the significant flooding issues, will be carried out in delivery period SR15 (2015-2021).
Related Actions:	Surface water plan/study.
Coordination Arrangement:	Scottish Water will work collaboratively with project partners throughout the studies. Scottish Water will provide project partners with the outputs of the integrated catchment study which, where relevant, may be used to inform surface water management plans.
Funding Arrangement:	This project is being funded by Scottish Water in partnership with The City of Edinburgh Council, East Lothian Council and Midlothian Council. Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers. Contributory funding up to an agreed proportion is to be provided by The City of Edinburgh Council, East Lothian Council and Midlothian Council Revenue Budgets towards the Needs stage cost of the ICSs.

Action (ID):	STRATEGIC MAPPING AND MODELLING (100990016)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	SEPA
Delivery Period:	Strategic mapping improvements for the Lower Esk area are dependant on the outputs from a local authority study and the implementation of a flood protection scheme. However, SEPA proposes to undertake river mapping improvements in 2017 to 2018. Due to the large number of third party studies and works in this area there is considerable uncertainty over delivery timescales for this catchment. SEPA will seek to better understand these during 2016 in order to further refine timescales.
Status:	Not started
Description:	SEPA will seek to develop flood mapping in the Lower Esk 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.
Related Actions:	Flood protection study, Flood protection scheme, Natural flood management study, Planning Policy, Surface water plan/study.
Coordination Arrangement:	A flood protection scheme is proposed for Musselburgh and a flood protection study is proposed for Dalkeith and Lasswade. SEPA will work with the local authority to ensure that strategic mapping and modelling developments reflect the changes in flood risk resulting from the new flood protection scheme and new information about flood risk resulting from the proposed study where appropriate and relevant.
Funding Arrangement:	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.

Action (ID):	STRATEGIC MAPPING AND MODELLING (100990019)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Scottish Water
Delivery Period:	AVSE PFI Edinburgh 2016-2019. Penicuik 2017-2020. Rosewell 2016-2019. Roslin 2016-2019.
Status:	Not started
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. Scottish Water will undertake further investigation and modelling in the Almond Valley, Seafield and Esk Water the Private Finance Initiative (AVSE PFI), Edinburgh, Penicuik, Rosewell and Roslin sewer catchments to improve knowledge and understanding of flood risk in this area, as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.
Related Actions:	Surface water plan/study.
Coordination Arrangement:	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.
Funding Arrangement:	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.

Action (ID):	MAINTAIN FLOOD PROTECTION SCHEME (100770017)
Objective (ID):	Reduce economic damages to residential and non-residential properties in the Lasswade, Penicuik, Dalkeith and Musselburgh Potentially Vulnerable Area caused by river flooding (10077)
Delivery lead:	Midlothian Council
Delivery Period:	Ongoing
Status:	Existing
Description:	Midlothian Council will continue to maintain the existing flood protection schemes and defences. These include defences along the Bilston Burn, the Rullion Road Penicuik Flood Protection Scheme and the Polton Road Bridge Relief Culvert Flood Protection Scheme.
Related Actions:	Awareness raising, Community action groups, Emergency plans/response, Maintain flood warning, Maintenance.
Coordination Arrangement:	Midlothian Council will ensure that any works are coordinated with interested parties, undertaken with minimal disruption, and will liaise with Scottish Water, SEPA and Scottish Natural Heritage, as appropriate.
Funding Arrangement:	This will be funded by the Midlothian Council Revenue Budget.

Action (ID):	MAINTAIN FLOOD WARNING (100990030)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	SEPA
Delivery Period:	Ongoing
Status:	Existing
Description:	SEPA will continue to maintain the Musselburgh flood warning area which is part of the Esk (East Lothian) river flood warning scheme. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.
Related Actions:	Awareness raising, Community flood action groups, Emergency plans/response, Flood forecasting, Flood protection scheme, Flood protection study, Natural flood management study, Self help.
Coordination Arrangement:	A flood protection scheme is proposed for Musselburgh and a flood protection study is proposed for Dalkeith and Lasswade. SEPA will work with the local authority to ensure that changes to hydrology and flood risk as a result of the proposed scheme and any new information about flood risk resulting from the proposed study are fully considered in the existing flood warning system.
Funding Arrangement:	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.

Action (ID):	FLOOD FORECASTING (100990009)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	SEPA
Delivery Period:	Ongoing
Status:	Existing
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 flood guidance statements provide an assessment of the risk of flooding for a five day period allowing responders time to put preparations in place to reduce the impact of flooding. 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.□
Related Actions:	Awareness raising, Emergency plans/response, Maintain flood warning, Self help.
Coordination Arrangement:	This is a joint initiative between SEPA and the Met Office. Hydrological information is provided by SEPA and meteorological information is provided by the Met Office. SEPA uses the information to predict the likelihood and timing of river, coastal and surface water flooding.
Funding Arrangement:	SEPA's flood forecasting service is funded through Scottish Government's grant in aid allocation. The Met Office receives funding from the UK Government.

Action (ID):	COMMUNITY FLOOD ACTION GROUPS (100770012)
Objective (ID):	Reduce economic damages to residential and non-residential properties in the Lasswade, Penicuik, Dalkeith and Musselburgh Potentially Vulnerable Area caused by river flooding (10077)
Delivery lead:	Community
Delivery Period:	Ongoing
Status:	Existing
Description:	East Lothian Tenants and Residents Panel operate in this area. The group aims to involve the community in area-specific issues and could help increase community resilience to flooding.
Related Actions:	Awareness Raising, Emergency plans/response, Flood forecasting, Flood protection scheme, Flood protection study, Natural flood management study, Maintain flood warning, Maintenance, Maintain flood protection scheme, Self help, Strategic mapping and modelling, Surface water plan/study.
Coordination Arrangement:	East Lothian Council will engage with East Lothian Tenants and Residents Panel as well as the wider community to continue to increase community resilience to flooding. This will be done by developing and reviewing emergency plans, and facilitating resilient communities' plans. There is also interaction between East Lothian Council Emergency Planning Officer and chair of Community Councils focusing on risks including flooding.
Funding Arrangement:	East Lothian Council engagement with the community will be funded by the East Lothian Council Revenue Budget.

Action (ID):	SELF HELP (100990011)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	—
Delivery Period:	Ongoing
Status:	Existing
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. □
Related Actions:	Awareness raising, Community flood action groups, Flood forecasting, Maintain flood warning, Self help.
Coordination Arrangement:	In the event of severe issues the local authorities will work with the public to support community resilience where appropriate. This will be done by developing and reviewing emergency plans, facilitating community plans, and providing information on property level protection.
Funding Arrangement:	This will be funded by the property owner.

Action (ID):	AWARENESS RAISING (100990013)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Responsible authorities
Delivery Period:	Ongoing
Status:	Existing
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. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Where they exist, SEPA will engage with community resilience groups and community safety partnerships. For the new flood protection scheme, SEPA will support the local authority's communications and engagement activities with media activity, local public awareness events and education engagement with schools. SEPA will also deliver joint communications with local authorities for Floodline customers in any newly protected flood warning area. As part of SEPA's education programme and to contribute to community resilience SEPA is sponsoring a play by Rightlines Productions called 'Rapid Departure'. This interactive play about flooding will tour locations in Scotland throughout 2016, including this Potentially Vulnerable Area. The performances aim to lead people to consider how flooding could impact their community and how they can take steps to prepare for it.</p> <p>Local authorities will raise awareness when developing discrete proposals.</p> <p>Scottish Water will support SEPA and responsible authorities with their awareness raising activities as required and provide targeted flooding communications for Scottish Water specific activities. Scottish Water will raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies. More general information and flooding guidance will be available on the Scottish Water website (Annex 4).</p>
Related Actions:	Community flood action groups, Emergency plans/response, Flood protection scheme, Flood forecasting, Maintain flood warning, Self help.
Coordination Arrangement:	<p>A flood protection scheme is proposed for Musselburgh. SEPA's awareness raising activities will be coordinated with the activities of other responsible authorities as required.</p> <p>Awareness raising will be coordinated through the Local Plan District</p>

	(LPD) between SEPA, responsible authorities and community flood action groups. Scottish Water will keep responsible authorities informed of its awareness raising activities through the LPD partnerships.
Funding Arrangement:	SEPA's awareness raising activities are funded by Scottish Government through SEPA's grant in aid settlement. Discrete proposals will be funded by the relevant local authority.

Action (ID):	MAINTENANCE (100990007)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Local authorities, asset / land managers
Delivery Period:	Ongoing
Status:	Existing
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 risk based inspection, maintenance 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. □
Related Actions:	Awareness raising, Emergency plans/response, Maintain flood warning, Maintain flood protection scheme.
Coordination Arrangement:	Local authorities will work with private landowners to ensure that works are coordinated and that the infrastructure is maintained. The local authorities will liaise with Scottish Water, Network Rail, SEPA and Scottish Natural Heritage etc. Scottish Water will keep responsible authorities informed of large scale capital maintenance work to identify opportunities for coordination.
Funding Arrangement:	The relevant local authority will fund maintenance and repair work from its Revenue Budget, where it has that responsibility. Other asset owners (including the public) will be encouraged to fund works associated with maintenance and repair. Scottish Water is funded by customer charges as set by its economic regulator, all business activities required under this action by Scottish Water are accounted for in its Capital Maintenance expenditure.

Action (ID):	EMERGENCY PLANS/RESPONSE (100990014)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Category 1 and 2 Responders
Delivery Period:	Ongoing
Status:	<p>Existing. The City of Edinburgh Council maintains a Flooding Emergency Plan specifically intended for use in the event of advance warning being received that one or more watercourses in the Edinburgh area may cause flooding. The City of Edinburgh Council's Flood Prevention service in Transport Maintenance regularly assess river levels and flows and liaise with SEPA whenever certain criteria are identified. In the event of a warning of potential river flooding affecting Edinburgh being passed by SEPA to Police Scotland (Edinburgh Division), an assessment of the need to convene a multi-agency Edinburgh Flood Group will be made by the Senior Police Officer. Council representatives on the Edinburgh Flood Group will establish liaison with the Corporate Incident Management Team (if convened) at the Council Incident Coordination Centre, City Chambers and with the Flood Response Group based at Bankhead Depot, Sighthill.</p> <p>East Lothian Council maintains a Severe Weather Response Plan specifically intended for use in the event of advance warning being received that one or more watercourses in the East Lothian area may cause flooding. River levels and flows are monitored and East Lothian Council liaise with SEPA whenever certain criteria are identified. In the event of a warning of potential river flooding affecting East Lothian being passed by SEPA to Police Scotland (J Division), an assessment of the need to convene the multi-agency East Lothian Flood Group will be made by the Senior Police Officer. East Lothian Council strategically deploys temporary flood barriers and sandbags when properties are threatened by flooding.</p> <p>Midlothian Council maintains and makes available stocks of sand bags and pallet (flood) barriers for use as required and can draft in pumps as required or retain on standby.</p>
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. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations. □</p>
Related Actions:	Awareness raising, Community flood action groups, Flood forecasting, Maintain flood warning, Maintain flood protection scheme, Maintenance.

<p>Coordination Arrangement:</p>	<p>During severe flooding, local authorities will work in partnership with the Emergency responders, SEPA, Met Office, Scottish Water, voluntary organisations and other agencies to coordinate the response to the incident.</p> <p>The City of Edinburgh Council and East Lothian Council responsibilities may include activating flood defence systems (where appropriate), provision of sandbags and other flood prevention controls, road traffic management – closures and diversions, assisting with warning and alerting arrangements, contributing to media and public information strategies, establishing emergency rest centres for the care and welfare of persons evacuated or affected, coordinating the longer term recovery measures for rehabilitation of the community and restoration of the environment.</p> <p>Midlothian Council responsibilities may include; provision of sandbags on request, erection of temporary pallet (flood) barriers, provision of standby pumps, traffic management and road closures, alerting and warning residents and making available the use of public buildings as temporary rest centres for the care and welfare of persons affected.</p>
<p>Funding Arrangement:</p>	<p>Funding is allocated to Category 1 and 2 responders by the Scottish Government for dealing with emergency response. In extreme cases Scottish Government may reimburse responders after an extreme event. Where required, local authorities responsibilities for emergency response are largely funded by the relevant local authorities' relevant Revenue Budget. SEPA's emergency plan/response activities are funded by Scottish Government through SEPA's grant in aid settlement.</p>

Action (ID):	PLANNING POLICIES (100010001)
Objective (ID):	Avoid an overall increase in flood risk (10001) Reduce overall flood risk (10099)
Delivery lead:	Planning authority
Delivery Period:	Ongoing
Status:	Existing
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 national planning policies see Annex 5. □</p> <p>SEPA has a statutory role in relation to the provision of flood risk advice to planning authorities. This role is expressed in Section 72 of the FRM Act, 2009. SEPA also has a duty to cooperate with planning authorities in the preparation of development plans. When consulted in relation to planning applications for development or for site allocations in development plans, or where the planning authority considers there may be a risk of flooding, SEPA will provide advice. The advice provided by SEPA will be with respect to the risk of flooding and on the basis of the relevant information it holds which is suitable for planning purposes. It will also be in line with the principles and duties set out in the FRM Act. Further information about how SEPA engage in the planning system, including guidance on flood risk and planning is available on SEPA website.</p> <p>Scottish Water is a statutory consultee within the planning legislation and is required to comment on all outline or full planning applications which are referred by a local authority.</p>
Related Actions:	Flood protection scheme, Flood protection study, Natural flood management study, Surface water plan/study, Strategic mapping and modelling.
Coordination Arrangement:	<p>The local authorities' Flooding Teams work closely with their Planning colleagues to ensure that appropriate policies and measures are put in place to reduce flood risk.</p> <p>SEPA's land use planning activities will be coordinated with the activities of other responsible authorities as required.</p>
Funding Arrangement:	The responsible authorities' land use planning activities will be funded by the responsible authorities' Revenue Budget. SEPA's land use planning activities are funded by Scottish Government through SEPA's grant in aid settlement.

Cockenzie, Port Seton, Longniddry and Prestonpans (Potentially Vulnerable Area 10/23)

Local Plan District	Local authority	Main catchment
Forth Estuary	East Lothian Council	East Lothian coastal

Background

This Potentially Vulnerable Area is 65km² and part of the East Lothian and Berwickshire catchment (shown below). This is a moderately sized coastal area covering Cockenzie and Port Seton, Tranent, Prestonpans and Longniddry. The main watercourses are the Redhouse Burn and the Seton Dean.



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

There are approximately 120 residential properties and 60 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £730,000.

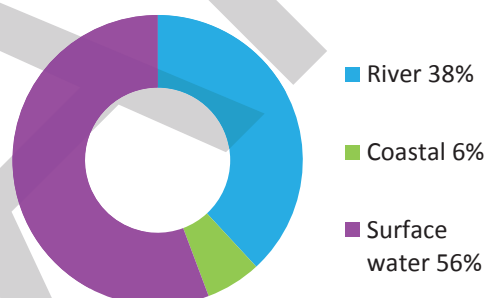


Figure 1: Annual Average Damages by flood source. Reproduced from Forth Estuary Flood Risk Management Strategy, SEPA (December 2015).

Summary of flooding impacts

The highest risk of surface water flooding is in Tranent.

Further details of the risk of flooding to people and property, as well as to community facilities, utilities, the transport network, designated sites and agricultural land is available in the Flood Risk Management Strategy for Forth Estuary, (<http://apps.sepa.org.uk/FRMStrategies/forth-estuary.html>), search 'Cockenzie, Port Seton, Longniddry and Prestonpans (Potentially Vulnerable Area 10/23)'

History of flooding

One significant coastal flood has been recorded in this area. On 30 March 2010, a tidal surge coincided with the highest mean tides of the year and caused extensive flooding along the east coast of Scotland. The Firth of Forth, notably Leith, Musselburgh, Prestonpans, Port Seton, Dunbar and North Berwick were badly affected. Impacts included flooding of properties, damage to harbours, seawalls and roads.

Objectives to manage flooding in Cockenzie, Port Seton, Longniddry and Prestonpans

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. The objectives below have been set for the Cockenzie, Port Seton, Longniddry and Prestonpans Potentially Vulnerable Area.

- Reduce economic damages to residential and non-residential properties in the Cockenzie, Port Seton, Longniddry and Prestonpans Potentially Vulnerable Area caused by river and coastal flooding (Objective ID: 10080);
- Reduce risk to people in Tranent from river flooding (Objective ID: 10081);
- Avoid an overall increase in flood risk (Objective ID: 10001);
- Reduce overall flood risk (Objective ID: 10099);
- 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 flood risk and deliver the objectives are shown in the following section.

Actions to manage flooding in Cockenzie, Port Seton, Longniddry and Prestonpans

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. The actions shaded below have been selected as the most appropriate for Cockenzie, Port Seton, Longniddry and Prestonpans Potentially Vulnerable Area.

Selected actions					
<i>Flood protection scheme/works</i>	<i>Natural flood management works</i>	<i>New flood warning</i>	Community flood action groups	<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 Policy

The delivery of selected actions over the six-year plan cycle is summarised by year below.

Delivery of selected actions					
Year 1 (2016/17)	Year 2 (2017/18)	Year 3 (2018/19)	Year 4 (2019/20)	Year 5 (2020/21)	Year 6 (2021/22)
Community flood action groups					
			Flood protection study		
Maintain flood warning					
Awareness raising					
Emergency plans/response					
Maintain flood protection scheme					
Strategic mapping and modelling (SEPA)					
Strategic mapping and modelling (Scottish Water)					
Flood forecasting					
Self help					
Maintenance					
Planning Policy					

Action (ID):	FLOOD PROTECTION STUDY (100800005)		
Objective (ID):	Reduce economic damages to residential and non-residential properties in the Cockenzie, Port Seton, Longniddry and Prestonpans Potentially Vulnerable Area caused by river and coastal flooding (10080)		
Delivery lead:	East Lothian Council		
Priority:	National:	Within local authority:	Within LPD 10:
	61 of 168	1 of 3	9 of 26
Delivery Period:	2019-2020		
Status:	Not started		
Description:	A flood protection study has been recommended for Cockenzie, Port Seton and Prestonpans to assess whether modification of conveyance, installation/modification of fluvial control structures, flood defences, sediment management and natural flood management could reduce flood risk. The study should also consider the viability of property level protection. Natural flood management options that should be considered include wave attenuation. The study should take a sustainable approach and consider the interaction between actions upstream and downstream and potential effects on coastal processes along the shoreline.		
Related Actions:	Flood protection study (PVA 10/23 and 10/25), Natural flood management study (PVA 10/21), Maintain flood warning, Planning Policy, Strategic mapping and modelling, Surface water plan/study.		
Coordination Arrangement:	The East Lothian Council Flooding Team will liaise with SEPA, Scottish Water, Scottish Natural Heritage and other council departments during the progression of this study.		
Funding Arrangement:	The study will be funded from the Scottish Government General Capital Grant which has a 20% allocation for Flood Risk Management projects.		

Potential impacts	
Economic:	The study could benefit 63 residential properties and 14 non-residential properties at risk of flooding in this location, with potential damages avoided of up to £6.2 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 and socially vulnerable people located within the study area. Natural flood management actions can restore and enhance natural environments and create opportunities for recreation and tourism.
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 Forth Estuary Local Flood Risk Management Plan the competent authority must demonstrate that any proposals coming forward will not have an adverse effect on the integrity of any Natura site (Special Protection Area or Special Area of Conservation) before any consents or permissions are granted. Conservation areas, scheduled monuments, gardens and designed landscapes and battlefields are also present in the study area and could be positively or negatively impacted.

Action (ID):	FLOOD PROTECTION STUDY (100810005)		
Objective (ID):	Reduce risk to people in Tranent from river flooding (10081)		
Delivery lead:	East Lothian Council		
Priority:	National:	Within local authority:	Within LPD 10:
	79 of 168	2 of 3	14 of 26
Delivery Period:	2019-2020		
Status:	Not started		
Description:	A flood protection study has been recommended for Tranent to assess whether modification of conveyance, installation/modification of fluvial control structures, direct flood defences and sediment management could reduce flood risk. The study should take a catchment approach and consider the potential benefits and disbenefits and interaction between actions upstream and downstream.		
Related Actions:	Flood protection study (PVA 10/23), Maintain flood warning, Planning Policy, Strategic mapping and modelling, Surface water plan/study.		
Coordination Arrangement:	The East Lothian Council Flooding Team will liaise with SEPA, Scottish Water, Scottish Natural Heritage and other council departments during the progression of this study.		

Funding Arrangement:	The study will be funded from the Scottish Government General Capital Grant which has a 20% allocation for Flood Risk Management projects.
Potential impacts	
Economic:	The study could benefit 29 residential properties and 46 non-residential properties at risk of flooding in this location, with potential damages avoided of up to £4.6 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 and socially vulnerable people 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. Conservation areas and battlefields are also present in the study area and could be positively or negatively impacted.

Action (ID):	STRATEGIC MAPPING AND MODELLING (100990016)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	SEPA
Delivery Period:	SEPA will await local study for this location with a view to incorporating it subject to a positive assessment. Timescales are indicative only; therefore SEPA will seek to better understanding these during 2016 in order to refine timescales and inform resource planning. Incorporation of additional surface water mapping SEPA-led. Surface water mapping improvements expected to be undertaken 2016.
Status:	Not started
Description:	SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 2,600km ² of improved surface water data is currently available within this Local Plan District. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans and Scottish Water integrated catchment studies will be considered when these projects are completed.
Related Actions:	Flood protection study, Planning Policy.
Coordination Arrangement:	SEPA's strategic mapping activities will be coordinated with the activities of other responsible authorities as required.
Funding Arrangement:	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.

Action (ID):	STRATEGIC MAPPING AND MODELLING (100990019)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Scottish Water
Delivery Period:	AVSE PFI Edinburgh 2016-2019. Gullane 2016-2020
Status:	Not started
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. Scottish Water will undertake further investigation and modelling in the Almond Valley, Seafield and Esk Water Private Finance Initiative (AVSE PFI), Edinburgh and Gullane sewer catchments to improve knowledge and understanding of flood risk in this area, as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.
Related Actions:	Surface water plan/study.
Coordination Arrangement:	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.
Funding Arrangement:	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.

Action (ID):	MAINTAIN FLOOD PROTECTION SCHEME (100800017)
Objective (ID):	Reduce economic damages to residential and non-residential properties in the Cockenzie, Port Seton, Longniddry and Prestonpans Potentially Vulnerable Area caused by river and coastal flooding (10080)
Delivery lead:	East Lothian Council
Delivery Period:	Ongoing
Status:	Existing
Description:	East Lothian Council will continue to maintain the existing flood defences along the coast.
Related Actions:	Awareness raising, Community action groups, Emergency plans/response, Maintain flood warning, Maintenance.
Coordination Arrangement:	East Lothian Council will work with private owners of flood protection infrastructure to ensure that works are coordinated and that the infrastructure is maintained. East Lothian Council will liaise with Scottish Water, Scottish Natural Heritage, Marine Scotland, SEPA etc.
Funding Arrangement:	This will be funded by the East Lothian Council Revenue Budget.

Action (ID):	MAINTAIN FLOOD WARNING (100990030)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	SEPA
Delivery Period:	Ongoing
Status:	Existing
Description:	SEPA will continue to maintain the Prestonpans and Port Seton flood warning area which is part of the Firth of Forth and Tay coastal flood warning scheme. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.
Related Actions:	Awareness raising, Community flood action groups, Emergency plans/response, Flood forecasting, Flood protection study, Self help.
Coordination Arrangement:	A flood protection study is proposed for Cockenzie, Port Seton and Prestonpans. SEPA will work with the local authority to ensure that any new information about flood risk resulting from the proposed flood protection study is considered in the existing flood warning system.
Funding Arrangement:	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.

Action (ID):	FLOOD FORECASTING (100990009)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	SEPA
Delivery Period:	Ongoing
Status:	Existing
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 flood guidance statements provide an assessment of the risk of flooding for a five day period allowing responders time to put preparations in place to reduce the impact of flooding. 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.□
Related Actions:	Awareness raising, Emergency plans/response, Maintain flood warning, Self help.
Coordination Arrangement:	This is a joint initiative between SEPA and the Met Office. Hydrological information is provided by SEPA and meteorological information is provided by the Met Office. SEPA uses the information to predict the likelihood and timing of river, coastal and surface water flooding.
Funding Arrangement:	SEPA's flood forecasting service is funded through Scottish Government's grant in aid allocation. The Met Office receives funding from the UK Government.

Action (ID):	COMMUNITY FLOOD ACTION GROUPS (100800012)
Objective (ID):	Reduce economic damages to residential and non-residential properties in the Cockenzie, Port Seton, Longniddry and Prestonpans Potentially Vulnerable Area caused by river and coastal flooding (10080)
Delivery lead:	Community
Delivery Period:	Ongoing
Status:	Existing
Description:	East Lothian Tenants and Residents Panel and Port Seton and Cockenzie Coastal Regeneration Group operate in this area. The groups could help increase community resilience to flooding.
Related Actions:	Awareness raising, Emergency plans/response, Flood forecasting, Maintain flood warning, Maintenance, Maintain flood protection scheme, Self help.
Coordination Arrangement:	East Lothian Council will engage with East Lothian Tenants and Residents Panel and Port Seton and Cockenzie Coastal Regeneration Group as well as the wider community to continue to increase community resilience to flooding. This will be done by developing and reviewing emergency plans and facilitating resilient communities' plans. There is also interaction between East Lothian Council Emergency Planning Officer and chair of Community Councils focusing on risks including flooding.
Funding Arrangement:	East Lothian Council engagement with the community will be funded by the East Lothian Council Revenue Budget.

Action (ID):	SELF HELP (100990011)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	—
Delivery Period:	Ongoing
Status:	Existing
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. □
Related Actions:	Awareness raising, Community flood action groups, Flood forecasting, Maintain flood warning, Self help.
Coordination Arrangement:	In the event of severe issues East Lothian Council will work with the public to support community resilience where appropriate. This will be done by developing and reviewing emergency plans, facilitating community plans, and providing information on property level protection.
Funding Arrangement:	This will be funded by the property owner.

Action (ID):	AWARENESS RAISING (100990013)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Responsible authorities
Delivery Period:	Ongoing
Status:	Existing
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 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. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Where they exist, SEPA will engage with community resilience groups and community safety partnerships. As part of SEPA's education programme and to contribute to community resilience SEPA is sponsoring a play by Rightlines Productions called 'Rapid Departure'. This interactive play about flooding will tour locations in Scotland throughout 2016, including this Potentially Vulnerable Area. The performances aim to lead people to consider how flooding could impact their community and how they can take steps to prepare for it. Local authorities will raise awareness when developing discrete proposals.</p> <p>Scottish Water will support SEPA and responsible authorities with their awareness raising activities as required and provide targeted flooding communications for Scottish Water specific activities. Scottish Water will raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies. More general information and flooding guidance will be available on the Scottish Water website (Annex 4).</p>
Related Actions:	Community flood action groups, Emergency plans/response, Flood forecasting, Maintain flood warning, Self help.
Coordination Arrangement:	<p>SEPA's awareness raising activities will be coordinated with the activities of other responsible authorities as required.</p> <p>Local Plan District (LPD) awareness raising will be coordinated by the Lead Local Authority and developed between SEPA, responsible authorities and community flood action groups.</p> <p>Scottish Water will keep responsible authorities informed of its awareness raising activities through the LPD partnerships.</p>

Funding Arrangement:	SEPA's awareness raising activities are funded by Scottish Government through SEPA's grant in aid settlement. Discrete proposals will be funded by the relevant local authority.
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Action (ID):	MAINTENANCE (100990007)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	East Lothian Council, asset / land managers
Delivery Period:	Ongoing
Status:	Existing
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 risk based inspection, maintenance 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.□
Related Actions:	Awareness raising, Emergency plans/response, Maintain flood warning, Maintain flood protection scheme.
Coordination Arrangement:	East Lothian Council will work with private landowners to ensure that works are coordinated and that the infrastructure is maintained. East Lothian Council will liaise with Scottish Water, SEPA and Scottish Natural Heritage etc. Scottish Water will keep responsible authorities informed of large scale capital maintenance work to identify opportunities for coordination.
Funding Arrangement:	East Lothian Council will fund maintenance and repair work from its Revenue Budget, where it has that responsibility. Other asset owners (including the public) will be encouraged to fund works associated with maintenance and repair. Scottish Water is funded by customer charges as set by its economic regulator, all business activities required under this action by Scottish Water are accounted for in its Capital Maintenance expenditure.

Action (ID):	EMERGENCY PLANS/RESPONSE (100990014)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Category 1 and 2 Responders
Delivery Period:	Ongoing
Status:	Existing. East Lothian Council maintains a Severe Weather Response Plan specifically intended for use in the event of advance warning being received that one or more watercourses in the East Lothian area may cause flooding. River levels and flows are monitored and East Lothian Council liaise with SEPA whenever certain criteria are identified. In the event of a warning of potential river flooding affecting East Lothian being passed by SEPA to Police Scotland (J Division), an assessment of the need to convene the multi-agency East Lothian Flood Group will be made by the Senior Police Officer.
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. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations. East Lothian Council strategically deploys temporary flood barriers and sandbags when properties are threatened by flooding.
Related Actions:	Awareness raising, Community flood action groups, Flood forecasting, Maintain flood warning, Maintain flood protection scheme, Maintenance.
Coordination Arrangement:	During severe flooding, East Lothian Council will work in partnership with the Emergency and Health Services, SEPA, Met Office, Scottish Water, Voluntary Organisations and other agencies to coordinate the response to the incident. East Lothian Council's responsibilities may include activating flood defence systems (where appropriate), provision of sandbags and other flood prevention controls, road traffic management – closures and diversions, assisting with warning and alerting arrangements, contributing to media and public information strategies, establishing emergency rest centres for the care and welfare of persons evacuated or affected, coordinating the longer term recovery measures for rehabilitation of the community and restoration of the environment.
Funding Arrangement:	Funding is allocated to Category 1 and 2 responders by the Scottish Government for dealing with emergency response. In extreme cases Scottish Government may reimburse responders after an extreme event. Where required, East Lothian Council's responsibilities for emergency response are largely funded by East Lothian Council's relevant budget. SEPA's emergency plan/response activities are funded by Scottish Government through SEPA's grant in aid

settlement.

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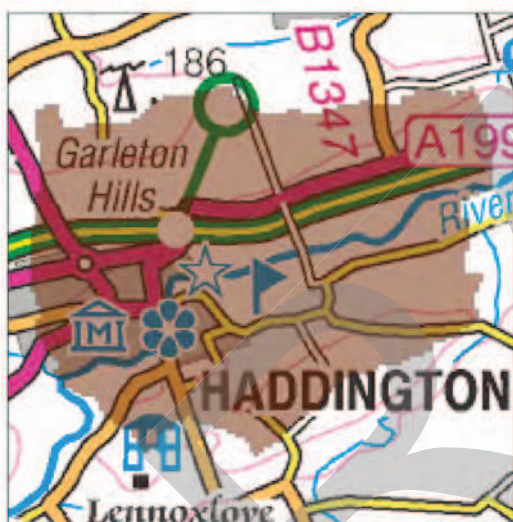
Action (ID):	PLANNING POLICIES (100010001)
Objective (ID):	Avoid an overall increase in flood risk (10001) Reduce overall flood risk (10099)
Delivery lead:	Planning authority
Delivery Period:	Ongoing
Status:	Existing
Description:	<p>Scottish Planning Policy and accompanying Planning Advice Notes set 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 national planning policies see Annex 5. □</p> <p>SEPA has a statutory role in relation to the provision of flood risk advice to planning authorities. This role is expressed in Section 72 of the FRM Act, 2009. SEPA also has a duty to cooperate with planning authorities in the preparation of development plans. When consulted in relation to planning applications for development or for site allocations in development plans, or where the planning authority considers there may be a risk of flooding, SEPA will provide advice. The advice provided by SEPA will be with respect to the risk of flooding and on the basis of the relevant information it holds which is suitable for planning purposes. It will also be in line with the principles and duties set out in the FRM Act. Further information about how SEPA engage in the planning system, including guidance on flood risk and planning is available on SEPA website.</p> <p>Scottish Water is a statutory consultee within the planning legislation and is required to comment on all outline or full planning applications which are referred by a local authority.</p>
Related Actions:	Flood protection study, Surface water plan/study, Strategic mapping and modelling.
Coordination Arrangement:	<p>The East Lothian Council Flooding Team works closely with their Planning colleagues to ensure that appropriate policies and measures are put in place to reduce flood risk.</p> <p>SEPA's land use planning activities will be coordinated with the activities of other responsible authorities as required.</p>
Funding Arrangement:	The responsible authorities' land use planning activities will be funded by the responsible authorities' Revenue Budget. SEPA's land use planning activities are funded by Scottish Government through SEPA's grant in aid settlement.

Haddington (Potentially Vulnerable Area 10/24)

Local Plan District	Local authority	Main catchment
Forth Estuary	East Lothian Council	River Tyne

Background

This Potentially Vulnerable Area is 16km² and part of the East Lothian and Berwickshire catchment group (shown below). This is a small, rural area covering Haddington and its surroundings. The main watercourse is the River Tyne which flows through the south of Haddington before continuing through the town centre and out to the east.



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The area has a risk of river and surface water flooding. The majority of damages in this Potentially Vulnerable Area are caused by river flooding.

There are approximately 230 residential properties and 140 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £700,000.

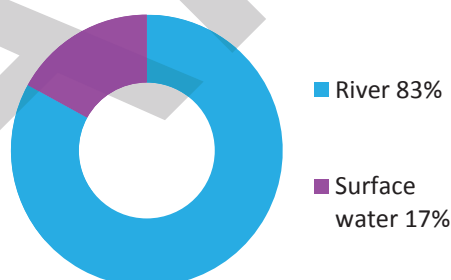


Figure 1: Annual Average Damages by flood source. *Reproduced from Forth Estuary Flood Risk Management Strategy, SEPA (December 2015).*

Summary of flooding impacts

The highest risk of river flooding is from the River Tyne to Haddington and the highest risk of surface water flooding is also in Haddington.

Further details of the risk of flooding to people and property, as well as to community facilities, utilities, the transport network, designated sites and agricultural land is available in the Flood Risk Management Strategy for Forth Estuary, (<http://apps.sepa.org.uk/FRMStrategies/forth-estuary.html>), search 'Haddington (Potentially Vulnerable Area 10/24)'

History of flooding

The following significant river floods have been recorded in this area:

- 7 July and 25 Sept 2012: High river levels in Haddington caused drains and watercourses to back up and unable to discharge into the River Tyne. This resulted in property flooding.
- 12 August 1948: The waters of the River Tyne rose 2 inches above the levels reached during the large flood of 1775. The High Street flooded to a depth of 57 inches. The flood event is known to have affected a large area with railway lines and road bridges damaged or destroyed and multiple buildings flooded.
- 1926 and 1932: Photographic evidence of large flood events in Haddington.
- October 1775: A large flood event in Haddington inundated most of the town.

Objectives to manage flooding in Haddington

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. The objectives below have been set for the Haddington Potentially Vulnerable Area.

- Reduce economic damages to residential and non-residential properties in Haddington caused by flooding from the River Tyne (Objective ID: 10082);
- Avoid an overall increase in flood risk (Objective ID: 10001);
- Reduce overall flood risk (Objective ID: 10099);
- 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 flood risk and deliver the objectives are shown in the following section.

Actions to manage flooding in Haddington

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. The actions shaded below have been selected as the most appropriate for Haddington 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 Policy

The delivery of selected actions over the six-year plan cycle is summarised by year below.

Delivery of selected actions					
Year 1 (2016/17)	Year 2 (2017/18)	Year 3 (2018/19)	Year 4 (2019/20)	Year 5 (2020/21)	Year 6 (2021/22)
	Flood protection scheme/works				
	Community flood action groups				
	Maintain flood warning				
	Awareness raising				
	Emergency plans/response				
	Strategic mapping and modelling (Scottish Water)				
	Flood forecasting				
	Self help				
	Maintenance				
	Planning Policy				

Action (ID):	FLOOD PROTECTION SCHEME/WORKS (100820006)		
Objective (ID):	Reduce economic damages to residential and non-residential properties in Haddington caused by flooding from the River Tyne (10082)		
Delivery lead:	East Lothian Council		
Priority:	National:	Within local authority:	Within LPD 10:
	37 of 42	2 of 2	7 of 7
Delivery Period:	2017/19 Outline Design & Approvals, 2019/20 Detailed Design, 2020/22 Construction. The above dates are subject to confirmation of funding.		
Status:	The scheme is under development with the Option Appraisal Report currently ongoing.		
Description:	A flood protection scheme has been proposed for Haddington to reduce flood risk from the River Tyne. The scheme would consist of flood defences, possibly in combination with natural flood management.		
Related Actions:	Awareness raising, Community flood action groups, Planning Policy, Strategic mapping and modelling.		
Coordination Arrangement:	East Lothian will undertake consultation and engagement exercises with the public and local groups during scheme development. East Lothian Council will liaise with SEPA in the development of the scheme.		
Funding Arrangement:	Haddington Flood Protection Scheme will receive 80% of it's funding from the Scottish Government General Capital Grant and the remaining funding will be allocated from East Lothian Council's Capital Budget.		
Potential impacts			
Economic:	The proposed scheme may benefit 231 residential and non-residential properties at risk of flooding in this location, with estimated damages avoided of £8.8 million. The flood protection scheme has an estimated benefit cost ratio of 1.2.		
Social:	A reduction in flood risk would have a positive benefit to the health and wellbeing of the community. There may be negative impacts through disturbance to the local community during the construction phase.		
Environmental:	Flood protection schemes can have both positive and negative impacts on the ecological quality of the environment depending on how they are designed. A number of nationally and locally designated sites are present in the study area and could be positively or negatively impacted. These include conservation areas, scheduled monuments, gardens and designed landscapes and listed buildings.		

Action (ID):	STRATEGIC MAPPING AND MODELLING (100990019)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Scottish Water
Delivery Period:	Haddington 2016-2019
Status:	Not started
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. Scottish Water will undertake further investigation and modelling in the Haddington sewer catchments to improve knowledge and understanding of flood risk in this area, as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.
Related Actions:	Surface water plan/study.
Coordination Arrangement:	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.
Funding Arrangement:	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.

Action (ID):	MAINTAIN FLOOD WARNING (100990030)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	SEPA
Delivery Period:	Ongoing
Status:	Existing
Description:	SEPA will continue to maintain the three flood warning areas in Haddington which are part of the Tyne river flood warning scheme. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.
Related Actions:	Awareness raising, Community flood action groups, Emergency plans/response, Flood forecasting, Flood protection scheme, Self help.
Coordination Arrangement:	A flood protection scheme is proposed for Haddington. SEPA will work with the local authority to ensure that changes to hydrology and flood risk as a result of the proposed flood protection scheme are fully considered in the existing flood warning system.
Funding Arrangement:	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.

Action (ID):	FLOOD FORECASTING (100990009)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	SEPA
Delivery Period:	Ongoing
Status:	Existing
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 flood guidance statements provide an assessment of the risk of flooding for a five day period allowing responders time to put preparations in place to reduce the impact of flooding. 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.□
Related Actions:	Awareness raising, Emergency plans/response, Maintain flood warning, Self help.
Coordination Arrangement:	This is a joint initiative between SEPA and the Met Office. Hydrological information is provided by SEPA and meteorological information is provided by the Met Office. SEPA uses the information to predict the likelihood and timing of river, coastal and surface water flooding.
Funding Arrangement:	SEPA's flood forecasting service is funded through Scottish Government's grant in aid allocation. The Met Office receives funding from the UK Government.

Action (ID):	COMMUNITY FLOOD ACTION GROUPS (100820012)
Objective (ID):	Reduce economic damages to residential and non-residential properties in Haddington caused by flooding from the River Tyne (10082)
Delivery lead:	Community
Delivery Period:	Ongoing
Status:	Existing
Description:	East Lothian Tenants and Residents Panel and Friends of the River Tyne operate in this area. The groups could help increase community resilience to flooding.
Related Actions:	Awareness raising, Emergency plans/response, Flood forecasting, Maintain flood warning, Maintenance, Self help.
Coordination Arrangement:	East Lothian Council will engage with East Lothian Tenants and Residents Panel and Friends of the River Tyne as well as the wider community to continue to increase community resilience to flooding. This will be done by developing and reviewing emergency plans and facilitating resilient communities' plans. There is also interaction between East Lothian Council Emergency Planning Officer and chair of Community Councils focusing on risks including flooding.
Funding Arrangement:	East Lothian Council engagement with the community will be funded by the East Lothian Council Revenue Budget.

Action (ID):	SELF HELP (100990011)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	—
Delivery Period:	Ongoing
Status:	Existing
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. □
Related Actions:	Awareness raising, Community flood action groups, Flood forecasting, Maintain flood warning, Self help.
Coordination Arrangement:	In the event of severe issues East Lothian Council will work with the public to support community resilience where appropriate. This will be done by developing and reviewing emergency plans, facilitating community plans, and providing information on property level protection.
Funding Arrangement:	This will be funded by the property owner.

Action (ID):	AWARENESS RAISING (100990013)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Responsible authorities
Delivery Period:	Ongoing
Status:	Existing
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 and promote Floodline. This will be achieved through SEPA-led education events. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Where they exist, SEPA will engage with community resilience groups and community safety partnerships. For the new flood protection scheme, SEPA will support the local authority's communications and engagement activities with media activity, local public awareness events and education engagement with schools. SEPA will also deliver joint communications with local authorities for Floodline customers in any newly protected flood warning area.</p> <p>Local authorities will raise awareness when developing discrete proposals.</p> <p>Scottish Water will support SEPA and responsible authorities with their awareness raising activities as required and provide targeted flooding communications for Scottish Water specific activities. Scottish Water will raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies. More general information and flooding guidance will be available on the Scottish Water website (Annex 4).</p>
Related Actions:	Community flood action groups, Emergency plans/response, Flood forecasting, Maintain flood warning, Self help.
Coordination Arrangement:	<p>A flood protection scheme is proposed for Haddington. SEPA will support the local authority's communications and engagement activities. SEPA's awareness raising activities will be coordinated with the activities of other responsible authorities as required.</p> <p>Local Plan District (LPD) awareness raising will be coordinated by the Lead Local Authority and developed between SEPA, responsible authorities and community flood action groups.</p> <p>Scottish Water will keep responsible authorities informed of its awareness raising activities through the LPD partnerships.</p>
Funding Arrangement:	SEPA's awareness raising activities are funded by Scottish Government through SEPA's grant in aid settlement. Discrete proposals will be funded by the relevant local authority.

Action (ID):	MAINTENANCE (100990007)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	East Lothian Council, asset / land managers
Delivery Period:	Ongoing
Status:	Existing
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 risk based inspection, maintenance 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. □
Related Actions:	Awareness raising, Emergency plans/response, Maintain Flood Warning.
Coordination Arrangement:	East Lothian Council will work with private landowners to ensure that works are coordinated and that the infrastructure is maintained. East Lothian Council will liaise with Scottish Water, SEPA and Scottish Natural Heritage etc. Scottish Water will keep responsible authorities informed of large scale capital maintenance work to identify opportunities for coordination.
Funding Arrangement:	East Lothian Council will fund maintenance and repair work from its Revenue Budget, where it has that responsibility. Other asset owners (including the public) will be encouraged to fund works associated with maintenance and repair. Scottish Water is funded by customer charges as set by its economic regulator, all business activities required under this action by Scottish Water are accounted for in its Capital Maintenance expenditure.

Action (ID):	EMERGENCY PLANS/RESPONSE (100990014)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Category 1 and 2 Responders
Delivery Period:	Ongoing
Status:	Existing. East Lothian Council maintains a Severe Weather Response Plan specifically intended for use in the event of advance warning being received that one or more watercourses in the East Lothian area may cause flooding. River levels and flows are monitored and East Lothian Council liaise with SEPA whenever certain criteria are identified. In the event of a warning of potential river flooding affecting East Lothian being passed by SEPA to Police Scotland (J Division), an assessment of the need to convene the multi-agency East Lothian Flood Group will be made by the Senior Police Officer.
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. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations. East Lothian Council strategically deploys temporary flood barriers and sandbags when properties are threatened by flooding.
Related Actions:	Awareness raising, Community flood action groups, Flood forecasting, Maintain flood warning, Maintenance.
Coordination Arrangement:	During severe flooding, East Lothian Council will work in partnership with the Emergency and Health Services, SEPA, Met Office, Scottish Water, Voluntary Organisations and other agencies to coordinate the response to the incident. East Lothian Council's responsibilities may include activating flood defence systems (where appropriate), provision of sandbags and other flood prevention controls, road traffic management – closures and diversions, assisting with warning and alerting arrangements, contributing to media and public information strategies, establishing emergency rest centres for the care and welfare of persons evacuated or affected, coordinating the longer term recovery measures for rehabilitation of the community and restoration of the environment.
Funding Arrangement:	Funding is allocated to Category 1 and 2 responders by the Scottish Government for dealing with emergency response. In extreme cases Scottish Government may reimburse responders after an extreme event. Where required, East Lothian Council's responsibilities for emergency response are largely funded by East Lothian Council's relevant budget. SEPA's emergency plan/response activities are funded by Scottish Government through SEPA's grant in aid settlement.

Action (ID):	PLANNING POLICIES (100010001)
Objective (ID):	Avoid an overall increase in flood risk (10001) Reduce overall flood risk (10099)
Delivery lead:	Planning authority
Delivery Period:	Ongoing
Status:	Existing
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 national planning policies see Annex 5. □</p> <p>SEPA has a statutory role in relation to the provision of flood risk advice to planning authorities. This role is expressed in Section 72 of the FRM Act, 2009. SEPA also has a duty to cooperate with planning authorities in the preparation of development plans. When consulted in relation to planning applications for development or for site allocations in development plans, or where the planning authority considers there may be a risk of flooding, SEPA will provide advice. The advice provided by SEPA will be with respect to the risk of flooding and on the basis of the relevant information it holds which is suitable for planning purposes. It will also be in line with the principles and duties set out in the FRM Act. Further information about how SEPA engage in the planning system, including guidance on flood risk and planning is available on SEPA website.</p> <p>Scottish Water is a statutory consultee within the planning legislation and is required to comment on all outline or full planning applications which are referred by a local authority.</p>
Related Actions:	Flood protection scheme, Strategic mapping and modelling.
Coordination Arrangement:	<p>The East Lothian Council Flooding Team works closely with their Planning colleagues to ensure that appropriate policies and measures are put in place to reduce flood risk.</p> <p>SEPA's land use planning activities will be coordinated with the activities of other responsible authorities as required.</p>
Funding Arrangement:	The responsible authorities' land use planning activities will be funded by the responsible authorities' Revenue Budget. SEPA's land use planning activities are funded by Scottish Government through SEPA's grant in aid settlement.

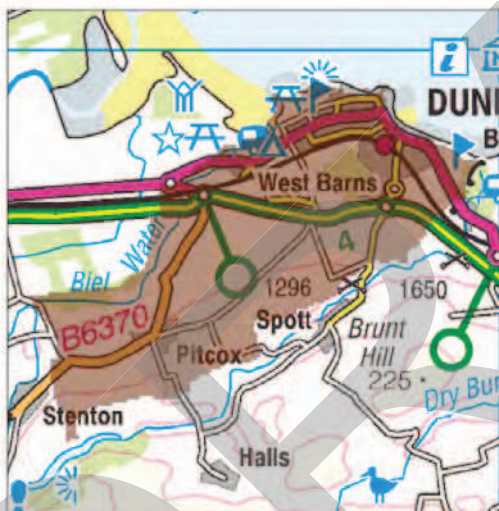
Dunbar and West Barns (Potentially Vulnerable Area 10/25)

Local Plan District	Local authority	Main catchment
Forth Estuary	East Lothian Council	East Lothian coastal

Background

This Potentially Vulnerable Area is 19km² and part of the East Lothian and Berwickshire catchment group (shown below). This is a small, coastal area covering Dunbar and West Barns and its immediate surroundings.

The main watercourse is the Biel Water which flows through the west of the area towards the north east, passing around the West Barns and discharging into the North Sea at Belhaven Bay.



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The area has a risk of river, coastal and surface water flooding. The majority of damages in this Potentially Vulnerable Area are caused by surface water flooding.

There are approximately 40 residential properties and 20 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £220,000.

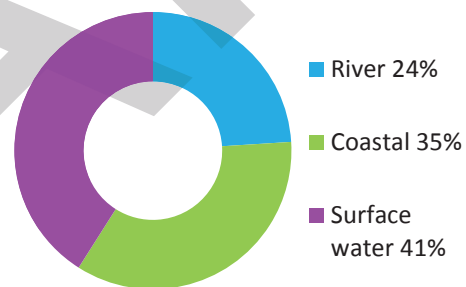


Figure 1: Annual Average Damages by flood source. *Reproduced from Forth Estuary Flood Risk Management Strategy, SEPA (December 2015).*

Summary of flooding impacts

The greatest risk of river flooding is from the Biel Water and the Hedderwick Burn to Dunbar and West Barns. The greatest risk of coastal flooding is from the North Sea to Dunbar and West Barns.

Further details of the risk of flooding to people and property, as well as to community facilities, utilities, the transport network, designated sites and agricultural land is available in the Flood Risk Management Strategy for Forth Estuary, (<http://apps.sepa.org.uk/FRMStrategies/forth-estuary.html>), search 'Dunbar and West Barns (Potentially Vulnerable Area 10/25)'

History of flooding

The following flood events have been identified as significant in this Potentially Vulnerable Area:

- 5 December 2012: A combination of wind and high tides caused large waves and coastal flooding along the east coast of Scotland. There was significant damage to North Berwick harbour and damage to the communal slipway at Dunbar harbour.
- 30 March 2010: A tidal surge coinciding with the highest mean tides of the year caused extensive flooding along the east coast of Scotland. Locations within this coastal area affected included Leith, Musselburgh, Prestonpans, Port Seton, Dunbar and North Berwick. The flood caused damage to properties, harbours, seawalls and roads.
- 22 October 2002: Belhaven hospital flooded from the river. Patients had to be evacuated after the generator room was shut down and wards closed.
- August 1949: Storm surge resulted in flooding to Dunbar.

Objectives to manage flooding in Dunbar and West Barns

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. The objectives below have been set for the Dunbar and West Barns Potentially Vulnerable Area.

- Reduce economic damages to residential and non-residential properties in the Dunbar and West Barns Potentially Vulnerable Area caused by river and coastal flooding (Objective ID: 10083);
- Avoid an overall increase in flood risk (Objective ID: 10001);
- Reduce overall flood risk (Objective ID: 10099);
- 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 flood risk and deliver the objectives are shown in the following section.

Actions to manage flooding in Dunbar and West Barns

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. The actions shaded below have been selected as the most appropriate for Dunbar and West Barns Potentially Vulnerable Area.

Selected actions					
<i>Flood protection scheme/works</i>	<i>Natural flood management works</i>	<i>New flood warning</i>	Community flood action groups	<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
<i>Maintain flood protection scheme</i>	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning Policy

The delivery of selected actions over the six-year plan cycle is summarised by year below.

Delivery of selected actions					
Year 1 (2016/17)	Year 2 (2017/18)	Year 3 (2018/19)	Year 4 (2019/20)	Year 5 (2020/21)	Year 6 (2021/22)
Community flood action groups					
	Flood protection study				
Maintain flood warning					
Awareness raising					
Emergency plans/response					
Strategic mapping and modelling (SEPA)					
Strategic mapping and modelling (Scottish Water)					
Flood forecasting					
Self help					
Emergency plans/response					
Maintenance					
Planning Policy					

Action (ID):	FLOOD PROTECTION STUDY (100830005)		
Objective (ID):	Reduce economic damages to residential and non-residential properties in the Dunbar and West Barns Potentially Vulnerable Area caused by river and coastal flooding (10083)		
Delivery lead:	East Lothian Council		
Priority:	National:	Within local authority:	Within LPD 10:
	110 of 168	3 of 3	20 of 26
Delivery Period:	2017-2018		
Status:	Not started		
Description:	A flood protection study has been recommended for Dunbar/West Barns to assess whether modification of conveyance, flood defences, sediment management and natural flood management could reduce flood risk. The study should also consider the viability of property level protection. Natural flood management options that should be considered include wave attenuation. The study should take a sustainable approach and consider the interaction between actions upstream and downstream and potential effects on coastal processes along the shoreline. The study should also assess the risk and mitigation of wave overtopping at North Berwick.		
Related Actions:	Flood protection study (PVA 10/23), Natural flood management study (PVA 10/21), Maintain flood warning, Planning Policy, Strategic mapping and modelling.		
Coordination Arrangement:	The East Lothian Council Flooding Team will liaise with SEPA, Scottish Water, Scottish Natural Heritage and other council departments during the progression of this study.		
Funding Arrangement:	The study will be funded from the Scottish Government General Capital Grant which has a 20% allocation for Flood Risk Management projects.		

Potential impacts	
Economic:	The study could benefit 49 residential properties and 15 non-residential properties at risk of flooding in this location, with potential damages avoided of up to £3.4 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. Natural flood management actions can restore and enhance natural environments and create opportunities for recreation and tourism.
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 Forth Estuary Local Flood Risk Management Plan the competent authority must demonstrate that any proposals coming forward will not have an adverse effect on the integrity of any Natura site (Special Protection Area or Special Area of Conservation) before any consents or permissions are granted. Conservation areas, battlefields and listed buildings are also present in the study area and could be positively or negatively impacted.

Action (ID):	STRATEGIC MAPPING AND MODELLING (100990016)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	SEPA
Delivery Period:	Strategic mapping improvements in this area are dependant on a local authority study. Wider coastal mapping and modelling improvements may take place in this area and these will be further refined in 2016 with the intention of updating the strategic coastal maps in 2016 to 2019.
Status:	Not started
Description:	SEPA will seek to develop flood mapping in the Dunbar to Stirling 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.
Related Actions:	Flood protection study, Planning Policy.
Coordination Arrangement:	A flood protection study is proposed for Dunbar/West Barns. SEPA will work with the local authority to ensure that new information about flood risk resulting from the proposed flood protection study is considered in SEPA's strategic mapping and modelling developments where appropriate and relevant.
Funding Arrangement:	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.

Action (ID):	STRATEGIC MAPPING AND MODELLING (100990019)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Scottish Water
Delivery Period:	Dunbar 2016-2017
Status:	Not started
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. Scottish Water will undertake further investigation and modelling in the Dunbar sewer catchments to improve knowledge and understanding of flood risk in this area, as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.
Related Actions:	Surface water plan/study.
Coordination Arrangement:	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.
Funding Arrangement:	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.

Action (ID):	MAINTAIN FLOOD WARNING (100990030)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	SEPA
Delivery Period:	Ongoing
Status:	Existing
Description:	SEPA will continue to maintain the Dunbar flood warning area including West Barns which is part of the Firth of Forth and Tay coastal flood warning scheme. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.
Related Actions:	Awareness raising, Community flood action groups, Emergency plans/response, Flood forecasting, Flood protection study, Self help.
Coordination Arrangement:	A flood protection study is proposed for Dunbar and West Barns. SEPA will work with the local authority to ensure that any new information about flood risk resulting from the proposed flood protection study is considered in the existing flood warning system.
Funding Arrangement:	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.

Action (ID):	FLOOD FORECASTING (100990009)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	SEPA
Delivery Period:	Ongoing
Status:	Existing
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 flood guidance statements provide an assessment of the risk of flooding for a five day period allowing responders time to put preparations in place to reduce the impact of flooding. 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.□
Related Actions:	Awareness raising, Emergency plans/response, Maintain flood warning, Self help.
Coordination Arrangement:	This is a joint initiative between SEPA and the Met Office. Hydrological information is provided by SEPA and meteorological information is provided by the Met Office. SEPA uses the information to predict the likelihood and timing of river, coastal and surface water flooding.
Funding Arrangement:	SEPA's flood forecasting service is funded through Scottish Government's grant in aid allocation. The Met Office receives funding from the UK Government.

Action (ID):	COMMUNITY FLOOD ACTION GROUPS (100830012)
Objective (ID):	Reduce economic damages to residential and non-residential properties in the Dunbar and West Barns Potentially Vulnerable Area caused by river and coastal flooding (10083)
Delivery lead:	Community
Delivery Period:	Ongoing
Status:	Existing
Description:	Dunbar Shore and Harbour Neighbourhood Group, East Lothian Tenants and Residents Panel and North Berwick Environment Group operate in this area. The groups could help increase community resilience to flooding.
Related Actions:	Awareness raising, Emergency plans/response, Flood forecasting, Maintain flood warning, Maintenance, Self help.
Coordination Arrangement:	East Lothian Council will engage with Dunbar Shore and Harbour Neighbourhood Group, East Lothian Tenants and Residents Panel and North Berwick Environment Group as well as the wider community to continue to increase community resilience to flooding. This will be done by developing and reviewing emergency plans and facilitating resilient communities' plans. There is good interaction between East Lothian Council Emergency Planning Officer and chair of Community Councils focussing on risks including flooding.
Funding Arrangement:	East Lothian Council engagement with the community will be funded by East Lothian Council Revenue Budget.

Action (ID):	SELF HELP (100990011)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	—
Delivery Period:	Ongoing
Status:	Existing
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. □
Related Actions:	Awareness raising, Community flood action groups, Flood forecasting, Maintain flood warning, Self help.
Coordination Arrangement:	In the event of severe issues East Lothian Council will work with the public to support community resilience where appropriate. This will be done by developing and reviewing emergency plans, facilitating community plans, and providing information on property level protection.
Funding Arrangement:	This will be funded by the property owner.

Action (ID):	AWARENESS RAISING (100990013)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Responsible authorities
Delivery Period:	Ongoing
Status:	Existing
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. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Where they exist, SEPA will engage with community resilience groups and community safety partnerships. Local authorities will raise awareness when developing discrete proposals.</p> <p>Scottish Water will support SEPA and responsible authorities with their awareness raising activities as required and provide targeted flooding communications for Scottish Water specific activities. Scottish Water will raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies. More general information and flooding guidance will be available on the Scottish Water website (Annex 4).</p>
Related Actions:	Community flood action groups, Emergency plans/response, Flood forecasting, Maintain flood warning, Self help.
Coordination Arrangement:	<p>SEPA's awareness raising activities will be coordinated with the activities of other responsible authorities as required.</p> <p>Local Plan District (LPD) awareness raising will be coordinated by the Lead Local Authority and developed between SEPA, responsible authorities and community flood action groups.</p> <p>Scottish Water will keep responsible authorities informed of its awareness raising activities through the LPD partnerships.</p>
Funding Arrangement:	SEPA's awareness raising activities are funded by Scottish Government through SEPA's grant in aid settlement. Discrete proposals will be funded by the relevant local authority.

Action (ID):	MAINTENANCE (100990007)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	East Lothian Council, asset / land managers
Delivery Period:	Ongoing
Status:	Existing
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 risk based inspection, maintenance 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. □
Related Actions:	Awareness raising, Emergency plans/response, Maintain flood warning.
Coordination Arrangement:	East Lothian Council will work with private landowners to ensure that works are coordinated and that the infrastructure is maintained. East Lothian Council will liaise with Scottish Water, SEPA and Scottish Natural Heritage etc. Scottish Water will keep responsible authorities informed of large scale capital maintenance work to identify opportunities for coordination.
Funding Arrangement:	East Lothian Council will fund maintenance and repair work from its Revenue Budget, where it has that responsibility. Other asset owners (including the public) will be encouraged to fund works associated with maintenance and repair. Scottish Water is funded by customer charges as set by its economic regulator, all business activities required under this action by Scottish Water are accounted for in its Capital Maintenance expenditure.

Action (ID):	EMERGENCY PLANS/RESPONSE (100990014)
Objective (ID):	Reduce overall flood risk (10099)
Delivery lead:	Category 1 and 2 Responders
Delivery Period:	Ongoing
Status:	Existing. East Lothian Council maintains a Severe Weather Response Plan specifically intended for use in the event of advance warning being received that one or more watercourses in the East Lothian area may cause flooding. River levels and flows are monitored and East Lothian Council liaise with SEPA whenever certain criteria are identified. In the event of a warning of potential river flooding affecting East Lothian being passed by SEPA to Police Scotland (J Division), an assessment of the need to convene the multi-agency East Lothian Flood Group will be made by the Senior Police Officer.
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. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations. East Lothian Council strategically deploys temporary flood barriers and sandbags when properties are threatened by flooding.
Related Actions:	Awareness raising, Community flood action groups, Flood forecasting, Maintain flood warning, Maintenance.
Coordination Arrangement:	During severe flooding, East Lothian Council will work in partnership with the Emergency and Health Services, SEPA, Met Office, Scottish Water, Voluntary Organisations and other agencies to coordinate the response to the incident. East Lothian Council's responsibilities may include activating flood defence systems (where appropriate), provision of sandbags and other flood prevention controls, road traffic management – closures and diversions, assisting with warning and alerting arrangements, contributing to media and public information strategies, establishing emergency rest centres for the care and welfare of persons evacuated or affected, coordinating the longer term recovery measures for rehabilitation of the community and restoration of the environment.
Funding Arrangement:	Funding is allocated to Category 1 and 2 responders by the Scottish Government for dealing with emergency response. In extreme cases Scottish Government may reimburse responders after an extreme event. Where required, East Lothian Council's responsibilities for emergency response are largely funded by East Lothian Council's relevant budget. SEPA's emergency plan/response activities are funded by Scottish Government through SEPA's grant in aid settlement.

Action (ID):	PLANNING POLICIES (100010001)
Objective (ID):	Avoid an overall increase in flood risk (10001) Reduce overall flood risk (10099)
Delivery lead:	Planning authority
Delivery Period:	Ongoing
Status:	Existing
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 national planning policies see Annex 5. □</p> <p>SEPA has a statutory role in relation to the provision of flood risk advice to planning authorities. This role is expressed in Section 72 of the FRM Act, 2009. SEPA also has a duty to cooperate with planning authorities in the preparation of development plans. When consulted in relation to planning applications for development or for site allocations in development plans, or where the planning authority considers there may be a risk of flooding, SEPA will provide advice. The advice provided by SEPA will be with respect to the risk of flooding and on the basis of the relevant information it holds which is suitable for planning purposes. It will also be in line with the principles and duties set out in the FRM Act. Further information about how SEPA engage in the planning system, including guidance on flood risk and planning is available on SEPA website.</p> <p>Scottish Water is a statutory consultee within the planning legislation and is required to comment on all outline or full planning applications which are referred by a local authority.</p>
Related Actions:	Flood protection study, Strategic mapping and modelling.
Coordination Arrangement:	<p>The East Lothian Council Flooding Team works closely with their Planning colleagues to ensure that appropriate policies and measures are put in place to reduce flood risk.</p> <p>SEPA's land use planning activities will be coordinated with the activities of other responsible authorities as required.</p>
Funding Arrangement:	The responsible authorities' land use planning activities will be funded by the responsible authorities' Revenue Budget. SEPA's land use planning activities are funded by Scottish Government through SEPA's grant in aid settlement.