

Flood Risk Management  
(Scotland) Act 2009:

# INTERIM REPORT Local Flood Risk Management Plan

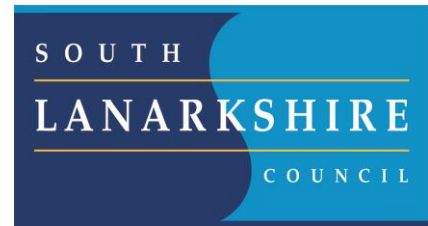
Forth Estuary Local Plan District



**Falkirk  
Council**

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## Prepared in partnership:



## **Contributors:**

Falkirk Council would like to extend their thanks to the following organisations who have assisted in the preparation of this Interim Report:

**Clackmannanshire Council**  
**East Dunbartonshire Council**  
**East Lothian Council**  
**Fife Council**  
**Scottish Forestry**  
**Midlothian Council**  
**North Lanarkshire Council**  
**Perth & Kinross Council**  
**Scottish Borders Council**  
**SEPA**  
**Scottish Flood Forum**  
**South Lanarkshire Council**  
**Stirling Council**  
**Scottish Water**  
**The City of Edinburgh Council**  
**West Lothian Council**

# Foreword

This INTERIM REPORT to the Forth Estuary Local Flood Risk Management Plan shows the progress made in delivering the actions to avoid and reduce the risk of flooding, and to prepare and protect ourselves and our communities across the local plan district.

In summary, twenty nine areas were identified as being potentially vulnerable to flood risk across the Forth Estuary area. These included 14,000 residential and 3,800 non residential properties, with an estimated annual average damage of thirty six million pounds.

*“The impacts of flooding experienced by individuals, communities and businesses can be devastating and long lasting. It is vital that we continue to reduce the risk of any such future events and improve Scotland’s ability to manage and recover from any events which do occur.”*

[\(Forth Estuary Local Flood Risk Management Plan, June 2016\)](#)

The publication of the INTERIM REPORT demonstrates that coordinated and collaborative efforts of public bodies can be brought together to deliver sustainable outcomes.

The INTERIM REPORT is published by Falkirk Council on behalf of a partnership comprising thirteen local authorities: The City of Edinburgh Council, Clackmannanshire Council, East Dunbartonshire Council, East Lothian Council, Falkirk Council (lead authority), Fife Council, Midlothian Council, North Lanarkshire Council, Perth & Kinross Council, Scottish Borders Council, South Lanarkshire Council, Stirling Council, West Lothian Council, as well as Scottish Water, SEPA; Network Rail, Transport Scotland and Scottish Forestry (formerly Forestry Commission Scotland).

Since publication of the Forth Estuary Flood Risk Management Plan in June 2016 , City of Edinburgh Council stood down as Lead Authority. Falkirk Council subsequently took on the Lead Authority role for the Forth Estuary Local Flood Risk Management District.

Individuals are the first line of defence against flooding and have responsibilities to protect themselves from flooding. Through self-help and property level protection, awareness raising and signing up to [Floodline](#), individuals, businesses and communities can and have made key contributions to the delivery of the actions in the plan, which are detailed in this INTERIM REPORT.

Since publication of the Forth Estuary Flood Risk Management plan in June 2016, public sector finances in Scotland have been under considerable pressure. This financial pressure places an even greater responsibility on SEPA, local authorities, Scottish Water and other responsible authorities to deliver flood risk management responsibilities, in particular the actions in the plan, to manage flooding in a sustainable way.

SEPA, local authorities, Scottish Water and other responsible authorities will continue to work collaboratively to implement actions in the Forth Estuary Flood Risk Management plan to its conclusion in June 2022.

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## Frequently Used Acronyms and Abbreviations

TERM	DEFINITION
<b>AOB</b>	Area of Benefit
<b>BCR</b>	Benefit Cost Ratio
<b>CAT 1&amp;2 Responders</b>	Core responders defined by the civil contingencies Act 2004
<b>EIA</b>	Environmental Impact Assessment
<b>FEH99</b>	Flood Estimation Handbook (1999)
<b>FEH13</b>	Flood Estimation Handbook (2013)
<b>FPS</b>	Flood Protection Scheme
<b>FRM</b>	Flood Risk Management
<b>GIS</b>	Geographical Information System
<b>ICS</b>	Integrated Catchment Study
<b>LLA</b>	Lead Local Authority
<b>LFRMP</b>	Local Flood Risk Management Plan
<b>LDP</b>	Local Development Plan
<b>LLTNP</b>	Loch Lomond and the Trossachs National Park Authority
<b>LPD</b>	Local Plan District
<b>NFM</b>	Natural Flood Management
<b>PFI</b>	Private Finance Initiative
<b>PLP</b>	Property Level Protection
<b>PVA</b>	Potentially Vulnerable Area
<b>Q&amp;S</b>	Quality & Standards (Scottish Water)
<b>RBMP</b>	River Basin Management Plan
<b>Section 7</b>	Refers to section 7 of the Sewerage (Scotland) Act 1968
<b>S16 or Section 16</b>	Scottish Water assessment of flood risk from sewerage systems - section 16 of the Flood Risk Management (Scotland) Act 2009
<b>S17 or Section 17</b>	Local Authorities mapping of bodies of water – section 17 of the Flood Risk Management (Scotland) Act 2009
<b>S18 or Section 18</b>	Local Authorities schedule of clearance and repair section 18 of the Flood Risk Management (Scotland) Act 2009
<b>S37 of Section 37</b>	Interim Report (this report) section 37 of the Flood Risk Management (Scotland) Act 2009



## List of Acronyms and Abbreviations cont.

<b>TERM</b>	<b>DEFINITION</b>
<b>SAC</b>	Special Area of Conservation
<b>SEA</b>	Strategic Environmental Assessment
<b>SEPA</b>	Scottish Environment Protection Agency
<b>SFRS</b>	Scottish Fire and Rescue Service
<b>SFF</b>	Scottish Flood Forum
<b>SFFS</b>	Scottish Flood Forecasting Service
<b>SNH</b>	Scottish Natural Heritage
<b>SPA</b>	Special Area of Conservation
<b>SPP</b>	Scottish Planning Policy
<b>TCV</b>	The Community Volunteering charity
<b>SWMP</b>	Surface Water Management Plan
<b>UKCP08</b>	UK Climate Change Predictions 2008
<b>UKCP18</b>	UK Climate Change Predictions 2018

A full glossary of terms can be found [here](#)

## Background

The INTERIM REPORT is a legal requirement of the Flood Risk Management (Scotland) Act 2009 (Section 37). The INTERIM REPORT is required to be published between July 2018 and June 2019. The INTERIM REPORT includes the conclusions of a review of the Forth Estuary Local Flood Risk Management Plan (the 'Plan'), published in June 2016 by the City of Edinburgh Council and includes information on the progress that has been made towards implementing the actions identified in the Plan.

It should be noted that South Lanarkshire Council, East Dunbartonshire Council, Stirling Council and Clackmannanshire Council only have small areas, that do not experience significant flooding, within the Forth Estuary Local Plan District. The Clyde and Loch Lomond Local Flood Risk Management Plan Section 37 update reviews progress for South Lanarkshire and East Dunbartonshire Council whilst the Forth Local Flood Risk Management Plan section 37 update outlines Stirling and Clackmannanshire Council's progress.

Further details on flood risk management responsibilities in Scotland and the legal requirement for the publication of this INTERIM REPORT can be found in Appendix 1.

A copy of the:

Forth Estuary Local Flood Risk Management Plan can be found [here](#):

Clyde and Loch Lomond Local Flood Risk Management plan can be found [here](#)

Forth Local Flood Risk Management Plan can be found [here](#)

## Review of the Plan

This section sets out the progress of actions detailed in the [Forth Estuary Flood Risk Management Plan](#).

The Forth Estuary Local Flood Risk Management Plan geographic area extends into thirteen local authority areas with input from other organisations and responsible authorities including Scottish Water, SEPA, Network Rail, Transport Scotland and Scottish Forestry. Within the LPD, 66 Actions were identified for progression within the 6 year period between 2016 and 2022. These included 10 Flood Protection Schemes or works, 26 studies as well as new flood warning schemes, surface water management plans and natural flood management studies and works.

### Key progress since publication of plan

- SEPA launched a new coastal flood warning for Airth in January 2018 with the potential to benefit almost 130 homes at flood risk.
- Phase two of Water of Leith Flood Prevention Scheme was opened in January 2018 at a cost of c£20m. The scheme provides flood protection to more than 400 homes and several commercial properties, including Murrayfield Stadium and Murrayfield Ice Rink.
- Musselburgh and Grangemouth Flood Protection Schemes have both progressed to outline design.
- Further study work is progressing for the Milnathort Surface Water Flood Protection Scheme, taking cognisance of Scottish Water improvement works. A surface water management plan for Milnathort will also be developed in conjunction with this work.
- A Surface Water Management plan has been completed for West Lothian.
- Integrated Catchment Studies (ICS) to understand flood risk in Falkirk, Edinburgh, Midlothian and East Lothian have been completed.
- Flood Studies are being progressed for Airth, Denny and Dunipace, Kincardine, Culross, Dunfermline and Linktown (Kirkcaldy).
- Flood Doors and other Property Level Protection measures have been installed to 14 properties as the first phase of mitigation works to reduce the impacts of sewer flooding and surface water flooding in Church Street, Eyemouth, through a collaborative working approach with Scottish Water and the local authority.

- West Lothian & North Lanarkshire ICS are now complete and CFA 1st drafts have been delivered.
- Fife ICS is currently progressing.
- Significant progress has been made developing relationships and understanding, including the sharing of knowledge and information, between partner authorities. This data sharing and partnership is beyond previous working relationships, allowing joint working and joint solutions to be developed where there are common issues.
- A number of flood mapping and modelling improvements are underway in the Forth Estuary Local Plan District by SEPA and other organisations. These will improve the understanding of flood risk across the area.
- The contract for the South Kinross Flood Protection Scheme has been awarded and outline design has commenced.
- SEPA has continued to operate the Scottish Flood Forecasting Service Partnership with the Met Office. Daily, national flood guidance statements are issued to Category 1 and 2 responders (such as emergency responders, local authorities and other organisations with flooding management duties). Each daily statement gives an assessment of the risk of flooding for the following five days to help enable these organisations to put measures in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and helps enable communities to be aware and prepared to reduce the impacts of flooding. SEPA has also continued to provide a flood warning service to a number of locations within the Forth Estuary Local Plan District.

## **How current is the plan?**

The Plan was published in June 2016 supplementing the Flood Risk Management Strategy published by SEPA in December 2015. The Plan details how the actions identified in the Strategy were to be implemented over the period 2016 to 2022. The Strategy and Plan are based on the 2011 National Flood Risk Assessment and the designated Potentially Vulnerable Areas at that time.

Since the identification of the actions in the Plan there have been, and continue to be, advancements in our knowledge and methodologies. These include the publication, by SEPA, of an updated National Flood Risk Assessment and Potentially Vulnerable Areas

assessment in December 2018. These advancements may inform the delivery of the actions in this Plan and will be used in the development of future Strategies and Plans.

It is therefore considered that the Plan, for which this is the INTERIM REPORT, is current, albeit the planned delivery and actual delivery of actions has changed for some actions as detailed in the 'Assessment of the progress of actions'.

## Challenges

Based on a review of the assessment of the progress of actions detailed in this INTERIM REPORT, the following key themes and issues have been identified and have, or may have, an impact on the delivery of actions to manage flood risk. Arrangements planned to deliver the remaining actions are described below. Where these issues have had an impact on the delivery of specific actions, or actions, across the LPD, this is detailed in the 'Assessment of the progress of actions'.

### Significant weather events

The Perth & Kinross Council area was adversely affected by significant weather events in late 2015 and early 2016. This had knock on impacts on the delivery of actions in the Plan from June 2016 onwards. Perth & Kinross Council resources were deployed to deal with the emergency events at that time, as well as follow up activities and necessary works, which will still be delivered into financial year 2019/20. This caused consequential delays in the planned delivery of actions as staff resource that would have been delivering planned actions, was redirected to delivering emergency actions. There had, therefore, been an issue whereby, planned arrangements to deliver actions were affected by significant weather events, as noted in 'assessment of the progress of actions'.

### Funding

The level of funding from Scottish Government for flood risk activities for the first years of the six year Plan has been at the levels anticipated. As per the principals of financial settlements for local government, this funding is not 'ring fenced' and local authorities may have allocated these funds to the delivery of other priorities.

The actions in the Plan to meet agreed goals and objectives in the first six-year cycle considered what would be achievable assuming a similar level of funding for flood risk management activities from The Scottish Government. Given, however, the timing of spending reviews and annualised financial settlements for local government, the actual ability to deliver actions set in the Strategies in December 2015 are detailed in the 'Assessment of the progress of actions' section of this INTERIM REPORT.

## **Allocation of resources**

The impact on the level of funding from Scottish Government in general settlements for local government may also have had an effect on the availability and allocation of resources within local authorities.

The budgets directly available in some local authorities for delivering flood risk actions has been a limiting factor. This has caused consequential delays in the planned delivery of actions. Spend profiles for prioritised schemes are submitted on an annual basis by local authorities to the Scottish Government in an attempt to match funding to spend. However as previously noted, as per the principals of financial settlements for local government, the funding is not 'ring fenced' and local authorities may have allocated these funds to the delivery of other priorities.

The availability and retention of skilled staff to deliver flood risk actions has also been a limiting factor for some Responsible Authorities. The increased workload created by the weather events noted above has put more pressure on existing staff resources in some areas. This has caused consequential delays in the planned delivery of actions.

Arrangements planned to deliver the remaining actions affected by allocation of resource issues are detailed in the 'Assessment of the progress of actions' section of this INTERIM REPORT.

## **Procurement and use of contractors and consultants**

The availability and procurement of consultants and professional advisors, and availability of necessary data to allow consultants to progress has been a limiting factor in some areas. This has caused consequential delays in the planned delivery of actions and may lead to increased costs.

Arrangements planned to deliver the remaining actions affected by the use of consultants are detailed in the 'Assessment of the progress of actions' section of this INTERIM REPORT

## **Cost increases**

As schemes and studies evolve, cost increases have been identified for some. This may become a limiting factor in some areas and cause consequential delays in the planned delivery of actions.

Arrangements planned to deliver the remaining actions affected by cost increase issues are detailed in the 'Assessment of the progress of actions' section of this INTERIM REPORT.



## **Prioritisation of Actions for Next Plan Cycle**

Many actions contained in the plan are to undertake studies that will determine the need for actions to be implemented in future plans. A flood protection study, for example, may recommend a community flood action group is set up to increase resilience to flooding or that flood defences are constructed. This introduces actions to be detailed and submitted by responsible authorities for consideration in the Plan for 2022-28 and the deadline date for submission of these actions to SEPA has been set as December 2019. The actions will then be assessed and prioritised against the flood risk objectives, and consulted upon ahead of the publication of the next cycle of Flood Risk Management Strategies in December 2021 and Local Flood Risk Management Plans in June 2022. Any actions that miss the December 2019 deadline may be delayed for consideration until the 2028-34 cycle.

## **Arrangements Planned to Deliver the Remaining Actions**

The actions in the current Plan will continue to be delivered over the remainder of the 2016 to 2022 period, subject to revisions in delivery dates as detailed in the 'Assessment of the progress of actions' section of this INTERIM REPORT.

In general, the vast majority of the actions in the Plan will be delivered by June 2022. The Grangemouth Flood protection scheme due to the size of the project will extend into the 3<sup>rd</sup> Plan cycle.

Where specific measures are required to address a delay and ensure an action is completed, this is described against the relevant action. In addition, where there is a risk that remaining actions will not be delivered by the end of the Plan, planned contingencies have been considered and described against the relevant action.

## Next Steps

A Final Report on the Plan will be published between July 2021 and June 2022. This will include an updated assessment of progress made towards implementing current actions; a summary of the current measures which were not implemented, with reasons for their non-implementation; and a description of any other measures implemented since the Plan was finalised which the lead authority considers have contributed to the achievement of the flood risk objectives.

The plans and strategies for the Forth Estuary can be accessed here:

[Forth Estuary Flood Risk Management Plan](#)

[Forth Estuary Flood Risk Management Strategy](#)

To find out more about how flood risk is being managed in your area please refer to your local authorities website:

[City of Edinburgh Council](#)

[Clackmannanshire Council](#)

[East Dunbartonshire Council](#)

[East Lothian Council](#)

[Falkirk Council](#)

[Fife Council](#)

[Midlothian Council](#)

[North Lanarkshire Council](#)

[Perth & Kinross Council](#)

[Scottish Borders Council](#)

[Stirling Council](#)

[South Lanarkshire Council](#)

[West Lothian Council](#)

[SEPA](#)

## **Conclusions**

**There are a number of key positive outcomes of the Plan in the period since commencement in June 2016.**

**Key to the success of this progress is partnership working. The establishment of strong working relationships between all partners has been important where there had been little or no previous links. Where links were already established they have been improved and strengthened. This, in turn, has led to closer working relationships with other organisations and groups, not named as responsible authorities. By working collaboratively the opportunity to provide sustainable solutions to flood risk has strengthened and can only continue to do so in future plan cycles.**

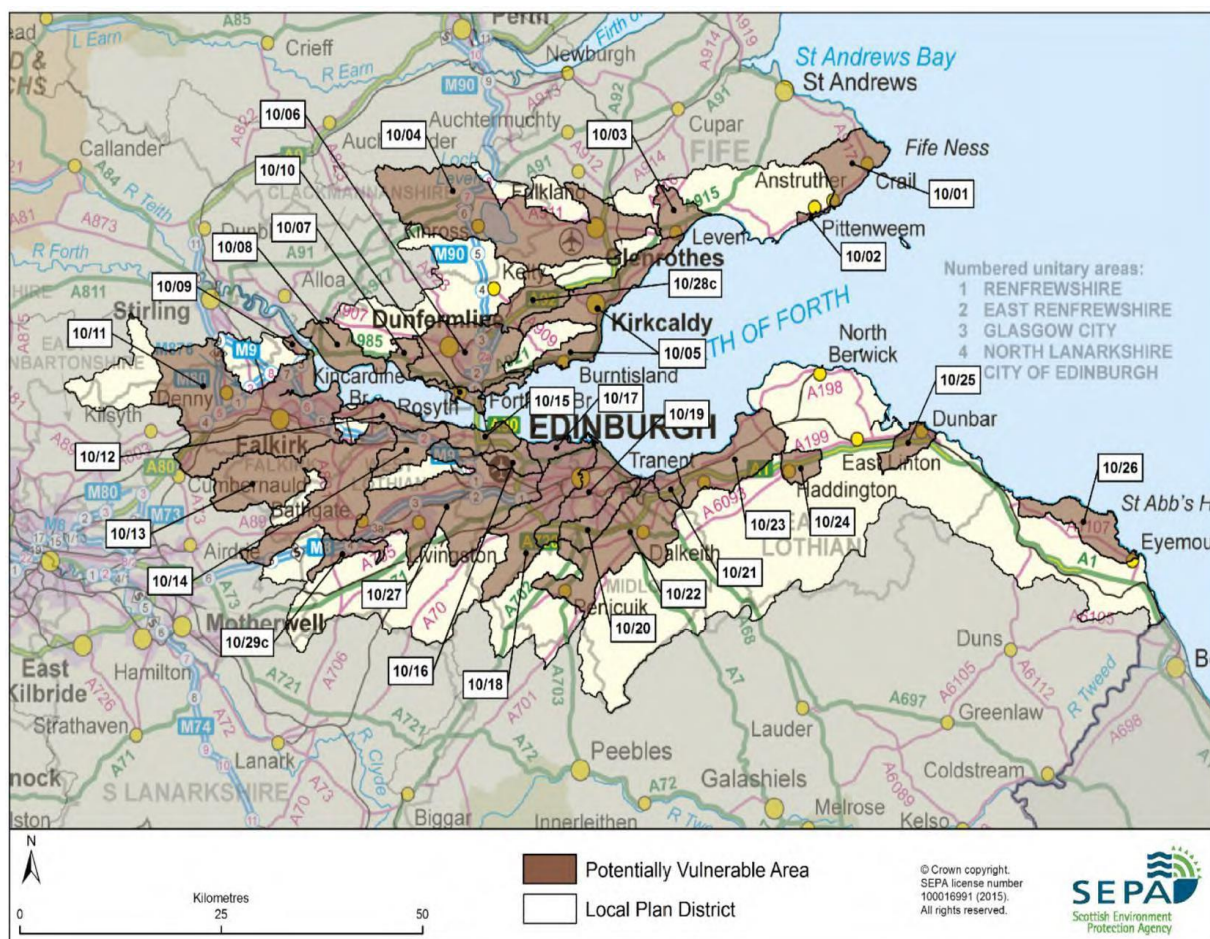
**Progression of flood studies has in general progressed as programmed, and proposed scheme development is moving forward.**

# Assessment of Progress

This section sets out an assessment of the progress towards implementing the actions set out in the LFRMP.

There are actions that apply across the whole of the Forth Estuary LPD and actions that are specific to each of the 29 Potentially Vulnerable Areas (PVAs) (as defined under Section 13 of the Act) in the Forth Estuary LPD. The locations of these PVAs are shown below in Figure 1.

**Figure 1: Forth Estuary LPD with Potentially Vulnerable Areas Identified**



Reproduced from Forth Estuary Flood Risk Management Strategy, SEPA (December 2015).

The actions that apply to individual Potentially Vulnerable Area (PVA) across the Forth Estuary Local Plan District (LPD) are shown in Figure 2. The summary of the assessment of progress is shown using the traffic light system, where each action type is marked as Red, Amber or Green (RAG) and where:

- **GREEN** – Action is on programme and within budget
- **AMBER** – Action is behind programme and / or over budget, but the key dates are anticipated still to be met
- **RED** – Action is behind programme and / or over budget with key dates unlikely to be met and / or the output is unlikely to achieve what was anticipated by the Local Flood Risk Management Plan (LFRMP)

**It should be noted that in cases where there are multiple actions of the same type e.g. 'Flood Protection Study' within a PVA, the RAG status will reflect the poorest performing action. Confirmation of RAG status for each individual action can be made by making reference to the PVA summary of actions for the PVA of interest.**

**Figure 2: Summary of progress of actions to manage flood risk in the Potentially Vulnerable Areas of the Forth Estuary**

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/01 Crail							G		G	G			G	G	G		G	G
10/02 Pittenweem							G		G	G			G	G	G		G	G
10/03 Leven	G		G			G	G		G	G			G	G	G		G	G
10/04 Kinross, Milnathort, Glenrothes and Kinglassie	A		G	G		A	G	G		G		N/A	G	G	G		G	G
10/05 Kirkcaldy, East Wemyss and Methil	G			A		G	R	G	G	G			G	G	G		G	G
10/06 Inverkeithing, Rosyth, Dunfermline and Wellwood				G		G	R	G		G			G	G	G		G	G
10/07 Cairneyhill		A		A		G	G	G	G	G			G	G	G		G	G
10/08 Hawkhill, Kincardine, Kennet Pans and Culross	A			A			A	G	G	G			G	G	G		G	G
10/09 Airth			G	A			R			G			G	G	G		G	G
10/10 North Queensferry and Inverkeithing						G	R	G	G	G			G	G	G		G	G
10/11 Falkirk, Grangemouth, Laurieston, Denny, Redding, Dunipace, Cumbernauld, Carron and Stenhousemuir	A		G	A		G	A	G	G	G		G	G	G	G		G	G
10/12 Bo'ness						G	A	G	G	G			G	G	G		G	G
10/13 Linlithgow Bridge, Bathgate, Whiteside and Slamannan				R	A	G	R	G		G			G	G	G		G	G
10/14 Philipstoun							R			G			G	G	G		G	G
10/15 South Queensferry							R			G			G	G	G		G	G
10/16 Cramond Bridge						A	G		G	G			G	G	G		G	G
10/17 Granton				G		A	A	G	G	G			G	G	G		G	G
10/18 Water of Leith catchment	R					A	R	G	G	G			G	G	G		G	G
10/19 Braid Burn catchment						A	A	G	G	G			G	G	G		G	G

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/20 Niddrie and Burdiehouse Burn catchment				G		A	G	G		G			G	G	G		G	G
10/21 Musselburgh	A				G	G	A		G	G		G	G	G	G		G	G
10/22 Lasswade, Penicuik, Dalkeith and Musselburgh	A			G	G	G	A	G	G	G		G	G	G	G		G	G
10/23 Cockenzie and Port Seton, Longniddry and Prestonpans				G			R	G	G	G		G	G	G	G		G	G
10/24 Haddington	G						G		G	G		G	G	G	G		G	G
10/25 Dunbar and West Barns				A			A		G	G		G	G	G	G		G	G
10/26 Berwickshire Coast				G			A		G	G		G	G	G	G		G	G
10/27 South Gyle, Broxburn and Bathgate	A					A	R	G		G		N/A	G	G	G	G	G	G
10/28c Cowdenbeath			G	G		G				G			G	G	G		G	G
10/29c Whitburn				G						G			G	G	G		G	G



## **Progress with LPD-Wide Actions**

This section sets out an assessment of the progress towards implementing actions that apply across the whole of the Forth Estuary LPD over the six-year Plan, which is presented in Figure 3.

**Figure 3: Progress with LPD-wide Actions for the Forth Estuary**

Action	Status	Description	Delivery Lead	Progress in Delivery, including key deliverables and dates	Planned actions to complete / address delay
<b>Flood forecasting (100990009)</b>	<b>G</b>	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.	<b>SEPA</b>	SEPA has continued to operate the Scottish Flood Forecasting service (SFFS) partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.
<b>Self help (100990011)</b>	<b>G</b>	Everyone is responsible for protecting themselves and their property from flooding. Self-help actions can be undertaken by any individuals, businesses, organisations or communities at risk of flooding. They are	<b>Community</b>	Ongoing with input from SEPA, Local Authorities and the Scottish Flood Forum.  <b>The Scottish Flood Forum</b> As well as working on specific community projects, undertake more strategic	This is an on-going community/ individual led activity which Local Authorities, SEPA and the Scottish Flood Forum continue to support.

<p><b>Self help (100990011) (continued)</b></p>		<p>applicable to all sources, frequency and scales of flooding. They focus on awareness raising and understanding of flood risk. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and Resilient Communities Initiatives, and ensuring that properties and businesses are insured against flood damage.</p>		<p>community engagement including, setting up and attending property level protection exhibitions, aiding selection of products, providing home assessments and appropriate and relevant information to enable members of the public to make informed decisions. The Scottish Flood Forum also has ongoing community property level protection training and Flood Warden and resilience group promotion. Local authorities are supporting communities, individuals and the Scottish Flood Forum to become resilient through promotion of Floodline, providing advice on flood risk and advocating property level protection.</p> <p><b><u>East Lothian Council</u></b> Website refers to Self Help Advice and Contacts with regards to protection of property from flooding.</p> <p><b><u>Perth &amp; Kinross Council</u></b> supports communities to become more resilient to emergency situations, including flood events. Communities have been engaged through the Community and Business Resilience Group, led by the Council.</p> <p><b><u>North Lanarkshire Council</u></b> website Flooding page provides links to a number of agency guidance information including the Scottish Flood Forum, Scottish Water, SEPA and the Scottish Government.</p>	<p><b><u>Perth &amp; Kinross Council</u></b> will continue to support communities to become more resilient to flooding. The council will also continue to support communities to develop community resilience groups and emergency plans.</p>
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<p><b>Self help (100990011) (continued)</b></p>				<p><b>Falkirk Council</b> Website refers to Self Help Advice and Contacts with regards to protection of property from flooding.</p> <p><b>Scottish Borders Council</b> operates a subsidised Flood Product Scheme throughout the Scottish Borders to offer all residents' access to affordable Property Level Protection. This is promoted through attendance at community meetings and undertaking visits to properties as requested. Scottish Borders Council Emergency Planning continues to promote and implement the Resilient Communities Scheme, signing up 46 of 67 community areas within the Scottish Borders.</p> <p><b>Fife Council</b> - provides advice to the public and general information is provided on the Council's website. Fife Council also provides Flood Pods at prioritised locations where there is flood risk to property. These provide flood sacks and flood 'snakes' which can be accessed by local residents for defence of their property.</p> <p><b>West Lothian Council</b> - website provides links to a number of agency guidance information including the Scottish Flood Forum, Scottish Water, SEPA and the Scottish Government.</p>	<p><b>Falkirk Council</b> - Self Help element to feature within Grangemouth flood protection scheme public engagement activities, input will be sought from SEPA with regard to promoting Floodline and also Scottish Flood Forum.</p> <p><b>Scottish Borders Council</b> - to continue providing a Subsidised Flood Protection Product Scheme throughout the Scottish Borders to offer all residents access to affordable flood products.</p> <p><b>Fife Council</b>- will continue to provide advice to the public and update the general information provided on the Council's website. The provision of Flood Pods at prioritised locations will continue</p>
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<p><b>Self help (100990011) (continued)</b></p>				<p><b>The City of Edinburgh Council</b> will offer advice and assist the public during flooding events. Information is available on the Council website and a limited number of sandbags are provided around the City for public use</p>	
<p><b>Awareness raising (100990013)</b></p>	<p><b>G</b></p>	<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. SEPA will undertake flood risk education and awareness raising activities. In addition, SEPA will, where possible, engage with Local Authorities and community resilience groups by participation in property level protection events delivered by the Scottish Flood Forum. 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</p>	<p><b>Responsible Authorities</b></p>	<p>Generic awareness raising is carried out through Council websites and social media. Awareness raising activity can also be in partnership with community resilience groups, where they exist. Councils can use SEPA flood Alerts as a targeted timing to deliver flood awareness information.</p> <p><b>SEPA</b> has delivered a range of awareness raising activities through campaigning, education activities and partnership delivery. We have run national and local digital and direct engagement campaigns to raise awareness of flood risk and SEPA's flood warning service, Floodline. We publish and publicise an electronic newsletter (Flooding Gateway) four times a year which is distributed to a wide audience. We are working with Education Scotland and Scottish Government Resilience team to embed flooding awareness within the Curriculum for Excellence, and resilience partners in Safer Communities programmes. We have also developed an online tool that helps everyone share information on current flooding issues (Report-a-Flood). We have worked in partnership with local authorities, emergency services and community</p>	<p>Council's will support awareness raising through community meetings, flood study public meetings, Community Council and Local Members input as well as through drop in sessions, public meetings associated with specific flood resilience schemes, newsletters, social media and local flood risk management plans.</p> <p><b>SEPA</b> will continue to raise awareness of flood risk through campaigning, developing education and engagement tools, creating new partnerships and improving the flood warning and forecasting service. Many of our awareness raising activities currently underway will continue. Our focus will be on promoting flood warning and forecasting service, innovation, education and engagement with partners, customers and the public</p>

<p><b>Awareness raising (100990013) (continued)</b></p>		<p>services (Floodline). Where they exist, SEPA will engage with community resilience groups and community safety partnerships.</p> <p>For new flood protection schemes, 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>To support the delivery of the new SEPA flood warning scheme, SEPA will carry out a local launch event and engage directly with residents in the area. This will be supported by local and national media communications. SEPA will also support and participate in local public awareness events, in partnership with the local authority, community council or other local representative</p>		<p>organisations (e.g. Neighbourhood Watch Scotland, Citizens Advice Scotland and others) to share our resources and help to promote preparedness and understanding of how we manage flood risk in Scotland. We have actively supported the Scottish Flood Forum and worked closely with UK agencies to develop joint flooding information.</p> <p><b>Scottish Water</b> will support SEPA and responsible authorities with their awareness raising activities as required and provide targeted communications for Scottish Water sewer flooding programme activities. Scottish Water will raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.</p> <p><b>Perth &amp; Kinross Council</b> has developed its website to provide more advice and information on flood risk management. Any awareness raising activity has been coordinated with community resilience groups, where they exist.</p> <p><b>Midlothian Council</b> engagement with local community following a flood incident / historic issues. Initial Community</p>	<p><b>Scottish Water</b> are continuing to support SEPA and Local Authorities in their awareness raising activities. General awareness raising is carried out through the Scottish Water website and national advertising campaigns to increase public awareness of the implications of their actions on sewer flooding . For site specific capital projects and local studies, targeted public engagement is being carried out at a local level.</p> <p><b>Perth &amp; Kinross Council</b> will continue with awareness raising activities when developing proposals for the remaining actions in its local flood risk management plans (specifically the Milnathort and South Kinross flood schemes). This activity will be coordinated with SEPA and the Scottish Flood Forum and has included community drop in sessions, meetings, newsletters and social media activity.</p>
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<p><b>Awareness Raising (100990013) (continued)</b></p>		<p>organisations, including schools.</p> <p>Local authorities will raise awareness when developing discrete proposals. 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.</p> <p>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 web site</p>		<p>engagement with both Community Council and the wider community, exploring possible options regarding SEPA and Local Authority engagement. Community engagement presentation and appropriate advice – short term strategic development.</p> <p><b><u>North Lanarkshire Council</u></b> website Flooding page provides links to a number of agency guidance information including the Scottish Flood Forum, Scottish Water, SEPA and the Scottish Government.</p> <p><b><u>Stirling Council</u></b> - awareness raising is carried out through the council website and social media. The council use SEPA flood Alerts as a targeted timing to deliver flood awareness information. The council are developing an annual programme of attending local highland games and other public gatherings to deliver awareness raising objectives. The council will work with Scottish Fire and Rescue Service to deliver joint flooding messages at Fire station open days annually to reach a wider audience.</p> <p><b><u>Clackmannanshire Council</u></b> through ongoing partnership with SFRS, SFF, TCV and currently established local flood groups, will continue its efforts to raise awareness of flood risk and community resilience.</p> <p><b><u>East Lothian Council's</u></b> website Emergency Planning section provides advice on</p>	<p><b><u>North Lanarkshire Council</u></b> reviews and updates flooding references within their website.</p> <p><b><u>Stirling Council</u></b> - through its ongoing partnership with Clackmannanshire Council, SFRS, SFF, TCV and established local flood groups, resilience groups and community councils will continue efforts to raise awareness of flood risk and community resilience.</p> <p><b><u>Clackmannanshire Council</u></b> Efforts will continue to increase the number of active local flood groups in the Clackmannanshire Council area.</p> <p><b><u>East Lothian Council's</u></b> Service Weather Action plan is updated annually.</p>
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<p><b>Awareness Raising (100990013) (continued)</b></p>				<p>Flooding, Flood Prevention, Sandbag Policy, Floodwater, Business Continuity and Damage to Homes. A Community Resilience workshop was held on 27th October 2018.</p> <p><b><u>West Lothian Council</u></b> Flood risk awareness is promoted where a flood study/scheme is being progressed, prior to the installation of flood prevention measures and where relevant to an enquiry. Council website provides links to a number of agency guidance information including the Scottish Flood Forum, Scottish Water, SEPA and the Scottish Government.</p> <p><b><u>Fife Council</u></b> - awareness raising through community meetings, flood study public meetings, Community Council and Local Members input as well as through Emergency Resilience team within Fife Council.</p> <p><b><u>Scottish Borders Council</u></b> - now operates and continues to set up resilient communities' schemes in the Borders, signing up 46 of 67 community areas within the Scottish Borders. The Council worked with FloodRE in some Border Towns to increase awareness of the new Flood RE Insurance Scheme which provides affordable insurance for those properties at Flood Risk. Scottish Borders Council continues to work closely with flood action groups and resilience groups to encourage actions to raise awareness of flood risk</p>	<p><b><u>Fife Council</u></b> – will continue awareness raising through community meetings, flood study public meetings, Community Council and Local Members input as well as through Emergency Resilience team within Fife Council.</p> <p><b><u>Scottish Borders Council</u></b> - will continue to raise awareness of flood risk through flood schemes and flood studies, liaising closely with the public in the areas being assessed. Scottish Borders Council will continue to work closely with flood action groups and resilience groups to encourage actions to raise awareness of flood risk.</p>
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<p><b>Awareness Raising (100990013) (continued)</b></p>	<p><b>G</b></p>			<p>within the Scottish Borders. This includes letter dropping and attending Community Council and Local Flood Group Meetings.</p> <p><b>Falkirk Council</b> - website refers to Self Help Advice and Contacts with regards to protection of property from flooding.</p> <p><b>The City of Edinburgh Council</b> –Flood risk awareness is promoted where a flood study/scheme/works is being progressed, or where relevant to an enquiry. Contact information for Scottish Water and SEPA are provided on the council website under flooding.</p>	<p><b>Falkirk Council</b> - awareness raising within Grangemouth Flood Protection Scheme public engagement activities Input will be sought from SEPA with regard to promoting Floodline and SFF.</p>
<p><b>Maintenance (100990007)</b></p>	<p><b>G</b></p>	<p>Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water will 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</p>	<p><b>Responsible Authorities and land/asset managers</b></p>	<p>Inspection and maintenance regimes in place</p> <p><b>Scottish Water</b> undertake risk based inspection and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.</p> <p><b>Perth &amp; Kinross Council</b> has continued to inspect and assess watercourses. Routine inspections are a carried out either annually, six monthly or quarterly, depending on the flood risk associated with each watercourse. Further reactive inspections have been</p>	<p>Councils will continue to inspect and assess watercourses and revise maintenance schedules to reduce flood risk.</p> <p><b>Scottish Water</b> will continue to undertake risk based inspection and repair of the public sewer system.</p> <p><b>Perth &amp; Kinross Council</b> will continue to inspect and assess watercourses and carry out clearance and repair works where this would substantially reduce flood risk. Road gullies will continue to be monitored and cleared as per the gully monitoring</p>

<p><b>Maintenance (100990007) (continued)</b></p>		<p>assets including those which help to reduce flood risk. Section 18 and 59 of the Flood Risk Management (Scotland) Act 2009 place duties of watercourse assessment, and clearance &amp; repair on local authorities. In addition, local authorities may also be responsible for maintenance of existing flood protection schemes or defences.</p>	<p>carried out when issues have been highlighted or during times of flooding. Where a flood risk is identified, and clearance and repair works would substantially reduce that flood risk, then those works are included on the Council's clearance and repair schedule and carried out. The Council has also continued to inspect and maintain existing flood protection schemes. Perth &amp; Kinross Council also operates a monitoring programme for the inspection and maintenance of road gullies. Each gully is inspected, and cleared if required, once per year. The monitoring programme identifies gullies that are more at risk from blockage so that they can be checked more frequently. It also enables the Council to reduce the frequency of inspections where gullies are found to require less frequent maintenance. Through this monitoring, the Council is developing a more strategic and sustainable approach to gully maintenance. The public can also contact the Council to highlight issues with any road gullies.</p> <p><b>Falkirk Council</b> operates a cyclic risk based priority inspection maintenance schedule for assets and watercourses.</p> <p><b>Clackmannanshire Council</b> have operated a prioritized Watercourse Inspection and Clearance Regime in the Council area since</p>	<p>programme. The Council will also continue to maintain the formal flood schemes within its area, as per existing inspection and maintenance regime.</p> <p><b>Falkirk Council</b> will continue to operate and develop the cyclic risk based priority inspection maintenance schedule and continue with a rolling programme of access improvements and screen replacement.</p> <p><b>Clackmannanshire Council</b> Further develop and improve GIS based management system to log and record</p>
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<p><b>Maintenance (100990007) (continued)</b></p>			<p>2011. Site specific reports captured via GIS system (to be updated 2018/19) and published on Clacksweb. Additional inspection and clearance input from Community Payback Teams and Local Volunteers (Hillfoots) reported via GIS system.</p> <p><b>Stirling Council</b> have a successful GIS based watercourse inspection regime in place which identifies risks and hazards. Annual inspections are carried out in stretches identified as being higher risk areas. Where problems are identified and clearance and repair works would substantially reduce that flood risk, those works are prioritised on a risk basis and included on the Council's clearance and repair schedule and carried out as annual budgets allow. Where the problems reside in private property the council will notify landowners of their riparian responsibilities. There are plans to expand this notification to involve criminal justice colleagues and arrange clearance works where landowners are amenable to this work being carried out on their behalf. The council also have a fortnightly maintenance regime in place where key hot spot locations have been identified, usually where there is a repeat flooding history or a high flood risk identified. Any additional works identified are added to a schedule of works and prioritised based on a risk based approach and the available budget.</p>	<p>relevant watercourse maintenance data</p> <p><b>Stirling Council</b> will continue to inspect watercourses to identify flood risks and to carry out the fortnightly inspection and clearance regime which has resulted in a reduction in localised and repeat flooding incidents. Budgets have however been reduced therefore the volume of clearance and repair works has reduced and continues to be carried out on a risk based priority. The council will continue to seek methods of continuing a sustainable level of maintenance activities through volunteers and criminal justice support.</p>
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<p><b>Maintenance (100990007) (continued)</b></p>				<p><b><u>North Lanarkshire Council</u></b> has a schedule of clearance and repair in place.</p> <p><b><u>East Lothian Council</u></b> Annual summer and winter maintenance contracts issued. Prioritised Cyclical Water Bodies GIS Layer is being populated with potential Clearance and Repair Sites for inclusion in a Maintenance Schedule.</p> <p><b><u>Fife Council</u></b> operates inspection regimes at prioritised flood risk locations. Inspections are undertaken prior to forecast heavy rainfall and in any event on a monthly basis. Annual inspections of watercourses are undertaken to assess if maintenance may substantially reduce flood risk. Where identified this is carried out by the Council where it has riparian ownership or directed to the relevant land owner if privately owned.</p> <p><b><u>Scottish Borders Council</u></b> has carried out watercourse inspections of 128 of 129 (99%) watercourses within the Scottish Borders as well as undertaking clearance and repair works to reduce flood risk as per S18 Clearance &amp; Repair Schedule. The Council also undertakes annual inspections of the coastal seawalls and other flood mitigation measures within the area.</p> <p><b><u>West Lothian Council</u></b> operates a priority maintenance and inspection regime, schedules are in place.</p>	<p><b><u>North Lanarkshire Council</u></b> has a programme to install improved access routes to culvert sites.</p> <p><b><u>Fife Council</u></b> will continue to operate inspection regimes for known flood risk locations and assess watercourses and carry out clearance and repair works where this would substantially reduce flood risk.</p> <p><b><u>Scottish Borders Council</u></b> will continue to undertake a regime of watercourse inspections on a risk-based approach. To continue to update and publish online the Section 18 Clearance &amp; Repair Schedule and undertake the necessary repairs to reduce flood risk.</p>
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<p><b>Maintenance (100990007) (continued)</b></p>	<p><b>G</b></p>			<p><b>The City of Edinburgh Council</b> has continued to undertake annual inspections of watercourses. Where a flood risk is identified, and clearance and repair works would substantially reduce that flood risk, those works will be included on the Council's clearance and repair schedule and carried out as annual budgets allow. The council also have a monthly maintenance regime in place where locations susceptible to blockage have been identified. Where flood risk is identified in private property, the council will notify landowners of their riparian responsibilities.</p> <p>The City of Edinburgh Council has a schedule in place for road gullies, each gully is inspected on a 2-year cycle. Where a road gully has been identified to have a higher risk of blockage that will result in localised flooding, they are on a sensitive list and inspected 6-monthly.</p>	<p><b>The City of Edinburgh Council</b> intend to develop and improve GIS based management systems to assist with the watercourse inspections as well as log and record relevant watercourse maintenance data.</p> <p>The City of Edinburgh Council will continue to inspect and assess watercourses and carry out clearance and repair works where this would substantially reduce flood risk. Road gullies will continue to be monitored and cleared as per the gully monitoring programme.</p> <p>Continue to update Section18 clearance and repair schedule and publish yearly updates for public inspection.</p>
<p><b>Emergency plans / response (100990014)</b></p>	<p><b>G</b></p>	<p>Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these</p>	<p><b>Category 1 and 2 Responders</b></p>	<p>Ongoing</p> <p><b>Perth &amp; Kinross Council</b> further developed its Flooding Emergency Response Plan in October 2017. The Plan is designed to ensure that contingency measures are in place for a coordinated and flexible response to flooding incidents to mitigate the effects of flooding emergencies on people, property and infrastructure.</p>	<p>Plans are under constant review and scrutiny using table top exercises.</p> <p><b>Perth &amp; Kinross Council</b> will continue to implement the Flooding Emergency Response Plan when required. Where no incidents have occurred within a 12 month period a table top exercise will be conducted to test the response plan. This exercise may include consideration of flooding incidents, severe weather, widespread flooding, storm events etc.</p>

<b>Emergency plans / response (100990014) (continued)</b>		<p>organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations. Emergency response plans are applicable for all types of flooding. They set out the steps to be taken during flooding in order to maximise safety and minimise impacts where possible. Under the Civil Contingencies Act, Category 1 Responders have a duty to maintain emergency plans. Emergency plans may also be prepared by individuals, businesses, organisations or communities. Scottish Water is a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required.</p>		<p><b><u>Stirling and Clackmannanshire Councils</u></b> have established a formal Flood Partnership Group between Scottish Fire &amp; Rescue Service, Scottish Flood Forum, SEPA, Emergency Planning Officers and flooding teams from each Local Authority and Scottish Water as of June 2017. There is potential to expand the working group to include other agencies or voluntary sector. Ongoing dialogue and quarterly meetings between parties to better plan joint emergency responses to community risks.</p> <p><b><u>North Lanarkshire Council</u></b> The councils Contingency Planning Unit plans and exercises with other organisations under the principles of Integrated Emergency Management to deal with the effects of an emergency, irrespective of the cause.</p> <p><b><u>Scottish Borders Council</u></b> Reviewed and updated Severe Weather Plan in July 2018. This included review and update of the Council's emergency response procedures, flood gate procedures and flood warning procedures. Introduced strategic severe weather co-ordination group to co-ordinate emergency response. Initiated co-ordinated approaches during emergency situations, including named Storms, with representation from all Category 1 and Category 2 responders including Scottish Water, Emergency Services and voluntary groups through the Joint Agency Control Centre (Bunker) at Scottish Borders Council</p>	<p><b><u>Stirling and Clackmannanshire Councils</u></b> Stirling Council through its ongoing partnerships with Clackmannanshire Council, SFRS, SFF, TCV and currently established local flood groups, will continue efforts to raise awareness of flood risk and community resilience. They will continue to develop partnership working model and embed communications links between key group stakeholders and also to expand group membership to other potential partners (e.g. volunteer sector)</p> <p><b><u>North Lanarkshire Council</u></b> Review and update flooding reference and links within the website</p> <p><b><u>Scottish Borders Council</u></b> to continue to revise and develop relevant Emergency Plans as new information becomes available. SBC will also continue to undertake duties as Category 1 responders under the Civil Contingencies Act 2004 and contribute towards Resilience Partnership groups at local and regional levels.</p>
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<p><b>Emergency plans / response (100990014) (continued)</b></p>			<p>Headquarters.</p> <p><b><u>Falkirk Council</u></b> Emergency Planning Unit plans and exercises with other organisations under the principles of Integrated Emergency Management to deal with the effects of an emergency, irrespective of the cause. Plans are revised regularly with input from flooding officers.</p> <p><b><u>East Lothian Council</u></b> Severe Weather Plan is updated annually.</p> <p><b><u>City of Edinburgh Council</u></b> Maintains a Severe Weather Emergency Plan and Local Flood Action Packs. The Plans are reviewed regularly with input from flooding officers.</p> <p><b><u>Fife Council</u></b> has a Flooding Emergency Procedures document which provides local resilience partnerships with information required in connection with response to flooding incidents.</p> <p><b><u>West Lothian Council</u></b> Emergency plans are in place and are updated when required. Emergency response is actioned when required, guided by SEPAs Flood Guidance Statements, weather forecasting and the council's own network of water level sensors and rain gauges</p>	<p><b><u>Falkirk Council</u></b> will continue to undertake review procedures and plans to incorporate improved understanding of risk and available resource.</p> <p><b><u>City of Edinburgh Council</u></b> will continue a coordinated approach to emergency situations to initiate relevant Emergency Plans as appropriate in relation to Met Office weather warnings and SEPA flood warning information.</p> <p><b><u>Fife Council</u></b> will review and update the Flooding Emergency procedures document. This document is next due for review by November 2019.</p>
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<p><b>Planning Policy (100010001)</b></p>	<p><b>G</b></p>	<p>The Scottish Planning Policy (SPP) 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 SPP supports a catchment scale approach to sustainable flood risk management and aims to develop 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 generally be avoided. For further information on the national planning policies see Annex 3. 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 Flood Risk Management (Scotland) Act 2009. SEPA also has a duty to co-operate</p>	<p><b>Planning Authority And Responsible Authorities</b></p>	<p><b>Perth &amp; Kinross Council</b>  Local Development Plans are reviewed regularly. The current Perth &amp; Kinross Local Development Plan (LDP1) contains planning policy and development allocations which ensure that new development at medium to high risk of flooding is avoided (unless flood protection measures to the appropriate standard (1:200 years) already exist and are maintained, are under construction, or are a planned measure in a current flood risk management plan). SEPA and Perth &amp; Kinross Council's flooding team input to the planning application process as necessary to implement flood risk policy and ensure there is an appropriate assessment and mitigation of flood risk as detailed development proposals come forward. The Council's flooding team has reviewed 872 planning applications since the start of the 2016/17 financial year as a consultee in the planning process. The Council's flooding team has also provided additional advice on flood risk management to the Planning Authority out with these formal consultations.  The Council is reviewing LDP1, which was adopted in February 2014 to produce LDP2. LDP1 includes the policies and development allocations against which the planning applications for development are considered. Key milestones in its review have included publication and consultation on the Main Issues Report (consulting on key issues and changes from the adopted</p>	<p><b>Perth &amp; Kinross Council</b> will publish LDP2 and revised Supplementary Guidance on Flooding and Drainage. Following consultation on the Perth &amp; Kinross proposed LDP2, the Council considered the representations made to the Proposed Plan and approved responses to these representations at a special Council meeting in August 2018. The Proposed Plan was then submitted to Scottish Ministers for examination on 14 September 2018. The Reporter is currently examining the unresolved issues. Following amendment of the LDP2 in line with the Reporter's recommendations (unless there are reasonable and justifiable grounds for not accepting some of the recommendations), the Council will adopt LDP2. This is anticipated to be in July 2019. Perth &amp; Kinross Council's existing Supplementary Guidance (SG) on Flood Risk and Flood Risk Assessments (Developers Guidance note on Flooding and Drainage) has also been reviewed and revised and is currently being consulted on with a view to adoption alongside LDP2. The main aspects that are being updated are the guidance on climate change; the requirements for sustainable urban drainage systems (SuDS) and the ongoing maintenance responsibilities, including information on potential maintenance agreements with Scottish Water under Section 7 of the Sewerage (Scotland) Act.</p>
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<p><b>Planning Policy (100010001) (continued)</b></p>	<p>with planning authorities in the preparation of development plans. When consulted in relation to planning applications for development or site allocations in development plans, and 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 <a href="http://www.sepa.org.uk/environment/land/planning/">http://www.sepa.org.uk/environment/land/planning/</a>.</p> <p>Current national planning policies, the Scottish Planning Policy and accompanying Planning Advice notes restrict development within the</p>		<p>LDP1) in December 2015 and the publication and consultation on the LDP2 Proposed Plan (the settled view of the Council) in December 2017. To inform this process, the Council has undertaken a Strategic Environmental Assessment (SEA) and prepared an Environmental Report to identify, describe and evaluate the likely significant effects on the environment. The SEA includes the consideration of flood risk in site assessment and policy work, and involved engagement with SEPA and the Council's flooding team.</p> <p><b>SEPA</b> exercises its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Strategies and local FRM Plans. In line with the management actions that accord with national planning policies we will object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We will also continue to engage at the offset of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy.</p> <p><b>City of Edinburgh Council</b> The City of Edinburgh Council Local Development Plan contains planning policy and development allocations which ensures development at</p>	<p><b>The City of Edinburgh Council</b> will continue work closely with planning authorities in the development and implementation of local development plans</p>
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<p><b>Planning Policy (100010001) (continued)</b></p>		<p>floodplain and limit exposure of new receptors to flood risk. Planning authorities are responsible for implementing this policy guidance when preparing Local Development Plans and when considering individual planning applications. In addition to national policies, local planning policies may place further requirements within their area of operation to restrict inappropriate development and prevent unacceptable risk. Scottish Water is a statutory consultee within the planning legislation. They provide advice to planning authorities during the preparation of Local Development Plans and are required to comment on all outline or full planning applications which are referred by a planning authority.</p>		<p>medium to high risk of flooding is avoided, and give advice on Flood Risk Assessment requirements where appropriate. Flooding officers input to the planning application process as necessary to implement flood risk policy and ensure there is an appropriate assessment and mitigation of flood risk. The flooding team provides additional advice on flood risk management to Planning colleagues out with these formal consultations. To assist in the assessment of planning applications for flood risk, the City of Edinburgh Council has developed and implemented a self-certification procedure.</p> <p><b><u>East Lothian Council</u></b> LDP was approved by Ministers in September 2018. SuDS Design Guidance document at Draft Stage</p> <p><b><u>North Lanarkshire Council</u></b> are in the final stages of preparing the first North Lanarkshire Local Development Plan (The Plan). Once Adopted it will replace the North Lanarkshire Local Plan. It will guide the outcome of every Planning Application following Adoption.</p> <p><b><u>Stirling Council</u></b> flood risk information, including the LFRMP's, feed into the LDP's for both Stirling Council and LLTNP. Both planning departments are informed of changes and developments through engagement with the flooding team and local advisory group meetings.</p>	<p>to incorporate flood risk management objectives into the process from the outset.</p> <p><b><u>North Lanarkshire Council</u></b> Supplementary Planning Guidance SPG09 Flooding and Drainage dated 2010 to be reviewed and updated 2019/20.</p> <p><b><u>Stirling Council</u></b> will continue to work closely with both planning authorities in the development and implementation of local development plans to incorporate flood risk management objectives into the process from the outset.</p>
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<p><b>Planning Policy (100010001) (continued)</b></p>			<p><b><u>Fife Council</u></b> Planning Policy amended in Strategic plan to ensure Flooding considered at outset in line with current SPP. Planning Policy in place to ensure FRA SuDs and any other relevant information provided at submission of Planning Application, otherwise application returned as incomplete.</p> <p><b><u>Clackmannanshire Council</u></b> The current Clackmannanshire Council Local Development Plan (LDP) contains planning policy and development allocations which ensures development at medium to high risk of flooding is avoided (unless flood protection measures to the appropriate standard (1:200) already exist. SEPA and Clackmannanshire Council’s flooding team input to the planning application process as necessary to implement flood risk policy and ensure there is an appropriate assessment and mitigation of flood risk as detailed development proposals come forward. The flooding team provides additional advice on flood risk management to Planning colleagues out with these formal consultations. The Council is reviewing the LDP, which includes policies and development allocations against which the planning applications for development are considered. The LDP review has commenced with a Call for Sites and a Call for Issues. The LDP Review will be informed by a Strategic Environmental Assessment</p>	<p><b><u>Clackmannanshire Council</u></b> aims to adopt the LDP Review in 2020. This may include revised Supplementary Guidance on Flooding and Drainage, depending on the outcome of the Planning Bill, which is currently proposing scrapping statutory supplementary guidance. Non-statutory guidance on flooding and drainage could still be produced by the Council.</p>
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<p><b>Planning Policy (100010001) (continued)</b></p>				<p>(SEA) and Environmental Report to identify, describe and evaluate the likely significant effects on the environment. The SEA will include the consideration of flood risk in site assessment and policy work, and involved engagement with SEPA and the Council's flooding team.</p> <p>East Lothian LDP was approved by Ministers in September 2018. SuDS Design Guidance Document at Draft Stage.</p> <p><b>Falkirk Council</b> Local Development Plan (LDP1) contains planning policy and development allocations which ensures development at medium to high risk of flooding is avoided, and give advice on Flood Risk Assessment requirements where appropriate. Flooding officers input to the planning application process as necessary to implement flood risk policy and ensure there is an appropriate assessment and mitigation of flood risk as detailed development proposals come forward.</p> <p><b>Scottish Borders Council</b> provide advice as the local flood authority on local planning publications within the Scottish Borders, including the Housing Supplementary Guidance and the Main Issues Report which supplements the LDP2, ensuring that these assess all aspects of flood risk, encourage sustainable flood risk management and comply with SPP and the FRM Act 2009. Scottish Borders Council's Flood &amp; Coastal Management Team will provide advice as</p>	<p><b>Falkirk Council</b> A new Proposed Falkirk Local Development Plan (LDP2) has been prepared for the area and is currently being consulted on. This will eventually replace the current Local Development Plan (LDP1) which was adopted in July 2015. As with the LDP 1 Flooding was considered throughout the plan development.</p> <p><b>Scottish Borders Council</b> will continue to provide advice on all relevant planning applications and local planning publications within the Scottish Borders, ensuring that all aspects of flood risk are assessed, encourage sustainable flood risk management and comply with Scottish Planning Policy, Local Council Policies and the FRM Act 2009.</p>
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<p><b>Planning Policy (100010001) (continued)</b></p>				<p>the local flood authority on all relevant planning applications, ensuring there is an appropriate assessment of all aspects of flood risk and will encourage sustainable flood risk.</p> <p><b><u>West Lothian Council</u></b>  Local Development Plans reflect flood risk. Supplementary Planning Guidance is available to support the planning application process and ensure that applications are adequately considered in terms of flood risk and drainage especially surface water management.</p>	
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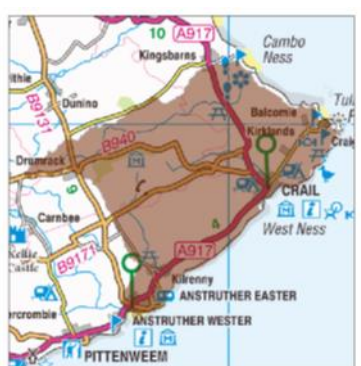
## Progress with PVA-Specific Actions

This section sets out an assessment of the progress towards implementing actions that are specific to each of the 29 PVAs as shown in Figure 2. Assessments of the progress of actions within each PVA are presented.

There are no specific actions identified for 'property level protection scheme' and 'site protection plans' actions. Consideration of property level protection schemes will be included in the 'flood protection study', 'surface water plan/study' and/or 'emergency plans/response' actions. Site protection plans will be identified through these same 'study' actions and also 'planning policies' action.

## Crail (Potentially Vulnerable Area 10/01)

Local Plan District	Local authority	Main catchment
Forth Estuary	Fife Council	South Fife Coastal



### Summary of Progress for Crail

There are approximately 120 residential properties and 40 non-residential properties at risk of flooding. The Annual Average Damages are approximately £310,000. Further information can be found in the LFRMP under PVA 10/01.

Since publication of the LFRMP in June 2016 SEPA have continued to maintain the flood warning system and Fife Council continue with watercourse maintenance schedules and working with the community to raise awareness and self-help schemes. Scottish Water are on schedule to undertake a S16 assessment of the sewer network serving Crail.

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### Overview of actions to manage flooding in Crail (PVA 10/01)

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/01							G		G	G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in the Crail (PVA 10/01)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Maintain Flood Warning (100990030)</b>	<b>G</b>	Maintain the Anstruther to Elie 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.	SEPA	Ongoing	SEPA has continued to operate the flood warning service.	SEPA will continue to operate the flood warning service.
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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 Anstruther Billowness sewer catchment and an assessment of the Crail sewer catchment to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.	Scottish Water	Anstruther Billowness 2017-20  Crail 2016- 18	S16 assessment complete for both Crail and Anstruther.	
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service. Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.



<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self-help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk. Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.  Fife Council updated Flood Emergency Plan published Nov 2018.	Further to the planned actions described in Fig 3 of this report. Fife Council Emergency Plan will be updated Nov 2019.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	Fife Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

## Pittenweem (Potentially Vulnerable Area 10/02)

Local Plan District	Local authority	Main catchment
Forth Estuary	Fife Council	South Fife Coastal



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### Summary of Progress for Pittenweem

There are fewer than 10 residential and non-residential properties at risk of flooding. The Annual Average Damages are approximately £17,000. Further information can be found in the LFRMP under PVA 10/02.

Since publication of the LFRMP in June 2016 SEPA has continued the flood warning service and Fife Council continue inspection and maintenance of watercourses, while working with the community to raise awareness of self-help initiatives. Scottish Water has a S16 assessment of the sewer network scheduled prior to 2021.

### Overview of actions to manage flooding in Pittenweem (PVA 10/02)

PVA	Flood protection scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/02									G	G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in the Pittenweem (PVA 10/02)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Maintain Flood Warning (100990030)</b>	<b>G</b>	Maintain the Anstruther to Elie 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.	SEPA	Ongoing	SEPA has continued to operate the flood warning service.	SEPA will continue to operate the flood warning service.
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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 St Monans sewer catchment to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.	Scottish Water	2018	Complete.	
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self-help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.  Fife Council Flood Emergency Plan published Nov 2018.	Further to the planned actions described in Figure 3 of this report. Fife Council Emergency Plan will be updated Nov 2019.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 42	Fife Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report

## Leven (Potentially Vulnerable Area 10/03)

Local Plan District	Local authority	Main catchment
Forth Estuary	Fife Council	River Leven (Fife)



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### Summary of Progress for Leven

There are approximately 180 residential properties and 90 non-residential properties at risk of flooding. The Annual Average Damages are approximately £820,000. Further information can be found in the LFRMP under PVA 10/03.

Since publication of the LFRMP in June 2016 SEPA are on program to implement a flood warning scheme in May 2021. The Leven Valley Integrated Catchment study, led by Scottish Water in partnership with Fife Council, is progressing and output will inform options for further studies and potential schemes to manage surface water and sewer flood risk.

### Overview of actions to manage flooding in Leven (10/03)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/03	G		G			G	G		G	G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in the Leven (PVA 10/03)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Study (100060005)</b>	<b>G</b>	A flood study has been recommended for Leven to assess whether modification of conveyance, direct flood defences, sediment management and natural flood management could reduce flood risk. The study should also investigate the viability of property level protection. Natural flood management options that should be considered include river/ flood plain restoration and sediment management. The assessment should consider these actions in combination and the impacts of flood risk upstream and downstream of each action.	Fife Council	Delivery 2016-2020		
<b>New Flood Warning (100990010)</b>	<b>G</b>	The area under consideration includes properties affected by flooding in Fife and Perth & Kinross and is likely to include Leven. Further feasibility assessment will be required to assess delivery potential and the final detail of communities for which warnings can be provided will be determined during the scoping process.	SEPA	May 2021	Initial investigations into flood risk and potential new flood warning areas undertaken across Fife.	Feasibility assessment to determine scope of new hydrometric infrastructure and flood warning service requirements due to be completed in 2019-20.

<b>Surface Water Plan/Study (100040018)</b>	<b>G</b>	The Leven 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 integrated catchment studies, to assist with the surface water management planning process.	Fife Council	2016-21	Study planned to start towards the end of 2019.	
<b>Surface Water Plan/Study (100040019)</b>	<b>G</b>	An integrated catchment study (ICS) will be carried out for the Leven Valley and Eastern Methil to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea.	Scottish Water in partnership with Fife council.	Ongoing	Flow Survey complete. Manhole and ancillary survey complete. Watercourse surveys complete.	Historical Verification & Catchment Flood Assessment delivery
<b>Maintain Flood Warning (100990030)</b>	<b>G</b>	Maintain the existing Lower Largo and the Leven and Methil flood warning areas which are 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	SEPA	Ongoing	SEPA has continued to operate the flood warning service.	SEPA will continue to operate the flood warning service.

		accurate.				
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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, Leven Valley sewer catchment to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.	Scottish Water	2018-20	Started.	On track to deliver as scheduled in the LFRMP.
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self-help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and Land/Asset Managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.



<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.  Fife Council Flood Emergency Plan published Nov 2018.	Further to the planned actions described in Fig 3 of this report. Fife Council Emergency Plan will be updated Nov 2019.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	Fife Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report

## Kinross, Milnathort, Glenrothes and Kinglassie (Potentially Vulnerable Area 10/04)

Local Plan District	Local authority	Main catchment
Forth Estuary	Fife Council and Perth & Kinross Council	River Leven (Fife)



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### Summary of Progress for Kinross, Milnathort, Glenrothes and Kinglassie

There are approximately 210 residential properties and 150 non-residential properties at risk of flooding. The Annual Average Damages are approximately £1,200,000. Further information can be found in the LFRMP under PVA 10/04.

Since publication of the LFRMP in June 2016 SEPA are on programme to implement a flood warning scheme for Kinross by May 2021. Scottish Water has completed works on the sewer network serving Milnathort. Perth & Kinross Council are also progressing further study work for the Milnathort Surface Water Flood Protection Scheme to take cognisance of Scottish Water's work. A Surface Water Management Plan will also be developed as part of this work. Scottish Water have also completed a S16 Assessment of the Kinross sewer network.

### Overview of actions to manage flooding in Kinross, Milnathort, Glenrothes and Kinglassie (PVA 10/04)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/04	A		G	G		A	G	G		G		N/A	G	G	G		G	G

## Summary of progress of actions to manage flood risk in the Kinross, Milnathort, Glenrothes and Kinglassie (PVA 10/04)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Scheme / Works (100080006)</b>	<b>A</b>	A flood protection scheme has been proposed for Milnathort to address surface water flooding. The scheme would consist of pumping stations and provide a 1 in 100 year (plus climate change) standard of protection.	Perth & Kinross Council	2016-2019	Work to progress the Milnathort Surface Water Flood Protection Scheme commenced in November 2018. The contract was awarded to Sweco UK Ltd. This is later than the programmed commencement date of 2016/17.	The outline design of the flood protection scheme has commenced. This will include a review of the recent works carried out by Scottish Water to understand the residual risk of surface water flooding since the sewer flooding project was completed. The expected completion is now in the 2020/21 financial year.
<b>Flood Protection Scheme / Works (100110006)</b>	<b>A</b>	A flood protection scheme has been proposed for South Kinross to address flooding from the South Queich, Gelly Burn and Clash Burn. The scheme would consist of flood defence walls and provide a 1 in 200 year (plus climate change) standard of protection.	Perth & Kinross Council	2017-2021	Work to progress the South Kinross Flood Protection Scheme commenced in February 2019. The contract was awarded to RPS Consulting Engineers Ltd. This is later than the programmed commencement date of 2017/18.	The outline design of the South Kinross Flood Protection Scheme has commenced. The expected completion is now in the 2021/22 financial year.
<b>New Flood Warning (100990010)</b>	<b>G</b>	The area under consideration includes properties affected by flooding in Fife and Perth & Kinross and is likely to include Kinross. Further feasibility assessment will be required to assess	SEPA	May 2021	Initial investigation into flood risk and potential new flood warning areas undertaken across Fife/Perth & Kinross.	Feasibility assessment to determine scope of new hydrometric infrastructure and flood warning service due to be completed in 2019-20

		delivery potential and the final detail of communities for which warnings can be provided will be determined during the scoping process.				
<b>Flood Protection Study (100120005)</b>	<b>G</b>	A Study looking at surface water management in Glenrothes is scheduled to start in 2017. This study may identify future study needs that would be taken forward in the second flood risk management cycle.	Fife Council	2016-2020	On track to deliver as scheduled in the LFRMP.	
<b>Surface Water Plan/Study (100040018)</b>	<b>G</b>	The Leven and eastern Methil 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 integrated catchment studies, to assist with the surface water management planning process.	Fife Council	2016-2021	Study planned to start towards the end of 2019.	
<b>Surface Water Plan/Study (100040019)</b>	<b>G</b>	An integrated catchment study covering the Leven Valley catchment will be carried out to improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. the sewer network, watercourses and (where applicable) the sea.	Scottish Water in partnership with local authorities	2016-2021	Flow Survey complete. Manhole and ancillary survey complete. Watercourse surveys complete..	Historical Verification & Catchment Flood Assessment delivery

		<p>This will improve the understanding of local surface water flood risk. The stated timescales and funding arrangements between Scottish Water and Fife Council will take the studies through the scoping and modelling phases to define the significant flooding issues in the catchment. After this has been completed, it is expected that the integrated catchment study partnerships will remain in place and will progress to develop solutions to the significant flooding issues.</p>				
<p><b>Surface Water Plan/Study (100080018)</b></p>	<p><b>A</b></p>	<p>Milnathort will be covered by a surface water management plan that sets objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. Perth &amp; Kinross Council had previously engaged consultants, Atkins, to produce the Milnathort Surface Water Investigation study which was completed in 2011. This study recommended a surface water flood protection scheme (involving drainage measures, underground storage and pumping stations). The proposed scheme will provide a 1:100 year standard of protection against surface water flooding, and will include an additional allowance for climate change. This action will be implemented through the Milnathort Surface Water Flood Protection Scheme Action (ID)</p>	<p>Perth &amp; Kinross Council</p>	<p>2016-2019</p>	<p>The Milnathort surface water management plan was awarded to Sweco UK Ltd in November 2018 to take forward in the 2018/19 financial year. This is later than the programmed commencement date of 2016/17. This action is being implemented through the Milnathort Surface Water Flood Protection Scheme Action ID 100080006.</p>	<p>The surface water management plan has commenced, with completion now expected in the 2020/21 financial year.</p>

		100080006. 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 integrated catchment studies, to assist with the surface water management planning process.				
<b>Surface Water Plan/Study (101030018)</b>	<b>G</b>	The Glenrothes and Markinch areas 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 integrated catchment studies, to assist with the surface water management planning process.	Fife Council	2016-2021.		
<b>Surface Water Plan/Study (101030019)</b>	<b>G</b>	An integrated catchment study covering the Leven Valley catchment will be carried out to improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. the sewer network, watercourses and (where applicable) the sea. This will improve the understanding of	Scottish Water in partnership with local authorities	2018-2021	Flow Survey complete. Manhole and ancillary survey complete. Watercourse surveys complete.	Historical Verification & Catchment Flood Assessment delivery.

		local surface water flood risk. The stated timescales and funding arrangements between Scottish Water and Fife Council will take the studies through the Scoping and Modelling phases to define the significant flooding issues in the catchment. After this has been completed, it is expected that the integrated catchment study partnerships will remain in place and will progress to develop solutions to the significant flooding issues.				
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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 Kinross, Leven Valley and Milnathort sewer catchments to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.	Scottish Water	Kinross 2016-17  Leven Valley 2018-20  Milnathort 2016-19	Kinross and Milnathort complete.  Leven Valley on track to deliver as scheduled in the LFRMP.	
<b>Maintain Flood Protection Scheme (100100017)</b>	<b>G</b>	Perth & Kinross Council continue to maintain the existing flood protection schemes along the Back Burn in Milnathort. These include the Milnathort Flood Protection Schemes completed in 2006 and 2010.	Perth & Kinross Council	Ongoing	Perth & Kinross Council carries out routine inspections of the existing flood defences in Milnathort. Maintenance works are carried out as required.	Routine inspections will continue to be carried out as part of the Council's statutory duties.

<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Community Flood Action Groups (100100012)</b>	<b>N/A</b>	A community resilience group operated in this area and was supported by Perth & Kinross Council to develop community resilience plans. This action has been included in SEPA's Flood Risk Management Strategy however, this community action group has now ceased its activities.	Community	N/A	There are no operational community resilience groups in Milnathort or Kinross.	N/A
<b>Self help (100990011)</b>	<b>G</b>	Raising community awareness of self help measures available to protect property Refer to Figure 3; page 26	Community		No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	No planned actions in this PVA, further to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raising Community Awareness of flood risk Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Further to the planned actions described in Figure 3 (LPD wide actions) of this report. Perth & Kinross Council plan to carry out awareness raising in conjunction with the flood schemes in Milnathort and South Kinross (Action ID's 100080006 & 100110006).
<b>Maintenance (100990007)</b>	<b>G</b>	Maintenance at locations where flood risk has been identified Refer to Figure 3; page 33	Responsible Authorities and asset / land managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	No planned actions in this PVA, further to the planned actions described in Figure 3 of this report.



<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.  Fife Council Updated Flood Emergency Plan published Nov 2018.	Further to the planned actions described in Fig 3 of this report. Fife Council Emergency Plan will be updated Nov 2019.
<b>Planning Policy (100010001)</b>	<b>G</b>	LPD reflects flood risk Refer to Figure 3; page 40	Planning Authority	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	No planned actions in this PVA, further to the planned actions described in Figure 3 of this report.

## Kirkcaldy, East Wemyss and Methil (Potentially Vulnerable Area 10/05)

Local Plan District	Local authority	Main catchment
Forth Estuary	Fife Council	South Fife coastal



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### Summary of Progress for Kirkcaldy, East Wemyss and Methil

There are approximately 190 residential properties and 180 non-residential properties at risk of flooding. The Annual Average Damages are approximately £850,000. Further information can be found in the LFRMP under PVA 10/05.

Since publication of the LFRMP in June 2016 Fife Council have commenced a flood protection study, with NFM, for Kirkcaldy. Changes to rainfall methodology FEH13 means SEPA could not deliver strategic mapping and modelling for the Forth Estuary prior to 2022, hence action red. Scottish Water has S16 Assessments of the Kirkcaldy and East Wemyss sewer networks in their programmed works.

### Overview of actions to manage flooding in Kirkcaldy, East Wemyss and Methil (PVA 10/05)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/05	G			A		G	R	G	G	G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in the Kirkcaldy, East Wemyss and Methil (PVA 10/05)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Scheme / Works (10300021)</b>	<b>G</b>	Reduce the risk of flooding on identified sections of the rail network in the PVA.	Network Rail	2019-24	Study in Progress. Completion due February 2019	
<b>Flood Protection Study (100150025)</b>	<b>G</b>	A flood protection study has been recommended for Linktown and Kirkcaldy to assess whether flood storage, sediment management, modification of conveyance, flood defences and natural flood management could reduce flood risk. The study should also investigate property relocation. Natural flood management options that should be considered include; runoff control, river/floodplain restoration, sediment management and 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.	Fife Council	2016-20	Study in Progress. Completion due February 2019	
<b>Flood Protection Study (100150005)</b>	<b>A</b>	Flood protection study has been recommended for East Wemyss to assess whether flood storage, sediment management, modification of	Fife Council	2016-20	Not commenced.	

		conveyance, flood defences and natural flood management could reduce flood risk. The study should also investigate property relocation. Natural flood management options that should be considered include; runoff control, river/floodplain restoration, sediment management and 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.				
<b>Maintain Flood Warning (100990030)</b>	<b>G</b>	Maintain the Leven and Methil, Burntisland to Aberdour, Kinghorn and Kirkcaldy flood warning areas which are part of the Firth of Forth and Firth of 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.	SEPA	Ongoing	SEPA has continued to operate the flood warning service.	SEPA will continue to operate the flood warning service.
<b>Surface Water Plan/Study (100130018)</b>	<b>G</b>	The Kirkcaldy and Cluny 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	Fife Council	2016-21	Studies are in the programme.	

		understanding of the sewer network. This includes Scottish Water corporate data (as applicable) and, where available, outputs of Section 16 or integrated catchment studies, to assist with the surface water management planning process.				
<b>Maintain Flood Protection Scheme (100150017)</b>	<b>G</b>	Maintain existing coastal flood defences.	Fife Council	Ongoing	Engaging with landowners, responsible authorities and agencies as required.	
<b>Strategic mapping and modelling (100990016)</b>	<b>R</b>	Surface water mapping developments: improved data areas across LPD + use of Kirkcaldy and Cluny SWMP results if appropriate.	SEPA	2016-21	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall across Scotland and represents a significant change in rainfall amounts compared to FEH99 dataset, as such it is no longer consider appropriate to deliver this action as originally intended.	This action will not be taken forwards as described. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2. Alongside this SEPA will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.

<b>Strategic Mapping and modelling (100990019)</b>	<b>G</b>	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 s Burntisland, East Wemyss, Kirkcaldy sewer catchments to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.	Scottish Water	Burntisland 2016-19  E Wemyss 2016-20  Kirkcaldy 2016-19	Kirkcaldy complete. East Wemyss and Burntisland not started.	On on track to deliver as scheduled in the LFRMP.
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Self help (100990011)</b>	<b>G</b>	Raising community awareness Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers.	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders*		No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.  Fife Council Flood Emergency Plan published Nov 2018.	Further to the planned actions described in Fig 3 of this report. Fife Council Emergency Plan will be updated Nov 2019.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflect flood risk Refer to Figure 3; page 40	Fife Council and responsible authorities		No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report

## Inverkeithing, Rosyth, Dunfermline and Wellwood (Potentially Vulnerable Area 10/06)

Local Plan District	Local authority	Main catchment
Forth Estuary	Fife Council	South Fife coastal



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### Summary of Progress for Inverkeithing, Rosyth, Dunfermline and Wellwood

There are approximately 410 residential properties and 230 non-residential properties at risk of flooding. The Annual Average Damages are approximately £2,000,000. Further information can be found in the LFRMP under PVA 10/06.

Since publication of the LFRMP in June 2016 Fife Council have progressed flood studies for Dunfermline. Scottish Water is on schedule to deliver S16 Assessment and Integrated Catchment Study for the Dunfermline sewer network. Changes to rainfall methodology FEH13 means SEPA could not deliver strategic mapping and modelling for the Forth Estuary prior to 2022, hence action red.

### Overview of actions to manage flooding in Inverkeithing, Rosyth, Dunfermline and Wellwood (PVA 10/06)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/06				G		G	R	G		G			G	G	G		G	G



## Summary of progress of actions to manage flood risk in the Inverkeithing, Rosyth, Dunfermline and Wellwood (PVA 10/06)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Study (100190005)</b>	<b>G</b>	A flood protection study has been recommended for Dunfermline to assess whether modification of conveyance, sediment management , installation /modification of fluvial control structures, flood defences and natural flood management could reduce flood risk. The study should also investigate property relocation and viability of property level protection. Natural flood management options that should be considered include runoff control and sediment management. The assessment should consider these actions in combination and the impacts on flood risk upstream and downstream of each action.	Fife Council	2016-20	This study is in progress. Completion is due by July 2019.	
<b>Surface Water Plan/Study (100170018)</b>	<b>G</b>	The Dunfermline, Bowershall, Crossford, Wellwood, Townhall and Hallbeath 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	Fife Council	2016-21		

		sewer network. This includes Scottish Water corporate data (as applicable) and, where available, outputs of Section 16 or integrated catchment studies, to assist with the surface water management planning process.				
<b>Surface Water Plan/Study (100170019)</b>	<b>G</b>	An integrated catchment study (ICS) will be carried out for Dunfermline and Iron Mill Bay sewer catchments to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea.	Scottish Water with Fife Council	2017-20	Historical Verification Complete	Catchment Flood Assessment to be completed; on track to deliver as per LFRMP timescales
<b>Surface Water Plan/Study (100230018)</b>	<b>G</b>	The Cairneyhill, Crombie and Muirside 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 integrated catchment studies, to assist with the surface water management planning process.	Fife Council	2016-21		Surface water plan development expected to start 2020 and complete 2021.

<b>Surface Water Plan/Study (100230019)</b>	<b>G</b>	An integrated catchment study (ICS) will be carried out for the Dunfermline, Iron Mill Bay and Leven Valley catchments to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea.	Scottish Water with Fife Council	2017-20	Leven Valley: Flow Survey complete. Manhole and ancillary survey complete. Watercourse surveys complete.  Dunfermline & Iron Mill Bay: Historical Verification complete	Leven Valley: Historical Verification & Catchment Flood Assessment delivery  Dunfermline & Iron Mill Bay: Catchment Flood Assessment to be completed; on track to deliver as per LFRMP timescales
<b>Maintain Flood Protection Scheme (100190017)</b>	<b>G</b>	Continue to maintain the existing flood protection schemes. These include the Dunfermline Flood Protection Scheme in the south west of the town and Parkneuk Flood Protection Scheme.	Fife Council	ongoing	Inspection regime continuing. Maintenance as required.	
<b>Strategic Mapping and modelling (100990019)</b>	<b>G</b>	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 Dunfermline, Iron Mill bay, Leven Valley and Valleyfield sewer catchments to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.	Scottish Water	Dunfermline 2017-19  Valleyfield 2016-18	Dunfermline started and on track to deliver as scheduled in the LFRMP.  Valleyfield Complete	
<b>Strategic mapping and modelling (100990016)</b>	<b>R</b>	Incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 2,600km <sup>2</sup> of improved surface water data is currently available	SEPA	2016-21	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by	This action will not be taken forwards as described. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is

		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 complete.			FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall across Scotland and represents a significant change in rainfall amounts compared to FEH99 dataset, as such it is no longer consider appropriate to deliver this action as originally intended.	anticipated that updated flood mapping from this revised action will be available early in Cycle 2.  Alongside this SEPA will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.  Fife Council Updated Flood Emergency Plan published Nov 2018.	Further to the planned actions described in Fig 3 of this report. Fife Council Emergency Plan will be updated Nov 2019.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	Fife Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report

## Cairneyhill (Potentially Vulnerable Area 10/07)

Local Plan District	Local authority	Main catchment
Forth Estuary	Fife Council	South Fife coastal



### Summary of Progress for Cairneyhill

There are approximately 110 residential properties and 10 non-residential properties at risk of flooding. The Annual Average Damages are approximately £520,000. Further information can be found in the LFRMP under PVA 10/07.

Since publication of the LFRMP in June 2016 Fife Council have progressed flood studies for Dunfermline and Cairneyhill. Scottish Water is on schedule to deliver S16 Assessment and Integrated Catchment Study for the Dunfermline sewer network.

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### Overview of actions to manage flooding in Cairneyhill (PVA 10/07)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/07		A		A		G	G	G	G	G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in the Cairneyhill (PVA 10/07)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Study (100250005)</b>	<b>G</b>	A flood protection scheme has been recommended for Cairneyhill to assess whether sediment management, modification of conveyance installation/modification of fluvial control structures, flood defences and natural flood management could reduce flood risk. The study should also investigate property relocation and viability of property level protection. Natural flood anagement options that should be considered include runoff control and sediment management. The study should take a sustainable approach and consider the interaction between action s upstream and downstream and potential effects on coastal processes along the shoreline.	Fife Council	2016-20	Tender Documents ready for issue.	
<b>Flood Protection Study (100250003)</b>	<b>A</b>	Cairneyhill study to assess NFM wave attenuation reducing flood risk in Torryburn.	Fife Council	2017-19	Not Started.	
<b>Surface Water Plan/Study (100230018)</b>	<b>G</b>	The Cairneyhill, Crombie and Muirside 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	Fife Council	2016-21		Surface water plan development expected to start 2020 and complete 2021

		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 integrated catchment studies, to assist with the surface water management planning process.				
<b>Surface Water Plan/Study (100230019)</b>	<b>G</b>	An integrated catchment study (ICS) will be carried out for Dunfermline and Iron Mill Bay catchments to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea.	Scottish Water in partnership with local authorities.	2017-21	Historical Verification complete	Catchment Flood Assessment to be completed; on track to deliver as per LFRMP timescales
<b>Natural Flood Management Study (100250003)</b>	<b>A</b>	A natural flood management study has been recommended to assess whether wave attenuation could help reduce flood risk in Torryburn.	Fife Council	Link to studies noted above		
<b>Maintain Flood Protection Scheme (100250017)</b>	<b>G</b>	Maintain the existing flood defences along the coast and river. This includes the Cairneyhill FPS comprising of a flow diversion scheme and defences along the Torry Burn.	Fife Council	Ongoing	Maintenance and inspection regimes in place	



<b>Maintain Flood warning (10990030)</b>	<b>G</b>	Maintain the Torry Burn and Newmills 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.	SEPA	Ongoing	SEPA has continued to operate the flood warning service.	SEPA will continue to operate the flood warning service.
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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 a study of the Iron Mill Bay and Valleyfield sewer catchments to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.	Scottish Water	Iron Mill Bay 2017-19	Iron Mill Bay has started and is on track to be delivered as scheduled in the LFRMP.  Valleyfield is complete	
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Self help (10990011)</b>	<b>G</b>	Raise awareness of self help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (10990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in	Refer to the planned actions described in Figure 3 of this report.

					Figure 3 of this report.	
<b>Maintenance (10990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (10990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.  Fife Council Updated Flood Emergency Plan published Nov 2018.	Further to the planned actions described in Fig 3 of this report. Fife Council Emergency Plan will be updated Nov 2019.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	Fife Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report

## Hawkhill, Kincardine, Kennet Pans and Culross (Potentially Vulnerable Area 10/08)

Local Plan District	Local authority	Main catchment
Forth Estuary	Fife Council and Clackmannanshire Council	South Fife coastal



### Summary of Progress for Hawkhill, Kincardine, Kennet Pans and Culross

There are approximately 240 residential properties and 30 non-residential properties at risk of flooding. The Annual Average Damages are approximately £1,400,000. Further information can be found in the LFRMP under PVA 10/08.

Since publication of the LFRMP in June 2016 Fife Council has appointed a consultant to undertake a flood protection study for Kincardine and Culross and a draft report was produced in July 2018. Scottish Water commenced a S16 assessment of the Kincardine sewer network in early 2018.

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### Overview of actions to manage flooding in Hawkhill, Kincardine, Kennet Pans and Culross (PVA 10/08)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/08	A			G			A	G	G	G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in the Hawkhill, Kincardine, Kennet Pans and Culross (PVA 10/08)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Scheme/Works (10301021)</b>	<b>A</b>	Protect trunk road network.	Transport Scotland	No Information		
<b>Flood Protection Scheme/Works (10302021)</b>	<b>G</b>	Protect rail network.	Transport Scotland (Network Rail)	2019-24	Delivery of actions during financial Control Period 6	
<b>Flood Protection Study (100260005) (100270005)</b>	<b>G</b>	Kincardine and Culross now a combined study.	Fife Council	2016-20	Draft report submitted by consultant	Finalised report will inform decision for future flood alleviation measures.
<b>Maintain Flood Protection Scheme (100270017)</b>	<b>G</b>	Maintain the Kincardine-on-Forth FPS that provides protection against flooding from the Peffermill Burn. The scheme includes flow diversion from the Moor burn, culverts and channel improvements.	Fife Council	ongoing	Inspection regime in place. Maintenance as required.	
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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.S16 assessments for Hawkhill,Kincardine, Kennet Pans and Culross.	Scottish Water	Kincardine 2016-20  Valleyfield 2016-18	Kincardine started and on track to be delivered as scheduled in the LFRMP.  Valleyfield is complete	

<b>Strategic mapping and modelling (100990016)</b>	<b>A</b>	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.	SEPA	2016-19	<p>Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location:</p> <ul style="list-style-type: none"> <li>• Development of a national coastal joint probability dataset;</li> <li>• Update to the UK design extreme sea level dataset;</li> <li>• Collection of topographic survey data of beach profiles and defences.</li> </ul> <p>These projects/datasets will inform a future coastal modelling and mapping project for the coastline from Arbroath to Berwick Upon Tweed.</p>	<p>A technical specification for coastal modelling and mapping for the coastline from Arbroath to Berwick Upon Tweed is under development. Opportunities will be sought to align the delivery of this project with any required developments to Flood Warning schemes in the area.</p> <p>It is planned that this action will be completed by the end of Cycle 1.</p>
<b>Maintain Flood Warning (100990030)</b>	<b>G</b>	Maintain the Culross, Longannet and Kincardine 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.	SEPA	Ongoing	SEPA has continued to operate the flood warning service.	SEPA will continue to operate the flood warning service.

<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.  Fife Council Updated Flood Emergency Plan published Nov 2018.	Further to the planned actions described in Fig 3 of this report. Fife Council Emergency Plan will be updated Nov 2019.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	Fife Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

## Airth (Potentially Vulnerable Area 10/09)

Local Plan District	Local Authority	Maincatchment
Forth Estuary	Falkirk Council	Forth Estuary (South) Coastal



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### Summary of Progress for Airth

There are approximately 110 residential properties and fewer than 10 non-residential properties at risk of flooding. The Annual Average Damages are approximately £720,000. Further information can be found in the LFRMP under PVA 10/09.

Since publication of the LFRMP in June 2016 SEPA introduced a new flood warning scheme for Airth in January 2018. Changes to rainfall methodology FEH13 means SEPA could not deliver strategic mapping and modelling for the Forth Estuary prior to 2022, hence action red. A flood protection study has been progressed with two options under consideration. Property level protection will also be considered. The study will be reviewed in 2019 to consider UKCP18 and revised coastal boundary dataset.

### Overview of actions to manage flooding in Airth (10/09)

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/09			G	A			R			G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in the Airth (PVA 10/09)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>New Flood Warning (100990010)</b>	<b>G</b>	Flood warning is required for properties at risk of coastal flooding in Airth. Delivery of new warnings in this area can potentially be undertaken through an extension of the existing Firth of Forth and Tay flood forecasting system and warning scheme.	SEPA	May 2017	Flood warning service delivered and now operational	SEPA will continue to operate the flood warning system
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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 Airth sewer catchment to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.	Scottish Water	Airth 2016-18	Complete	
<b>Strategic mapping and modelling (100990016)</b>	<b>R</b>	Incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 2,600km <sup>2</sup> of improved surface water data is currently available within this LPD.	SEPA	2016-21	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall	This action will not be taken forwards as described. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2. Alongside this SEPA



					across Scotland and represents a significant change in rainfall amounts compared to FEH99 dataset, as such it is no longer consider appropriate to deliver this action as originally intended.	will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
<b>Flood Protection Study Stage 1 (100290005)</b>	<b>A</b>	Assessment of flood defences and NFM opportunity for Airth	Falkirk Council	Initial output and high level options 2017/18	Initial study has been completed. Cost Benefit Ratio <1, consideration of PLP to reduce scope of defences to be included within review. Further studies required to be programmed to inform option appraisal.	Options subject to further review in 2019 to assess implications of UKCP2018 and revised coastal boundary dataset.
<b>Flood forecasting (1009900009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness Raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to planned actions described in figure 3 of this report
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	Falkirk Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

## North Queensferry and Inverkeithing (Potentially Vulnerable Area 10/10)

Local Plan District	Local authority	Main catchment
Forth Estuary	Fife Council	South Fife coastal



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### Summary of Progress for North Queensferry and Inverkeithing

There are approximately 40 residential properties and 30 non-residential properties at risk of flooding. The Annual Average Damages are approximately £590,000. Further information can be found in the LFRMP under PVA 10/10.

Since publication of the LFRMP in June 2016 SEPA are progressing strategic mapping and modelling of the Forth Estuary to assess flood risk to the area. Changes to rainfall methodology FEH13 means SEPA could not deliver strategic mapping and modelling for the Forth Estuary prior to 2022, hence action red.

### Overview of actions to manage flooding in North Queensferry and Inverkeithing (PVA 10/10)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/10						G	R	G	G	G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in the North Queensferry and Inverkeithing (PVA 10/10)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Surface Water Plan/Study (100240018)</b>	<b>G</b>	The Rosyth 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 integrated catchment studies, to assist with the surface water management planning process.	Fife Council	2016-21		Subject to available Fife Council budget
<b>Surface Water Plan/Study (100240019)</b>	<b>G</b>	An integrated catchment study (ICS) will be carried out for the Dunfermline and Iron Mill Bay catchments which includes Rosyth to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea.	Scottish Water in partnership with Fife Council.	2017-20	Historical Verification complete	Catchment Flood Assessment to be completed; on track to deliver as per LFRMP timescales
<b>Maintain Flood Protection Scheme</b>	<b>G</b>	Maintain existing coastal flood defences in the PVA	Fife Council	Ongoing	Maintenance and inspection regime in place.	

(100310017)						
<b>Strategic mapping and modelling (100990016)</b>	<b>A</b>	Coastal mapping improvements are expected in this area in 2016 to 2019. However, the timings of coastal mapping improvements may be dependent on local authorities' coastal studies. SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk.	SEPA	2016- 19	<p>Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location:</p> <ul style="list-style-type: none"> <li>• Development of a national coastal joint probability dataset;</li> <li>• Update to the UK design extreme sea level dataset;</li> <li>• Collection of topographic survey data of beach profiles and defences.</li> </ul> <p>These projects/datasets will inform a future coastal modelling and mapping project for the coastline from Arbroath to Berwick Upon Tweed.</p>	<p>A technical specification for coastal modelling and mapping for the coastline from Arbroath to Berwick Upon Tweed is under development. Opportunities will be sought to align the delivery of this project with any required developments to Flood Warning schemes in the area.</p> <p>It is planned that this action will be completed by the end of Cycle 1.</p>
<b>Strategic mapping and modelling (100990016)</b>	<b>R</b>	North Queensferry and Inverkeithing PVA pluvial surface water mapping developments: improved data areas across LPD + use of Rosyth SWMP and ICS results if appropriate.	SEPA	2016-19	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall across Scotland and represents a significant	<p>This action will not be taken forwards as described. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2.</p> <p>Alongside this SEPA will</p>

					change in rainfall amounts compared to FEH99 dataset, as such it is no longer consider appropriate to deliver this action as originally intended.	investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
<b>Strategic Mapping and modelling (100990019)</b>	<b>G</b>	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 Dunfermline sewer catchment to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.	Scottish Water	Dunfermline 2017-19	Started.	On track to deliver as scheduled in the LFRMP.
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintain Flood warning (100990030)</b>	<b>G</b>	Continue to maintain the Burntisland to Aberdour, North Queensferry and Inverkeithing Bay and the Rosyth, Limekilns and Charlestown flood warning areas which are 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	SEPA	Ongoing	SEPA has continued to operate the flood warning system.	SEPA will continue to operate the flood warning system.

		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.				
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.  Fife Council Updated Flood Emergency Plan published Nov 2018.	Further to the planned actions described in Fig 3 of this report. Fife Council Emergency Plan will be updated Nov 2019.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to figure 3; page 40	Fife Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report

## Falkirk, Grangemouth, Laurieston, Denny, Redding, Dunipace, Cumbernauld, Carron and Stenhousemuir (Potentially Vulnerable Area 10/11)

Local Plan District	Local authority	Main catchment
Forth Estuary	Falkirk Council, North Lanarkshire Council and Stirling Council	Forth Estuary (south) coastal



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### Summary of Progress for Falkirk, Grangemouth, Laurieston, Denny, Redding, Dunipace, Cumbernauld, Carron and Stenhousemuir

There are approximately 2000 residential properties and 330 non-residential properties at risk of flooding. The Annual Average Damages are approximately £3,800,000. Further information can be found in the LFRMP under PVA 10/11.

Since publication of the LFRMP in June 2016 Falkirk Council have progressed to option appraisal for the Grangemouth flood protection scheme. ICS progressed to option appraisal and will be looked at in parallel with Grangemouth flood protection scheme prior to any programming of works. A flood study is being progressed for Denny/Dunipace.

### Overview of actions to manage flooding in Falkirk, Grangemouth, Laurieston, Denny, Redding, Dunipace, Cumbernauld, Carron and Stenhousemuir (PVA 10/11)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/11	A		G	A		G	A	G	G	G		G	G	G	G		G	G



**Summary of progress of actions to manage flood risk in the Falkirk, Grangemouth, Laurieston, Denny, Redding, Dunipace, Cumbernauld, Carron and Stenhousemuir (PVA 10/11)**

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Scheme / Works (100400006)</b>	<b>A</b>	A flood protection scheme has been proposed for the Grangemouth area. It would include the River Carron, Grange Burn, River Avon and the Forth Estuary shoreline. The scheme would consist of flood defences, sediment management, tidal barriers/gates and natural flood management and would provide a 1 in 200 year standard of protection. Implementation of this scheme is likely to span a 10 year period from 2017-27.	Falkirk Council	2017-27	Public consultation on scheme options was undertaken April 2018 with a focus on the Grange Burn element where 3 options were consulted on. The Grange Burn element of the option appraisal is expected to be complete spring 2019. The preferred option has been developed to reduce operational risk whilst still reflecting the views of the community. Additional topographic studies, flood modelling and a heritage impact assessment have been procured to facilitate this process. A rolling programme of ground investigation works are ongoing. Outline design has commenced for all areas with the exception of the Grange Burn flood cell. Workshops and site meetings with affected landowners to inform design and understand	To allow the scheme to continue to progress to approved status, prior to the completion of option appraisal the programme has been revised to allow the commencement of outline design and preparation of scheme drawings in areas where options have been screened out. Outline Design is programmed to complete July 2019, and is subject to the conclusion of ongoing discussions with Historic Environment Scotland. The scheme notice is programmed for December 2019, with confirmation in December 2020. If a public enquiry were required this would be delayed. At present construction is anticipated to commence 2024.

<b>Flood Protection Scheme / Works (100400006) continued</b>					constraints are ongoing. EIA scoping consultation to be completed Jan 2019. A project to determine all affected landowners will commence Jan 2019. Updates on the scheme can be found on the <a href="#">scheme website</a> .	
<b>Flood Protection Study (100400005) A</b>	<b>A</b>	A flood protection study is currently underway for Grangemouth area to develop a flood protection scheme (FPS). The flood risk management options under consideration include flood defences, sediment management, tidal barriers/gates and natural flood management. Natural flood management includes surge attenuation and sediment management. The study will also consider the viability of property level protection. The study is due to complete in 2018, followed by phased delivery of actions from 2018-27.	Falkirk Council	At approved scheme status 2018/19	Data being used to determine flood protection scheme options	Bird Studies Completed 2018. Topographic studies including threshold studies of c3000 properties complete 2018. Heritage Impact Assessment and additional hydrological modelling of the upstream catchment to support option appraisal are ongoing and expected to be complete spring 2019. Rolling programme of Ground Investigation targeting planned defences ongoing. UKCP18 and Coastal boundary dataset to be reviewed alongside standard of protection. EIA to commence spring 2019. Liaise with Scottish Water to assess how ICS modelling can be integrated into Grangemouth model and how areas identified in the optioneering process can be

						progressed alongside scheme to provide multiple benefit.
<b>Flood Protection Study (100380005) B</b>	<b>A</b>	Initial flood risk investigations are currently underway for Denny/Dunipace, including modelling work. These initial investigations are due to report in 2016. It is likely that a further flood protection study will be needed to assess options to manage flood risk including flood defences, sediment management and natural flood management. The study should also consider the viability of property level protection. Natural flood management options that should be considered include runoff control and sediment management. The assessment should consider these actions in combination and the impacts on flood risk upstream and downstream of each action.	Falkirk Council	Improved understanding of risk expected by 2018	Study still in draft format, historical verification incomplete.	Completion delayed, expected autumn 2019
<b>Flood Protection Study (100370005) C</b>	<b>G</b>	Vegetation management and general maintenance are carried out by Falkirk Council to control erosion at Westquarter. In future there may be a need for a flood protection study to assess whether direct flood defences and sediment management could further reduce flood risk in this area.	Falkirk Council	2016- 2027	Situation managed by regular maintenance at present. Study subject to available funding.  Study not commenced.	
<b>New Flood Warning (100990010)</b>	<b>G</b>	The area under consideration includes properties affected by flooding from the River Carron and tributaries downstream of the Carron Valley	SEPA	Launch June 2020	Initial investigation into flood risk and potential new flood warning areas have been undertaken across River	Feasibility assessment to determine scope of new hydrometric infrastructure and flood warning services

		Reservoir. Full scoping, infrastructure and a flood forecasting system will be required before a flood warning service can be delivered in this area. Communities that will benefit from a warning will be identified during development of the scheme.			Carron catchment	requirements due to be completed in 2018-19
<b>Maintain flood warning (100990030)</b>	<b>G</b>	Maintain the Grangemouth 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.	SEPA	Ongoing	SEPA has continued to operate the flood warning system.	SEPA will continue to operate the flood warning system.
<b>Surface Water Plan/Study (100330018)</b>	<b>G</b>	The Falkirk, Stenhousemuir and Carron areas 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 integrated catchment studies, to assist with the surface water management planning process.	Falkirk Council	2021	Surface water plan development expected to start summer 2019 and complete 2021.	

<b>Surface Water Plan/Study (100330019)</b>	<b>G</b>	An ICS for Falkirk was carried out in the delivery period SR10 (2010-15) to support the surface water management process in SWMP priority areas. The study has improved the 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 the sea. The Solution Development phase of this study will be carried out in 2016-21, to establish the preferred solution(s) to the significant flooding within this catchment.	Scottish Water in partnership with Falkirk Council.	2016-21	September 2018. Pre Optioneering Catchment Plan and prioritisation stages completed.	Optioneering phase of study to be completed.
<b>Surface Water Plan/Study (101010018)</b>	<b>G</b>	The Cumbernauld area will be covered by a surface water management plan that sets objectives for the management of surface water flood risk and identifies 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.	North Lanarkshire Council	2016-22	Progression subject to available capital funding	
<b>Surface Water Plan/Study (101010019)</b>	<b>G</b>	An ICS covering the Dunnswood catchment will be carried out to improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. the sewer network and	Scottish Water	2016-20	Catchment Flood Assessment complete.	On track to deliver as scheduled in the LFRMP

		watercourses. This will improve the understanding of local surface water flood risk. The stated timescales and funding arrangements between Scottish Water and North Lanarkshire Council will take the studies through the Scoping and Modelling phases to define the significant flooding issues in the catchment. After this has been completed, it is expected that the ICS partnerships will remain in place and will progress to develop solutions to the significant flooding issues.				
<b>Surface Water Plan/Study (101040018)</b>	<b>G</b>	The Polmont/Maddiston area will be covered by a surface water management plan or plans 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 the 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.	Falkirk Council	2016-21	Surface water plan development expected to start summer 2019 and complete 2021.	
<b>Surface Water Plan/Study (101040019)</b>	<b>G</b>	An integrated catchment study will be carried out to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with	Scottish Water In partnership with Falkirk Council.	2016-21	September 2018. Pre Optioneering Catchment Plan and prioritisation stages completed	Optioneering phase of study to be completed.

		the sewer network, watercourses and the sea. Solution development phase of completed ICS for Polmont/Maddiston area will be carried out in 2016-21, to establish the preferred solutions to the significant flooding within the catchment				
<b>Maintain Flood Protection Scheme (100400017)</b>	<b>G</b>	Continue to maintain the existing Grangeburn Road Flood Protection Scheme on the Grange Burn. The scheme includes a flood relief channel conveying flows to the River Avon	Falkirk Council	Ongoing	Maintenance works to maintain clear channels.	Routine inspections will continue to be carried out as part of the Council's statutory duties.
<b>Strategic Mapping and Modelling (100990019)</b>	<b>G</b>	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 Denny, Bonnybridge, Dalderse, Kinneil Kerse, Polmont, Maddiston and Dunnswood sewer catchment to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.	Scottish Water	Bonnybridge 2016-19 Dalderse 2016-19 Dalmuir 2016-20 Denny 2018-19 Dunnswood 2017-20 Kinneil Kerse 2016-18	Bonnybridge complete.  Denny complete.  Dunnswood started.	Dunnswood on track to deliver as scheduled in the LFRMP.
<b>Strategic mapping and modelling (100990016)</b>	<b>A</b>	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 detail scoping and data availability. Where this work coincides with local authority studies, SEPA will work collaboratively to ensure consistent	SEPA	2016-19	Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location: • Development of a national	A technical specification for coastal modelling and mapping for the coastline from Arbroath to Berwick Upon Tweed is under development. Opportunities will be sought to align the delivery of this project with any required

		modelling approaches are applied.			coastal joint probability dataset; <ul style="list-style-type: none"> <li>• Update to the UK design extreme sea level dataset</li> <li>• Collection of topographic survey data of beach profiles and defences.</li> </ul> These projects/datasets will inform future coastal modelling and mapping project for the coastline from Arbroath to Berwick Upon Tweed.	developments to Flood Warning schemes in the area.  It is planned that this action will be completed by the end of Cycle 1.
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Community Flood Action Groups (100350012)</b>	<b>G</b>	Carronvale Residents and Tennants Association for an area of Denny at risk of flooding from River Carron	Community	Ongoing	Falkirk Council engage with the Association.	
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Further to the planned actions described in Figure 3 of this report council's review and update website links periodically.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Further to the planned actions described in Figure 3 of this report council's review and update website links periodically.
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3	Refer to the planned actions described in Figure 3 of this report.



			managers		of this report.	
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

## Bo'ness (Potentially Vulnerable Area 10/12)

Local Plan District	Local authority	Main catchment
Forth Estuary	Falkirk Council and West Lothian Council	Forth Estuary (south) coastal



### Summary of Progress for Bo'ness

There are approximately 200 residential properties and 70 non-residential properties at risk of flooding. The Annual Average Damages are approximately £620,000. Further information can be found in the LFRMP under PVA 10/12.

Since publication of the LFRMP in June 2016 Scottish Water have completed the S16 assessment of the Bo'ness catchment. Falkirk Council maintain the Bo'ness flood prevention scheme to reduce flood risk from the Forth Estuary.

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### Overview of actions to manage flooding in Bo'ness (PVA 10/12)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/12						G	A	G	G	G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in the Bo'ness (PVA 10/12)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Surface Water Plan/Study (100420018)</b>	<b>G</b>	Plan to assess surface water flood risk in Bo'ness and produce a surface water management plan	Falkirk Council	2016-21	Surface water plan development expected to start summer 2019 and complete 2021.	
<b>Surface Water Plan/Study (100420019)</b>	<b>G</b>	Integrated catchment study for the Bo'ness, Dalderse and Kinneil Kerse drainage catchments to support the SWMP process for Bo'ness, Carriden, Muirhouses and Falkirk, Stenhousemuir, Carron by improving understanding of surface water flood risk and the interaction with other sources of flooding.  The Solution Development phase of this study will be carried out in 2016-2021.	Scottish Water	2016-21	September 2018. Pre Optioneering Catchment Plan and prioritisation stages completed.	Optioneering phase of study to be completed.
<b>Maintain Flood Protection Scheme (100440017)</b>		Flood prevention scheme in place along Bo'ness foreshore.	Falkirk Council	Ongoing	Continue maintenance of infrastructure and monitor tidal events.	
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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	Scottish Water	Kinneil Kerse 2016-18  Bo'ness 2016-2019	Kinneil Kerse Complete.  Bo'ness Complete	

		modelling in the Bo'ness and Kinneil Kerse sewer catchment to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.				
<b>Strategic mapping and modelling (100990016)</b>	<b>A</b>	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 detail scoping and data availability.	SEPA	Mapping improvements expected in this area in 2016-19.	<p>Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location:</p> <ul style="list-style-type: none"> <li>• Development of a national coastal joint probability dataset;</li> <li>• Update to the UK design extreme sea level dataset;</li> <li>• Collection of topographic survey data of beach profiles and defences.</li> </ul> <p>These projects/datasets will inform future a future coastal modelling and mapping project for the coastline from Arbroath to Berwick Upon Tweed.</p>	<p>A technical specification for coastal modelling and mapping for the coastline from Arbroath to Berwick Upon Tweed is under development. Opportunities will be sought to align the delivery of this project with any required developments to Flood Warning schemes in the area.</p> <p>It is planned that this action will be completed by the end of Cycle 1.</p>
<b>Maintain Flood Warning (100990030)</b>	<b>G</b>	Continue to maintain the Blackness to Grangemouth Flood warning areas which are 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	SEPA	Ongoing	SEPA has continued to operate the flood warning service	SEPA will continue to operate the flood warning service

		warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.				
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Further to the planned actions described in Fig 3 of this report council's review and update website links periodically.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Further to the planned actions described in Fig 3 of this report council's review and update website links periodically.
<b>Maintenance (10990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

## Linlithgow Bridge, Bathgate, Whiteside and Slamannan (Potentially Vulnerable Area 10/13)

Local Plan District	Local authority	Main catchment
Forth Estuary	Falkirk Council, North Lanarkshire Council and West Lothian Council	River Avon



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### Summary of Progress for Linlithgow Bridge, Bathgate, Whiteside and Slamannan

There are approximately 490 residential properties and 210 non-residential properties at risk of flooding. The Annual Average Damages are approximately £1,600,000. Further information can be found in the LFRMP under PVA 10/13.

Since publication of the LFRMP in June 2016 Scottish Water has completed an ICS for Slamannan and Falkirk Council continue inspection and maintenance at locations of flood risk. Scottish Water has progressed ICS for Linlithgow and Bathgate. West Lothian Council are progressing a flood protection study for Linlithgow and a SWMP for Bathgate has been completed. Changes to rainfall methodology FEH13 means SEPA could not deliver strategic mapping and modelling for the Forth Estuary prior to 2022, hence action red.

### Overview of actions to manage flooding in Linlithgow Bridge, Bathgate, Whiteside and Slamannan (PVA 10/13)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/13				R	A	G	R	G		G			G	G	G		G	G

**Summary of progress of actions to manage flood risk in Linlithgow Bridge, Bathgate, Whiteside and Slamannan (PVA 10/13)**

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Study (100470005)</b>	<b>G</b>	Studies to determine risk of River Avon and Bell's Burn flooding in Linlithgow	West Lothian Council	2017-18	Linlithgow study anticipated completion April 2019	
<b>Flood Protection Study (100490005)</b>	<b>G</b>	Flood protection study for Slamannan; informed by ICS output	Falkirk Council	2016-21	Subject to further review, prior to study being programmed. No start date confirmed.	
<b>Flood Protection Study (100490025)</b>	<b>R</b>	Flood protection study for Bathgate. There is an opportunity for partnership working with the reconnection project and Bathgate restoration project.	West Lothian Council	2018-19	Bathgate study delayed waiting ICS output	Bathgate ICS completion is due Sep 2020. Bathgate Flood study will then recommence.
<b>Flood Protection Study (100490027)</b>	<b>G</b>	Flood protection study for Blackridge	West Lothian Council	2019-20	Anticipated completion April 2019	
<b>Surface Water Plan/Study (100450018)</b>	<b>G</b>	Plan for surface water management plans for Bathgate	West Lothian Council	Completed	Bathgate SWMP complete.	To be revisited when ICS data available 2020-21.
<b>Surface Water Plan/Study (100450019)</b>	<b>G</b>	An integrated catchment study (ICS) will be carried out for Bathgate to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions with other	Scottish Water in partnership with West Lothian Council	2017-20	Historical verification complete.	Complete catchment flood assessment.  On track to deliver as scheduled in the LFRMP.

		sources of flooding e.g. with the sewer network, watercourses and the sea.				
<b>Surface Water Plan/Study (10100018)</b>	<b>G</b>	Surface Water Management Plan for Linlithgow	West Lothian Council	Completed	Linlithgow SWMP complete	
<b>Surface Water Plan/Study (10100019)</b>	<b>G</b>	An integrated catchment study (ICS) will be carried out for the Linlithgow to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea.	Scottish Water in partnership with West Lothian	2016-19	Historical verification complete.	Complete catchment flood assessment.  On track to deliver as scheduled in the LFRMP
<b>Surface Water Plan/Study (101040018)</b>	<b>G</b>	Surface water management plan for Polmont/Maddiston area	Falkirk Council	2016-21	Surface water plan development expected to start summer 2019 and complete 2021	
<b>Surface Water Plan/Study (101040019)</b>	<b>G</b>	In solution development phase of ICS for the Polmont/Maddiston area	Scottish Water in partnership with Falkirk Council.	2016-21	September 2018 – Optioneering Catchment Plan and prioritization stages completed.	Complete optioneering phase of study.
<b>Natural Flood Management Study (100490003)</b>	<b>A</b>	Study for Bathgate, Blackridge, Linlithgow and Slamannan to assess Natural Flood Management potential	Falkirk Council and West Lothian Council partnership	2016-21	Natural Flood Management assessments in Blackridge, Linlithgow and Bathgate will be assessed within the relevant Flood Protection Studies.	SEPA are to improve modelling in this area early 2019. Bathgate study is due to commence after completion of Bathgate ICS late 2020.
<b>Maintain Flood Protection Scheme</b>	<b>G</b>	West Lothian Council will continue to maintain the existing Linlithgow Flood Protection Scheme along the Mains Burn. The scheme provides protection	West Lothian Council	Ongoing	Continued maintenance of council asset.	



(100470017)		to part of the town and includes reservoir storage, a diversion channel and channel improvements.				
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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 Armadale, Bathgate, Blackburn, Kinneil Kerse and Linlithgow sewer catchments to improve knowledge and understanding of flood risk in this area, as required under S 16 of the Flood Risk Management (Scotland) Act 2009	Scottish Water	Armadale 2016-18 Bathgate 2018-20 Blackburn 2018-20 Kinneil Kerse 2016-18 Linlithgow 2016-19	Linlithgow complete all others started.  On track to deliver as scheduled in the LFRMP.	
<b>Strategic Mapping and modelling (100990016)</b>	<b>R</b>	Surface water mapping developments: improved data areas across LPD + use of Linlithgow area, Polmont area and Bathgate area SWMP and ICS results if appropriate.	SEPA	Mapping improvements expected to be undertaken in 2016. Incorporation of the local authority surface water study depends on local authority timings.	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall across Scotland and represents a significant change in rainfall amounts compared to FEH99 dataset, as such it is no longer consider appropriate to deliver this action as originally intended.	This action will not be taken forwards as described. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2.  Alongside this SEPA will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated

						with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Further to the planned actions described in Fig 3 of this report council's review and update website links periodically.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Further to the planned actions described in Fig 3 of this report council's review and update website links periodically.
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Fig 3: page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Fig 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Fig 3:page 40	Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

## Philipstoun (Potentially Vulnerable Area 10/14)

Local Plan District	Local authority	Main catchment
Forth Estuary	Falkirk Council and West Lothian Council	Forth Estuary (south) coastal



### Summary of Progress for Philipstoun

There are approximately 10 non-residential properties at risk of flooding. The Annual Average Damages are approximately £23,000. Further information can be found in the LFRMP under PVA 10/14.

Since publication of the LFRMP in June 2016 Scottish Water has funding committed in their Q&S programme to undertake a S16 study of the sewer network serving Philipstoun prior to 2021. Changes to rainfall methodology FEH13 means SEPA could not deliver strategic mapping and modelling for the Forth Estuary prior to 2022, hence action red.

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### Overview of actions to manage flooding in Philipstoun (PVA 10/14)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/14							R			G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in Philipstoun (PVA 10/14)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Strategic mapping and modelling (100990016)</b>	<b>R</b>	Incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 2,600 km <sup>2</sup> of improved surface water data is currently available within this Local Plan District.	SEPA	Surface water mapping improvements are expected to be undertaken in 2016. Incorporation of the local authority surface water study depends on local authority timings.	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall across Scotland and represents a significant change in rainfall amounts compared to FEH99 dataset, as such it is no longer consider appropriate to deliver this action as originally intended.	This action will not be taken forwards as described. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2.  Alongside this SEPA will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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 Linlithgow sewer catchment to improve	Scottish Water	Linlithgow 2016-19	Complete.	

		knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.				
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self-help measures available to property owners Refer to Figure 3; page 26	Communities	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Further to the planned actions described in Figure 3 of this report council's review and update website links periodically.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Further to the planned actions described in Figure 3 of this report council's review and update website links periodically.
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency / planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

## South Queensferry (Potentially Vulnerable Area 10/15)

Local Plan District	Local authority	Main catchment
Forth Estuary	City of Edinburgh Council and West Lothian Council	Forth Estuary (south) coastal



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### Summary of Progress for South Queensferry

There are approximately 10 residential properties and 10 non-residential properties at risk of flooding. The Annual Average Damages are approximately £31,000. Further information can be found in the LFRMP under PVA 10/15.

Since publication of the LFRMP in June 2016 SEPA and Scottish Water have identified respective pluvial and sewer network assessments are to be undertaken during the period of the FE LFRMP. Changes to rainfall methodology FEH13 means SEPA could not deliver strategic mapping and modelling for the Forth Estuary prior to 2022, hence action red.

Since the publication of the Plan, the City of Edinburgh Council has developed and implemented a self-certification procedure for the assessment of planning applications, which is proving effective. A schedule of clearance and repair is published annually, highlighting routine inspections undertaken and the emergency response arrangements.

### Overview of actions to manage flooding in South Queensferry (PVA 10/15)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/15							R			G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in South Queensferry (PVA 10/15)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Strategic mapping and modelling (100990016)</b>	<b>R</b>	Incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 2,600km <sup>2</sup> of improved surface water data is currently available within this Local Plan District.	SEPA	Surface water mapping improvements are expected to be undertaken in 2016. Incorporation of the local authority surface water study depends on local authority timings.	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall across Scotland and represents a significant change in rainfall amounts compared to FEH99 dataset, as such it is no longer considered appropriate to deliver this action as originally intended.	This action will not be taken forwards as described. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2.  Alongside this SEPA will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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 South Queensferry sewer catchment to improve knowledge and understanding of flood risk in this area, as required	Scottish Water	South Queensferry 2016-19	Not started.	On track to deliver as scheduled in the LFRMP.

		under S16 of the Flood Risk Management (Scotland) Act 2009				
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self-help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.



## Cramond Bridge (Potentially Vulnerable Area 10/16)

Local Plan District	Local authority	Main catchment
Forth Estuary	City of Edinburgh Council	Edinburgh coastal



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### Summary of Progress for Cramond Bridge

There are approximately 60 residential properties and 20 non-residential properties at risk of flooding. The Annual Average Damages are approximately £110,000. Further information can be found in the LFRMP under PVA 10/16.

Since publication of the LFRMP in June 2016 Scottish Water have been progressing a S16 assessment of the Edinburgh sewer network and an integrated catchment study for Seafield.

Since the publication of the Plan, the City of Edinburgh Council has developed and implemented a self-certification procedure for the assessment of planning applications, which is proving effective. A schedule of clearance and repair is published annually, highlighting routine inspections undertaken and the emergency response arrangements.

### Overview of actions to manage flooding in Cramond Bridge (PVA 10/16)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/16						A	G		G	G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in Cramond Bridge (PVA 10/16)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Surface Water Plan/Study (100520018)</b>	<b>A</b>	The area will be covered by a surface water management plan or plans (SWMP) that will set objectives for the management of surface water flood risk and identify the most suitable actions to achieve the objectives. This includes Scottish Water corporate data 9as applicable) and where available, outputs of S16 or ICS, to assist with the surface water management planning process.	City of Edinburgh Council	2016-21	Not confirmed. City of Edinburgh Council will review ICS outputs prior to progressing.	No revised date at this time.
<b>Surface Water Plan/Study (100520019)</b>	<b>G</b>	An integrated catchment study will be carried out to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea. Completion of the Solution Development phase of Scottish Water's Edinburgh ICS will establish preferred solutions to the significant flooding within the catchment Edinburgh, East Lothian and Midlothian.	Scottish Water in partnership with City of Edinburgh Council	2016-21	Pre Optioneering Catchment Plan and prioritisation stages completed September 2018.	Optioneering phase of study to be completed.
<b>Strategic mapping and modelling</b>	<b>G</b>	Scottish Water will review the assessment of flood risk within the highest risk sewer catchments to improve knowledge and understanding	Scottish Water	AVSE PFI Edinburgh 2016-19	Complete.	

<b>(100990019)</b>		of surface water flood risk. Scottish Water will undertake further investigation and modelling in the catchment to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009. S16 assessment of the Almond Valley, Seafield and Esk Water PFI (AVSE PFI), Edinburgh sewer network to provide improve knowledge and understanding of flood risk in this area.				
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintain Flood Warning (100990030)</b>	<b>G</b>	Maintain the Cramond flood warning area which is part of the Almond (West 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.	SEPA	Ongoing	SEPA has continued to operate the flood warning service.	SEPA will continue to operate the flood warning service.
<b>Self help (100990011)</b>	<b>G</b>	Raising community awareness of self-help measures available to protect property Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raising community awareness of flood risk Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in	Refer to the planned actions described in Figure 3 of this report.

					Figure 3 of this report.	
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Plans and actions to be implemented in case of flood incident Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	City of Edinburgh Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report

## Granton (Potentially Vulnerable Area 10/17)

Local Plan District	Local authority	Main catchment
Forth Estuary	City of Edinburgh Council	Edinburgh coastal



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### Summary of Progress for Granton

There are approximately 290 residential properties and 60 non-residential properties at risk of flooding. The Annual Average Damages are approximately £280,000. Further information can be found in the LFRMP under PVA 10/17.

Since publication of the LFRMP in June 2016 the S16 assessment and ICS undertaken by Scottish Water have progressed. There is, however, doubt regarding progressing the Water of Leith Flood Protection Scheme because of funding uncertainty.

Since the publication of the Plan, the City of Edinburgh Council has developed and implemented a self-certification procedure for the assessment of planning applications, which is proving effective. A schedule of clearance and repair is published annually, highlighting routine inspections undertaken and the emergency response arrangements.

### Overview of actions to manage flooding in Granton (PVA 10/17)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/17				G		A	A	G	G	G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in Granton (PVA 10/17)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Study (100950005)</b>	<b>G</b>	A study of siltation undertaken in the Water of Leith Basin in conjunction with the operation of the docks. The study covers the stretch of the river known as the Basins. This is part of the river affected by the improvement of the river at the Port of Leith.	City of Edinburgh Council	2016-17	The Water of Leith basin study has been completed. The conclusion was that the risk of flooding is low / medium.	Visual inspections will be undertaken on an annual basis, if any substantial change is noted, further studies may be procured.
<b>Surface Water Plan/Study (100520018)</b>	<b>A</b>	The area will be covered by a surface water management plan or plans (SWMP) that will set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. This includes Scottish Water corporate data (as applicable) and, where available, outputs of S16 or ICS, to assist with the surface water management planning process.	City of Edinburgh Council	2016-21	Not confirmed. City of Edinburgh Council will review ICS outputs prior to progressing.	No revised date at this time.
<b>Surface Water Plan/Study (100520019)</b>	<b>G</b>	An integrated catchment study will be carried out to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea.  Completion of the Solution Development	Scottish Water in partnership with City of Edinburgh Council	2016-21	September 2018 pre Optioneering catchment plan and prioritisation stages completed.	Optioneering phase of study to be completed.

		phase of Scottish Water's Edinburgh ICS will establish preferred solutions to the significant flooding within the catchment.				
<b>Maintain Flood Protection Scheme (100950017)</b>	<b>G</b>	The City of Edinburgh Council continue to maintain the existing rock armour, concrete and masonry walls and revetments along the coast in Crammond, Silverknowes and Granton where it has this responsibility.	City of Edinburgh Council	Ongoing	The City of Edinburgh Council undertake an inspection regime of the coast, including maintenance where required. Records are maintained by Flood Prevention team.	
<b>Strategic mapping and modelling (10990019)</b>	<b>G</b>	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 for Almond Valley, Seafield and Esk Water PFI (AVSE PFI), Edinburgh sewer catchments to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.	Scottish Water	AVSE PFI Edinburgh 2016-19	Complete.	
<b>Strategic mapping and modelling (100990016)</b>	<b>A</b>	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.	SEPA	2016-19	Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location: <ul style="list-style-type: none"> <li>• Development of a national coastal joint probability dataset;</li> <li>• Update to the UK design</li> </ul>	A technical specification for coastal modelling and mapping for the coastline from Arbroath to Berwick Upon Tweed is under development. Opportunities will be sought to align the delivery of this project with any required developments to Flood Warning schemes in the area. It is planned that this action will

<b>Strategic mapping and modelling (100990016) (continued)</b>					<p>extreme sea level dataset;</p> <ul style="list-style-type: none"> <li>• Collection of topographic survey data of beach profiles and defences.</li> </ul> <p>These projects/datasets will inform a future coastal modelling and mapping project for the coastline from Arbroath to Berwick Upon Tweed.</p>	be completed by the end of Cycle 1.
<b>Flood forecasting (100990009)</b>	<b>G</b>	<p>Link to Scottish Flood Forecasting Service</p> <p>Refer to Figure 3; page 26</p>	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintain Flood Warning (10990030)</b>	<b>G</b>	<p>Continue to maintain the Granton and Leith 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.</p>	SEPA	Ongoing	SEPA has continued to operate the flood warning service.	SEPA will continue to operate the flood warning service.
<b>Self help (100990011)</b>	<b>G</b>	<p>Raising community awareness of self-help measures available to protect property</p> <p>Refer to Figure 3; page 26</p>	Communities	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	<p>Raising community awareness of flood risk</p> <p>Refer to Figure 3; page 29</p>	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.



<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Plans and actions to be implemented in case of flood incident Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	City of Edinburgh Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report

## Water of Leith catchment (Potentially Vulnerable Area 10/18)

Local Plan District	Local authority	Main catchment
Forth Estuary	City of Edinburgh Council and Midlothian Council	Water of Leith



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### Summary of Progress for Water of Leith catchment

There are approximately 3,300 residential properties and 480 non-residential properties at risk of flooding. The Annual Average Damages are approximately £5,800,000. Further information can be found in the LFRMP under PVA 10/18.

Since publication of the LFRMP in June 2016 Phases 1 and 2 of the Water of Leith Flood Prevention Scheme have been completed. Phase 2 started in November 2015 and was completed in February 2018, but completion of the entire scheme is in doubt due to funding issues. The City of Edinburgh Council has developed and implemented a self-certification procedure for the assessment of planning applications, which is proving effective. A schedule of clearance and repair is published annually, highlighting routine inspections undertaken and the emergency response arrangements.

Changes to rainfall methodology FEH13 means SEPA could not deliver strategic mapping and modelling for the Forth Estuary prior to 2022, hence action red.

### Overview of actions to manage flooding in Water of Leith Catchment (PVA 10/18)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/18	R					A	R	G	G	G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in Water of Leith Catchment (PVA 10/18)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Scheme/Works (100610006)</b>	<b>G</b>	Water of Leith Phase 1 and Phase 2 complete.	City of Edinburgh Council	2016-18	Water of Leith Flood Protection scheme phase 1 & 2 are now complete and in place.	
<b>Flood Protection Scheme/Works (100620006)</b>	<b>R</b>	Flood protection works have been proposed for Edinburgh to further reduce flooding from Water of Leith. The proposed works should include Coltbridge, Gorgie and Saughton, subject to the availability of funding.	City of Edinburgh Council	TBC subject to funding	Remainder of Water of Leith Scheme delayed due to absence of funding.	Progress subject to funding from Scottish Government.
<b>Surface Water Plan/Study (100520018)</b>	<b>A</b>	The area will be covered by a surface water management plan or plans (SWMP) that will set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. This includes Scottish Water corporate data (as applicable) and, where available, outputs of S16 or ICS, to assist with the surface water management planning process.  Completion of the Solution Development phase of Scottish Water's Edinburgh ICS will establish preferred solutions to the significant flooding within the catchment.	City of Edinburgh Council	2016-21	Not confirmed. City of Edinburgh Council will review ICS outputs prior to progressing.	No revised date at this time.

<b>Surface Water Plan/Study (100520019)</b>		<p>An integrated catchment study will be carried out to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea.</p> <p>Completion of the Solution Development phase of Scottish Water's Edinburgh ICS will establish preferred solutions to the significant flooding within the catchment.</p>	Scottish Water in partnership with local authorities.	2016-21	September 2018. Pre Optioneering Catchment Plan and prioritisation stages completed.	Optioneering phase of study to be completed.
<b>Maintain Flood Protection Scheme (100590017)</b>	<b>G</b>	Continue to maintain the reservoirs in the upper catchment of the Water of Leith to reduce peak flows and lower river levels downstream. The reservoir forms part of Water of Leith Protection Scheme.	City of Edinburgh Council	Ongoing	The City of Edinburgh Council undertake an inspection regime of the flood protection assets / schemes and reservoirs, including maintenance where required. Records are maintained by Flood Prevention Team.	Ongoing
<b>Maintain Flood Protection Scheme (100600017)</b>	<b>G</b>	Continue to maintain the existing Water of Leith Flood Protection Scheme at Bonnington, St Marks, Warriston, Stockbridge Colonies and Veitch's Square.	City of Edinburgh Council	Ongoing	The City of Edinburgh Council undertake an inspection regime of the flood protection assets / schemes and reservoirs, including maintenance where required. Records are maintained by Flood Prevention Team	Ongoing
<b>Maintain Flood Protection Scheme (100610017)</b>	<b>G</b>	Maintain Water of Leith Flood Protection Scheme in the Murrayfield/Roseburn area.	City of Edinburgh Council	Ongoing	As noted above for (100590017)	Ongoing

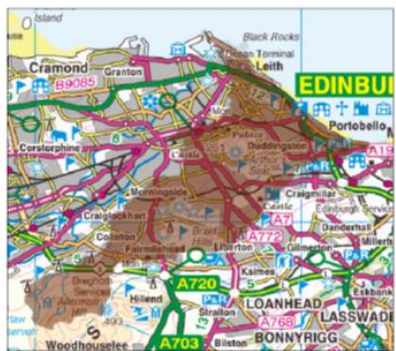
<b>Strategic mapping and modelling (100990016)</b>	<b>R</b>	<p>Surface water mapping developments: improved data areas across LPD + use of Edinburgh area SWMP and ICS results if appropriate.</p>	<p>SEPA</p>	<p>2016-21</p>	<p>SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall across Scotland and represents a significant change in rainfall amounts compared to FEH99 dataset, as such it is no longer considered appropriate to deliver this action as originally intended.</p>	<p>This action will not be taken forwards as described. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2.</p> <p>Alongside this SEPA will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.</p>
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	<p>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 for Almond Valley, Seafield and Esk Water PFI (AVSE PFI), Edinburgh sewer catchments to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.</p>	<p>Scottish Water</p>	<p>AVSE PFI Edinburgh 2016-19</p>	<p>Complete.</p>	

<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintain Flood Warning (100990030)</b>	<b>G</b>	Continue to maintain the Dean Village, Warriston and Bonnington, Stockbridge, Longstone/Stenhouse and Roseburn flood warning areas which are part of the Water of Leith 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.	SEPA	Ongoing	SEPA has continued to operate the flood warning service.	SEPA will continue to operate the flood warning service,
<b>Self help (100990011)</b>	<b>G</b>	Raising community awareness of self-help measures available to protect property Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raising community awareness of flood risk Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Plans and actions to be implemented in case of flood incident Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried	Refer to the planned actions described in Figure 3 of this report.

					out in this PVA, beyond those already described in Figure 3 of this report.	
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	City of Edinburgh Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

## Braid Burn Catchment (Potentially Vulnerable Area 10/19)

<b>Local Plan District</b>	<b>Local authority</b>	<b>Main catchment</b>
<b>Local Plan</b>	<b>City of Edinburgh Council</b>	<b>Braid Burn</b>



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### Summary of Progress for Braid Burn Catchment

There are approximately 750 residential properties and 210 non-residential properties at risk of flooding. The Annual Average Damages are approximately £1,200,000. Further information can be found in the LFRMP under PVA 10/19.

Since publication of the LFRMP in June 2016, the City of Edinburgh Council has developed and implemented a self-certification procedure for the assessment of planning applications, which is proving effective. A schedule of clearance and repair is published annually, highlighting routine inspections undertaken and the emergency response arrangements.

### Overview of actions to manage flooding in Braid Burn Catchment (PVA 10/19)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/19						A	A	G	G	G			G	G	G		G	G



## Summary of progress of actions to manage flood risk in Braid Burn Catchment (PVA 10/19)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Surface Water Plan/Study (100520018)</b>	<b>A</b>	Completion of the Solution Development phase of Scottish Water's Edinburgh ICS will establish preferred solutions to the significant flooding within the catchment. The area will be covered by a surface water management plan or plans (SWMP) that will set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. This includes Scottish Water corporate data (as applicable) and, where available, outputs of S16 or ICS, to assist with the surface water management planning process.	City of Edinburgh Council	2016-21	Not confirmed. City of Edinburgh Council will review ICS outputs prior to progressing.	No revised date at this time.
<b>Surface Water Plan/Study (100520019)</b>	<b>G</b>	An integrated catchment study will be carried out to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea.  Completion of the Solution Development phase of Scottish Water's Edinburgh ICS will establish	Scottish Water in partnership with local authorities	2016-21	September 2018. Pre Optioneering Catchment Plan and prioritisation stages completed.	Optioneering phase of study to be completed.

		preferred solutions to the significant flooding within the catchment.				
<b>Maintain Flood Protection Scheme (100670017)</b>	<b>G</b>	Maintain the existing Braid Burn flood protection scheme in Edinburgh. The scheme reduces the risk of flooding to homes and businesses along the Braid Burn between Redford Rd and Portobello.	City of Edinburgh Council	Ongoing	The City of Edinburgh Council undertake an inspection regime of the flood protection assets / schemes, including maintenance where required.  Records are maintained by Flood Prevention Team.	Ongoing
<b>Maintain Flood Protection Scheme (100680017)</b>	<b>G</b>	Maintain existing coastal defences between Leith and Portobello	City of Edinburgh Council	Ongoing	Maintenance regime in place	Ongoing
<b>Strategic mapping and modelling (10990016)</b>	<b>A</b>	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.	SEPA	2016-19	Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location:  <ul style="list-style-type: none"> <li>• Development of a national coastal joint probability dataset;</li> <li>• Update to the UK design extreme sea level dataset;</li> <li>• Collection of topographic survey data of beach profiles and defences.</li> </ul> These projects/datasets will inform a future coastal modelling and mapping project for the coastline from	A technical specification for coastal modelling and mapping for the coastline from Arbroath to Berwick Upon Tweed is under development. Opportunities will be sought to align the delivery of this project with any required developments to Flood Warning schemes in the area.  It is planned that this action will be completed by the end of Cycle 1.

					Arbroath to Berwick Upon Tweed.	
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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 S16 sewer network flood risk assessments in the Almond Valley, Seafield /Esk PFI (AVSE PFI) and Edinburgh sewer catchments.	Scottish Water	AVSE PFI Edinburgh 2016-19	Complete.	
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintain Flood Warning (100990030)</b>	<b>G</b>	Maintain the Colinton Mains, Mid Liberton and Cameron Toll, Inch Park and Peffermill and the Portobello flood warning areas which are part of the Briad Burn 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.	SEPA	Ongoing	SEPA has continued to operate the flood warning service.	SEPA will continue to operate the flood warning service.
<b>Self help (100990011)</b>	<b>G</b>	Raising community awareness of self-help measures available to protect property Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

<b>Awareness raising (100990013)</b>	<b>G</b>	Raising community awareness of flood risk Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Plans and actions to be implemented in case of flood incident Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	City of Edinburgh Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report

## Niddrie and Burdiehouse Burn catchment (Potentially Vulnerable Area 10/20)

Local Plan District	Local authority	Main catchment
Forth Estuary	City of Edinburgh Council, East Lothian Council and Midlothian Council	Niddrie and Burdiehouse Burn catchment



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### Summary of Progress for Niddrie and Burdiehouse Burn catchment

There are approximately 390 residential properties and 40 non-residential properties at risk of flooding. The Annual Average Damages are approximately £780,000. Further information can be found in the LFRMP under PVA 10/20.

Since publication of the LFRMP in June 2016 City of Edinburgh Council and SEPA have agreed installation of rain gauges, now in place, and data is being collected. This is a 2 year process.

The City of Edinburgh Council has developed and implemented a self-certification procedure for the assessment of planning applications, which is proving effective. A schedule of clearance and repair is published annually, highlighting routine inspections undertaken by and the emergency response arrangements.

### Overview of actions to manage flooding in Niddrie and Burdiehouse Burn Catchment (PVA 10/20)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/20				G		A	G	G		G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in Niddrie and Burdiehouse Burn Catchment (PVA 10/20)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Study (100710005)</b>	<b>G</b>	A Flood protection study has been recommended for Niddrie Burn in Edinburgh to assess whether flood storage, modification of conveyance, installation/modification of fluvial control structures, 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. This study should also aim to improve gauging on the Niddrie/Burdiehouse Burn catchment in partnership with SEPA and the City of Edinburgh Council.	City of Edinburgh Council	2016-21	Rain gauges have been installed on the Niddrie Burn; data is being collected and recorded.	Flow meter installation to be carried out in December 2018.
<b>Surface Water Plan/Study (100520018)</b>	<b>A</b>	The area will be covered by a surface water management plan or plans (SWMP) that will set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. This includes Scottish Water corporate data (as applicable) and, where available, outputs of S16 or ICS, to assist with the	City of Edinburgh Council	2016-21	Not confirmed.  City of Edinburgh Council will review ICS outputs prior to progressing.	No revised date at this time.

		surface water management planning process.				
<b>Surface Water Plan/Study (100520019)</b>	<b>G</b>	<p>An integrated catchment study will be carried out to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea.</p> <p>Completion of the Solution Development phase of Scottish Water's Edinburgh ICS will establish preferred solutions to the significant flooding within the catchment.</p>	Scottish Water in partnership with local authorities.	2016-21	September 2018. Pre Optioneering Catchment Plan and prioritisation stages completed.	Optioneering phase of study to be completed.
<b>Maintain Flood Protection Scheme (100710017)</b>	<b>G</b>	Maintain the flood control structure and flood storage area at Greendykes and flood defences at Nether Craigour once completed. The works are due to complete in 2016/17	City of Edinburgh Council	Ongoing	The City of Edinburgh Council undertake an inspection regime of the flood protection assets / schemes, including maintenance where required. Records are maintained by Flood Prevention Team.	Ongoing
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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. S16 sewer network flood risk assessments.	Scottish Water	AVSE PFI Edinburgh 2016-19	Complete.	
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

<b>Self help (100990011)</b>	<b>G</b>	Raising community awareness of self help measures available to protect property Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raising community awareness of flood risk Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintenance (100990007)</b>	<b>G</b>	Maintenance at locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflect flood risk Refer to Figure 3; page 40	Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report



## Musselburgh (Potentially Vulnerable Area 10/21)

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



### Summary of Progress for Musselburgh

There are approximately 1,300 residential properties and 280 non-residential properties at risk of flooding. The Annual Average Damages are approximately £3,300,000. Further information can be found in the LFRMP under PVA 10/21.

Since publication of the LFRMP in June 2016 East Lothian Council are developing a study to assess flood protection for Musselburgh from the River Esk.

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### Overview of actions to manage flooding in Musselburgh(PVA 10/21)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/21	A				G	G	A		G	G		G	G	G	G		G	G

## Summary of progress of actions to manage flood risk in Musselburgh (PVA 10/21)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Scheme / Works (100750006)</b>	<b>A</b>	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 PVA 10/22. The benefits and impacts have been assessed for the whole scheme.	East Lothian Council	Outline design & approval 2016-18 Detail Design 2018-19 Construction 2019-20	August 2018: Hydrological modelling and surveys underway	NFM study included in Musselburgh FPS. Construction completion August 2024.
<b>Surface Water Plan/Study (100520018)</b>	<b>G</b>	The area will be covered by a surface water management plan or plans (SWMP) that will set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. This includes Scottish Water corporate data (as applicable) and, where available, outputs of S16 or ICS, to assist with the surface water management planning process. Edinburgh ICS includes Musselburgh.	East Lothian Council	2016-21	ICS outputs currently being reviewed to assist with plan development.	
<b>Surface Water Plan/Study (100520019)</b>	<b>G</b>	An integrated catchment study will be carried out to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions	Scottish Water in partnership with local authorities	2016-21	September 2018 Pre Optioneering Catchment Plan and prioritization stages completed.	Optioneering phase of study to be completed.

		<p>with other sources of flooding e.g. with the sewer network, watercourses and the sea.</p> <p>Completion of the Solution Development phase of Scottish Water's Edinburgh ICS will establish preferred solutions to the significant flooding within the catchment.</p>				
<b>Natural Flood Management Study (100750003)</b>	<b>G</b>	Natural Flood Management study for river and coastal flood risk in Musselburgh. Study to consider wave attenuation. RBMP opportunities: Leith Docks to Port Seton coastline (200034).	East Lothian Council	2021-22	Natural Flood Management study included in Musselburgh Flood Prevention Scheme Design Consultant's scope.	As per Musselburgh Flood Protection Scheme. (Action ID :100750006)
<b>Strategic mapping and modelling (100990016)</b>	<b>A</b>	SEPA will seek to develop flood mapping in the Lower Esk 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.	SEPA	2016-19	<p>Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location:</p> <ul style="list-style-type: none"> <li>• Development of a national coastal joint probability dataset;</li> <li>• Update to the UK design extreme sea level dataset;</li> <li>• Collection of topographic survey data of beach profiles and defences.</li> </ul> <p>These projects/datasets will inform a future coastal modelling and mapping project for the coastline from</p>	<p>A technical specification for coastal modelling and mapping for the coastline from Arbroath to Berwick Upon Tweed is under development. Opportunities will be sought to align the delivery of this project with any required developments to Flood Warning schemes in the area.</p> <p>It is planned that this action will be completed by the end of Cycle 1.</p>

					Arbroath to Berwick Upon Tweed.	
<b>Strategic Mapping and modelling (100990016)</b>	<b>A</b>	Fluvial mapping developments: Lower Esk, Pinkie Burn area.	SEPA	2016-19	A screening exercise to characterise the catchment and identify the data necessary to support mapping improvements has been underway. A local authority and an ICS study for Musselburgh are currently underway.	SEPA will seek clarification on the intended delivery timescale of local authority studies for this area. SEPA would intend to await the conclusion of these studies and review their suitability to inform updates to existing flood mapping before progressing further with this action.
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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. S16 sewer network flood risk assessment AVSE PFI Edinburgh.	Scottish Water	AVSE PFI Edinburgh 2016-19	Complete.	
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintain Flood Warning (100990030)</b>	<b>G</b>	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 and area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will	SEPA	Ongoing	SEPA has continued to operate the flood warning system.	SEPA will continue to operate the flood warning system.

		use feedback and post-event data to ensure that our flood warning service is timely and accurate.				
<b>Community Flood Action Groups (100750012)</b>	<b>G</b>	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.	East Lothian Council	Ongoing	All Community Councils, Tenants and Residents Associations, Area Partnerships and other relevant Stakeholder Groups have been sent a questionnaire regarding the Council's service on Events incl. flooding. All the groups above were invited to attend a Community Resilience Workshop on 27 <sup>th</sup> October 2018.	East Lothian Council's Emergency Planning & Risk Manager has and is continuing to attend meeting with the afore-mentioned groups/organisations providing a presentation on Resilient Communities.
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers		No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders		No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	Responsible Authorities		No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report

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

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



### Summary of Progress for Lasswade, Penicuik, Dalkeith and Musselburgh

There are approximately 320 residential properties and 320 non-residential properties at risk of flooding. The Annual Average Damages are approximately £1,800,000. Further information can be found in the LFRMP under PVA 10/22.

Since publication of the LFRMP in June 2016 development of a scheme to protect Musselburgh from flooding from the River Esk is being progress by East Lothian Council with a report anticipated by the end of 2022.

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### Overview of actions to manage flooding in Lasswade, Penicuik, Dalkeith and Musselburgh (PVA 10/22)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/22	A			G	G	G	A	G	G	G		G	G	G	G		G	G

## Summary of progress of actions to manage flood risk Lasswade, Penicuik, Dalkeith and Musselburgh (PVA 10/22)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Scheme / Works (100750006)</b>	<b>A</b>	Scheme for the River Esk in Musselburgh. Scheme includes: flood defences, earth embankments. Standard of protection: 1 in 200 year.	East Lothian Council	Outline design & approvals 2016-18 Detail design 2018-19 Construction 2019-21	This forms part of the Musselburgh Flood Prevention Scheme (MFPS) which will assess the overall impact of flooding on the catchment.	NFM study included in MFPS. Construction completion August 2024.
<b>Flood Protection Study (100770005)</b>	<b>G</b>	A flood protection study has been recommended for Dalkeith (Newbattle) 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.	Midlothian Council	2016-22	A scoping exercise has been undertaken and it is anticipated that tenders for flood protection studies will be sought during financial year 2019/20.	
<b>Natural Flood Management Study (100750003)</b>	<b>G</b>	NFM study for river and coastal flood risk in Musselburgh. Study to consider: wave attenuation. RBMP opportunities: Leith Docks to Port Seton coastline (200034).	East Lothian Council	2021-22	NFM study in Musselburgh Flood Protection Scheme Design Consultants scope.	As per Musselburgh Flood Protection Scheme.
<b>Surface Water Plan/Study</b>	<b>G</b>	The area will be covered by a surface water management plan or plans (SWMP) that set objectives for the	Midlothian Council	2016-21	A scoping exercise has been undertaken and it is anticipated that tenders for flood protection	



<b>(100520018)</b>		management of surface water flood risk and identify the most sustainable actions to achieve the objectives. Issues identified in S16 and ICS modelling and studies will be addressed in the Surface Water Management Plan.			studies will be sought during financial year 2019/20.	
<b>Surface Water Plan/Study (100520019)</b>	<b>G</b>	An integrated catchment study will be carried out to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea. The Edinburgh ICS also covers a large area of PVA 10/23  Completion of the Solution Development phase of Scottish Water's Edinburgh ICS will establish preferred solutions to the significant flooding within the catchment. The ICS also covers a large area of PVA 10/23	Scottish Water in partnership with local authorities.	2016-21	September 2018. Pre Optioneering Catchment Plan and prioritisation stages completed.	Optioneering phase of study to be completed.
<b>Maintain Flood Protection Scheme (100770017)</b>	<b>G</b>	Midlothian Council will continue to maintain existing flood protection schemes and defences. These include the Rullion Road Penicuik Flood Protection Scheme, and the Polton Road Bridge Relief Culvert Flood Protection Scheme.	Midlothian Council	Ongoing	Maintenance of existing flood protection schemes is ongoing routinely and following severe weather events.	
<b>Maintain Flood</b>	<b>G</b>	Maintain the Musselburgh flood warning area which is part of the Esk	SEPA	Ongoing	SEPA has continued to operate the flood warning system.	SEPA will continue to operate the flood warning system.

<b>Warning (100990030)</b>		(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.				
<b>Strategic mapping and modelling (100990016)</b>	<b>A</b>	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.	SEPA	Mapping improvements 2017-18	A screening exercise to characterise the catchment and identify the data necessary to support mapping improvements has been underway. It is understood that local authority studies are being considered for this area.	SEPA will seek clarification on the intended delivery timescale of local authority studies for this area. SEPA would intend to await the conclusion of these studies and review their suitability to inform updates to existing flood mapping before progressing further with this action.
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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 further investigation and modelling in the Edinburgh AVSE, Penicuik, Rosewell and Roslin catchments to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.	Scottish Water	AVSE Edinburgh 2016-19 Penicuik 2017-20 Rosewell 2016-19 Roslin 2016-19	Complete.	
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

<b>Community Flood Action Groups (100770012)</b>	<b>G</b>	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.	East Lothian Council	Ongoing	All Community Councils, Tenants and Residents Associations, Area Partnerships and other relevant Stakeholder Groups have been sent a questionnaire regarding the Council's service on Events including flooding. All the groups above have were invited to attend a Community Resilience Workshop on 27 <sup>th</sup> October 2018.	East Lothian Council's Emergency Planning & Risk Manager has and is continuing to attend meeting with the afore-mentioned groups/organisations providing a presentation on Resilient Communities.
<b>Self help (100990011)</b>	<b>G</b>	Raising community awareness of self help measures available to protect property Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raising Community awareness of flood risk Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities & land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Plans and actions to be implemented in case of a flood incident Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency / planning respose activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	Content of LDP reflects flood risk Refer to Figure 3; page 40	East Lothian Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA,beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report

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

<b>Local Plan District</b>	<b>Local authority</b>	<b>Main catchment</b>
<b>Forth Estuary</b>	<b>East Lothian Council</b>	<b>East Lothian coastal</b>



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### Summary of Progress for Cockenzie and Port Seton, Longniddry and Prestonpans

There are approximately 120 residential properties and 60 non-residential properties at risk of flooding. The Annual Average Damages are approximately £730,000. Further information can be found in the LFRMP under PVA 10/23.

Since publication of the LFRMP in June 2016 East Lothian Council are due to commence a flood protection study, with NFM, in early 2019, delivering a report by the end of 2020. Changes to rainfall methodology FEH13 means SEPA could not deliver strategic mapping and modelling for the Forth Estuary prior to 2022, hence action red.

### Overview of actions to manage flooding in Cockenzie and Port Seton, Longniddry and Prestonpans (PVA10/23)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/23				G			R	G	G	G		G	G	G	G		G	G

## Summary of progress of actions to manage flood risk in Cockenzie and Port Seton, Longniddry and Prestonpans (PVA 10/23)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Study (100800005)</b>	<b>G</b>	Flood protection / NFM study for river and coastal flood risk in Cockenzie, Port Seton and Prestonpans. Study to consider: modification of conveyance, installation/ modification of fluvial control structures, flood defences, sediment management, PLP and wave attenuation.	East Lothian Council	2019-20	No progress to date.	
<b>Flood Protection Study (100810005)</b>	<b>G</b>	Fluvial flood protection study for Tranent. Study to consider: modification of conveyance, installation/ modification of fluvial control structures, direct flood defences and sediment management.	East Lothian Council	2019-20	No progress to date.	
<b>Maintain Flood Warning (100990030)</b>	<b>G</b>	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.	SEPA	Ongoing	SEPA has continued to operate the flood warning system.	SEPA will continue to operate the flood warning system.
<b>Maintain Flood Protection Scheme</b>	<b>G</b>	Continue to maintain existing coastal flood defences.	East Lothian Council	Ongoing		

100800017)						
<b>Strategic mapping and modelling (10990016)</b>	<b>R</b>	Incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 2,600km <sup>2</sup> 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 ICS will be considered when these projects are completed.	SEPA	Complete Dec 2016	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall across Scotland and represents a significant change in rainfall amounts compared to FEH99 dataset, as such it is no longer considered appropriate to deliver this action as originally intended.	This action will not be taken forwards as described. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2.  Alongside this SEPA will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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 Seafield and Esk Water PFI (AVSE PFI), Edinburgh and Gullane sewer catchments to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.	Scottish Water	AVSE PFI Edinburgh 2016-19  Gullane 2016-20	Edinburgh Complete.  Gullane started and on track to deliver as scheduled in the LFRMP.	
<b>Flood forecasting</b>	<b>G</b>	Link to Scottish Flood Forecasting Service	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this	Refer to the planned actions described in Figure 3 of this

<b>(100990009)</b>		Refer to Figure 3; page 26			report.	report.
<b>Community Flood Action Groups (100800012)</b>	<b>G</b>	East Lothian Tenants and Residents Panel operates in this area. The group aims to involve the community in area-specific issues and could help increase community resilience to flooding.	East Lothian Council	Ongoing	All Community Councils, Tenants and Residents Associations, Area Partnerships and other relevant Stakeholder Groups have been sent a questionnaire regarding the Council's service on events, including flooding. All the groups were invited to attend a Community Resilience Workshop on 27th October 2018.	East Lothian Council's Emergency Planning and Risk Manager has and is continuing to attend meetings with aforementioned groups/organisations providing a presentation on Resilient Communities.
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self-help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities & land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency / planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	East Lothian Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report

## Haddington (Potentially Vulnerable Area 10/24)

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



### Summary of Progress for Haddington

There are approximately 230 residential properties and 140 non-residential properties at risk of flooding. The Annual Average Damages are approximately £700,000. Further information can be found in the LFRMP under PVA 10/24.

Since publication of the LFRMP in June 2016 Scottish Water are progressing the Haddington S16 sewer assessment and East Lothian Council are progressing the study for Haddington flood protection works.

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### Overview of actions to manage flooding in Haddington (PVA10/24)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/24	G						G		G	G		G	G	G	G		G	G



## Summary of progress of actions to manage flood risk in Haddington (PVA 10/24)

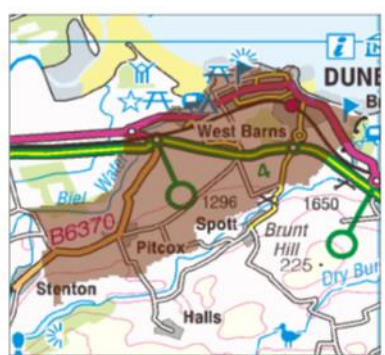
Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Scheme / Works (100820006)</b>	<b>G</b>	Scheme for the River Tyne in Haddington. Scheme includes: flood defences, possibly in combination with natural flood management.	East Lothian Council	Outline design & approvals 2017-19 Detail design 2019-20 Construction 2020-22	Jun 2018: Lidar has been purchased.	Progressing NFM and Upstream Storage Options and appraisal by April 2019.
<b>Maintain Flood Warning (100990030)</b>	<b>G</b>	Maintain 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.	SEPA	Ongoing	SEPA has continued to operate the flood warning system.	SEPA will continue to operate the flood warning system.
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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 Haddington sewer catchment to improve knowledge and understanding of flood risk in this area, as required	Scottish Water	Haddington 2016-19	Complete.	

		under S16 of the Flood Risk Management (Scotland) Act 2009. S16 assessment for Haddington				
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Community Flood Action Groups (100820012)</b>	<b>G</b>	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.	East Lothian Council	Ongoing	All Community Councils, Tenants and Residents Associations, Area Partnerships and other relevant Stakeholder Groups have been sent a questionnaire regarding the Council's service on events, including flooding. All the groups above were invited to attend a Community Resilience Workshop on 27 <sup>th</sup> Oct 2018.	East Lothian Council's Emergency Planning & Risk Manager has and is continuing to attend meetings with the afore-mentioned groups/organisations providing a presentation on Resilient Communities.
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self-help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities & land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency / planning response activities have been carried out in this PVA,	Refer to the planned actions described in Figure 3 of this report.

					beyond those already described in Figure 3 of this report.	
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	East Lothian Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report

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

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



### Summary of Progress for Dunbar and West Barns

There are approximately 40 residential properties and 20 non-residential properties at risk of flooding. The Annual Average Damages are approximately £220,000. Further information can be found in the the LFRMP under PVA 10/25.

Since publication of the LFRMP in June 2016 East Lothian Council has had to delay the study for Dunbar and West Barns to allocate funds to progress the Musselburgh scheme

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### Overview of actions to manage flooding in Dunbar and West Barns (PVA 10/25)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/25				A			A		G	G		G	G	G	G		G	G

## Summary of progress of actions to manage flood risk in Dunbar and West Barns (PVA 10/25)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Study (100830005)</b>	<b>A</b>	Flood protection / NFM study for river and coastal flood risk in Dunbar and West Barns. Study to consider: modification of conveyance, flood defences, sediment management, PLP and wave attenuation. Study also to assess the risk and mitigation of wave overtopping at North Berwick.	East Lothian Council	2017-18	Delivery delayed as funding being allocated to NFM Study for Musselburgh scheme.	Study to be undertaken in 2019 subject to budget approval.
<b>Maintain Flood Warning (100990030)</b>	<b>G</b>	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.	SEPA	Ongoing	SEPA has continued to operate the flood warning system.	SEPA will continue to operate the flood warning system.
<b>Strategic mapping and modelling (100990016)</b>	<b>A</b>	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 detail scoping and data availability. Where this work coincides with local authority studies, SEPA will work collaboratively to ensure consistent modelling approaches are applied.	SEPA	2016-19	Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location: <ul style="list-style-type: none"> <li>• Development of a national coastal joint probability dataset;</li> </ul>	A technical specification for coastal modelling and mapping for the coastline from Arbroath to Berwick Upon Tweed is under development. Opportunities will be sought to align the delivery of this project with any required developments to Flood Warning schemes in

					<ul style="list-style-type: none"> <li>• Update to the UK design extreme sea level dataset;</li> <li>• Collection of topographic survey data of beach profiles and defences.</li> </ul> <p>These projects/datasets will inform a future coastal modelling and mapping project for the coastline from Arbroath to Berwick Upon Tweed.</p>	<p>the area.</p> <p>It is planned that this action will be completed by the end of Cycle 1.</p>
<b>Strategic mapping and modelling (100990019)</b>	<b>A</b>	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 Dunbar sewer catchment to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk Management (Scotland) Act 2009.S16 Assessment of Dunbar sewer catchment.	Scottish Water	Dunbar 2016-17	Started but delayed.	Assessment will not deliver within LFRMP timescales but is still on track to deliver within FRM Cycle 1.
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Community Flood Action Groups (100830012)</b>	<b>G</b>	East Lothian Tenants and Residents Panel and Dunbar Shore and Neighbourhood Group operate in this area. These groups aim to involve the community in area-specific issues and could help to increase community resilience to flooding.	East Lothian Council	Ongoing	All Community Councils, Tenants and Residents Associations, Area Partnerships and other relevant Stakeholder Groups have been sent a questionnaire regarding the Council's service on events, including flooding. All	East Lothian Council's Emergency Planning and Risk Manager has and is continuing to attend meetings with the afore-mentioned groups/organisations providing a presentation on Resilient Communities.

					the groups above were invited to attend a Community Resilience Workshop on 27th October 2018.	
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self-help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities & land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Fig 3 of this report	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency / planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	East Lothian Council and Responsible Authorities		No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report

## Berwickshire Coast (Potentially Vulnerable Area 10/26)

Local Plan District	Local authority	Main catchment
Forth Estuary	Scottish Borders Council	Berwickshire Coast



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### Summary of Progress for Berwickshire Coast

There are approximately 70 residential properties and 50 non-residential properties at risk of flooding. The Annual Average Damages are approximately £300,000. Further information can be found in the LFRMP under PVA 10/26.

Since publication of the LFRMP in June 2016 SEPA has progressed coastal mapping for the Eyemouth area and Scottish Water have included a S16 sewer assessment in their Q&S Programme.

A scope has been developed for Eyemouth's Coastal Study and the Berwickshire Shoreline Management Plan with the tender documentation being developed, the contract is scheduled to be awarded in Q3 2019.

### Overview of actions to manage flooding in Berwickshire Coast (PVA 10/26)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/26				G			A		G	G		G	G	G	G		G	G



## Summary of progress of actions to manage flood risk in Berwickshire Coast (PVA 10/26)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Study (100840005)</b>	<b>G</b>	A flood protection study has been recommended for Eyemouth to assess whether 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 be carried out in conjunction with the Berwickshire Coast Shoreline Management Plan. The study should take a sustainable approach and consider the interaction between actions and potential effects on coastal processes along the shoreline.	Scottish Borders Council	Commence 2019. Completion 2021	Scope developed for the Eyemouth Coastal Study and Berwickshire Coast Shoreline Management Plan (SMP). Procurement of contractor for the Coastal Study and SMP expected in Q3 2019.	Develop tender documentation and procure consultant for Eyemouth Coastal Study and Berwickshire Coast Shoreline Management Plan in Q3 2019.  On track to be delivered within FRM Cycle 1.
<b>Maintain Flood Warning (100990030)</b>	<b>G</b>	Maintain the Grantshouse to Eyemouth flood warning area. SEPA will continue to maintain the Eyemouth Coastal flood warning area which is part of the Firth of Forth and Tay coastal 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.	SEPA	Ongoing	SEPA has continued to operate the flood warning service.	SEPA will continue to operate the flood warning service.

<b>Strategic mapping and modelling (100990016)</b>	<b>A</b>	SEPA will work with the local authority to review the existing study data and establish any further work required to enable an update of the flood maps in the Eyemouth coastal area. SEPA will support the local authority if further work beyond a strategic scale is required.	SEPA	2016	<p>Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location:</p> <ul style="list-style-type: none"> <li>• Development of a national coastal joint probability dataset;</li> <li>• Update to the UK design extreme sea level dataset;</li> <li>• Collection of topographic survey data of beach profiles and defences.</li> </ul> <p>These projects/ datasets will inform a future coastal modelling and mapping project for the coastline from Arbroath to Berwick Upon Tweed. A detailed study has been undertaken for the Eyemouth area which was used to inform the Strategies in 2015.</p>	<p>A technical specification for coastal modelling and mapping for the coastline from Arbroath to Berwick Upon Tweed is under development. Opportunities will be sought to align the delivery of this project with any required developments to Flood Warning schemes in the area.</p> <p>It is planned that this action will be completed by the end of Cycle 1.</p>
<b>Strategic mapping and modelling (100990019)</b>	<b>G</b>	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 Eyemouth sewer catchment to improve knowledge and understanding of flood risk in this area, as required under S16 of the Flood Risk	Scottish Water	Eyemouth 2018-20	Not Started.	On track to deliver as scheduled in the LFRMP.

		Management (Scotland) Act 2009. S16 assessment of Eyemouth sewer catchment				
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Community Flood Action Groups (100840012)</b>	<b>G</b>	Develop existing Scottish Borders Council links with community groups established through the Resilient Communities Initiative.	Community & Scottish Borders Council	Ongoing	Continued to work closely with Eyemouth and St Abbs resilient community groups and operate the Scottish Borders wide resilient communities' scheme.	Scottish Borders Council will continue to work closely with Eyemouth and St Abbs resilient communities group, other local groups and members of the public to raise awareness of flood risk. Scottish Borders Council will also encourage and work alongside the community to establish a resilient community group within Coldingham.
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self help measures available to property owners Refer to Figure 3; page 26	Communities	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	Further to the planned actions described in Figure 3 Scottish Borders Council have undertaken a test exercise to prepare for flood events with resilient community group and emergency services. This involved erecting emergency flood barriers in Eyemouth.	Refer to the planned actions described in Figure 3 of this report.

<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities and land/asset managers	Ongoing	Further to the planned actions described in Figure 3 all of the watercourses in the Berwickshire Coast PVA have been inspected within their inspection deadlines. Undertaken watercourse inspections in; 2018 - Catchapenny Burn, Burnmouth 2017- Eye Water, Eyemouth, Bogan, Hill, Milldown and St Andrews Burns in Coldingham.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency / planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP reflects flood risk Refer to Figure 3; page 40	Scottish Borders Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report

## South Gyle, Broxburn and Bathgate (Potentially Vulnerable Area 10/27)

Local Plan District	Local authority	Main catchment
Forth Estuary	City of Edinburgh Council and West Lothian Council	River Almond



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### Summary of Progress for South Gyle, Broxburn and Bathgate

There are approximately 1,600 residential properties and 330 non-residential properties at risk of flooding. The Annual Average Damages are approximately £2,400,000. Further information can be found in the LFRMP under PVA 10/27.

Since publication of the LFRMP in June 2016 West Lothian Council has progressed work leading to the delivery of Broxburn Flood Protection Works. The extent of what can be delivered of the approved Broxburn Flood Protection Scheme 2007 will be constrained by the absence of Scottish Government funding. Changes to rainfall methodology FEH13 means SEPA could not deliver strategic mapping and modelling for the Forth Estuary prior to 2022, hence action red. Since the publication of the Plan, the City of Edinburgh Council has developed and implemented a self-certification procedure for the assessment of planning applications, which is proving effective. A schedule of clearance and repair is published annually, highlighting routine inspections undertaken and the emergency response arrangements.

### Overview of actions to manage flooding in South Gyle, Broxburn and Bathgate (PVA 10/27)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/27	A					A	R	G		G		N/A	G	G	G	G	G	G

## Summary of progress of actions to manage flood risk in South Gyle, Broxburn and Bathgate (PVA 10/27)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Scheme / Works (100960006)</b>	<b>A</b>	A flood protection scheme has been proposed for Broxburn (Liggat Syke) to complete the Broxburn flood prevention scheme. The scheme would consist of two flood storage basins in the catchment of the Liggat Syke and provide a 1 in 100 year standard of protection.	West Lothian Council	Timescales not confirmed	Delayed by the absence of Scottish Government funding.	Updated modelling is being carried out to evaluate West Lothian Council future options in this area, depending on future funding. Revised modelling has already identified that the Standard of Protection is now less than designed. This is due to be completed March 2019.
<b>Flood Protection Scheme / Works (100850006)</b>	<b>G</b>	A surface water management project looking at 'legacy' sustainable drainage systems has been proposed for Livingston and Broxburn. The project would look to move 'legacy' sustainable drainage systems into public ownership and would be taken forward jointly by West Lothian Council and Scottish Water.	West Lothian Council	2016-21	Discussion with Scottish Water is ongoing.	Ongoing.
<b>Flood Protection Scheme / Works (100850026)</b>	<b>A</b>	Surface water management works have been proposed for West Lothian as recommended in the West Lothian surface water management plan. The works include a range of local surface water management activities in specific locations in Livingston and Broxburn.	West Lothian Council	Timescales not confirmed	Options under development.	

<b>Flood Protection Scheme / Works (10303021)</b>	<b>G</b>	Scheme at Winchburgh to protect railway from flooding and Niddry Burn bridge replacement (Network Rail Financial Control Period 6).	Network Rail	2017 to 2024	Winchburgh drainage works complete.	
<b>Surface Water Plan/Study (100450018)</b>	<b>G</b>	The Bathgate area will be covered by a surface water management plan, or plans (SWMP)	West Lothian Council	Complete	Completed 2015.	Bathgate SWMP revision is due post completion of Bathgate ICS .(100450019)
<b>Surface Water Plan/Study (100450019)</b>	<b>G</b>	Integrated catchment study for the Bathgate drainage catchment to support the SWMP process for Bathgate by improving understanding of surface water flood risk and the interaction with other sources of flooding. SR 15 Integrated catchment study for the Bathgate drainage catchment to support the SWMP process for Bathgate by improving understanding of surface water flood risk and the interaction with other sources of flooding.	Scottish Water in partnership with local authorities.	2017-20	Historical verification complete.	Complete catchment flood assessment.  On track to deliver as scheduled in the LFRMP.
<b>Surface Water Plan/Study (100520018)</b>	<b>A</b>	The Edinburgh 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 integrated catchment studies, to assist with the	City of Edinburgh Council	Start 2021	Not confirmed.  City of Edinburgh Council will review ICS outputs prior to progressing.	No revised date at this time.

		surface water management planning process City of Edinburgh SWMP to include the Gyle				
<b>Surface Water Plan/Study (100520019)</b>	<b>G</b>	An integrated catchment study will be carried out to support the surface water management plan process and improve knowledge and understanding of surface water flood risk and interactions with other sources of flooding e.g. with the sewer network, watercourses and the sea. Solution development phase post Edinburgh ICS	Scottish Water in Partnership with local authorities	2016-21	September 2018. Pre Optioneering Catchment Plan and prioritisation stages completed.	Optioneering phase of study to be completed.
<b>Surface Water Plan/Study (100850018)</b>	<b>G</b>	SWMP for Broxburn and eastern Uphall	West Lothian Council	Complete		
<b>Surface Water Plan/Study (101020018)</b>	<b>G</b>	SWMP for Livingston and Mid Calder	West Lothian Council	Complete		
<b>Maintain Flood Protection Scheme (100890017)</b>		Broxburn - Brox Burn Flood Protection Scheme 2007	West Lothian Council	Ongoing	Continued maintenance of West Lothian Council asset.	
<b>Strategic mapping and modelling (100990016)</b>	<b>R</b>	Surface water mapping developments: improved data areas across LPD + use of Livingston area, Broxburn area, Bathgate area and Edinburgh area SWMP and ICS results if appropriate.	SEPA	2016	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall	This action will not be taken forwards as described. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2.



					across Scotland and represents a significant change in rainfall amounts compared to FEH99 dataset, as such it is no longer considered appropriate to deliver this action as intended.	Alongside this SEPA will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
<b>Strategic Mapping and modelling (100990019)</b>	<b>G</b>	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 review the assessment of flood risk within the highest risk sewer catchments to improve knowledge and understanding of surface water flood risk. S16 assessment of Edinburgh Sewer catchment.	Scottish Water	Edinburgh 2016-19 Newbridge 2018-20 Winchburgh 2018-20	Complete.	
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Community Flood Action Groups (100890012)</b>	<b>N/A</b>	East Burnside Community Flood Action Group	Community	N/A	East Burnside Village Community Flood Action Group has disbanded since LFRMP publication.	
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self help measures available to property owners Refer to Figure 3; page 26	Communities	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3	Further to the planned actions described in Figure 3 of this report council's review and update website links periodically.

					of this report.	
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise community flood risk awareness Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Further to the planned actions described in Figure 3 of this report council's review and update website links periodically.
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities & land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Site Protection Plans (100900015)</b>	<b>G</b>	Edinburgh Airport flood resilience plans to reduce flood risk disruption to operations	Edinburgh Airport	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood events Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	LDP content reflects flood risk Refer to Figure 3; page 40	Responsible Authorities	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Further to the planned actions described in Figure 3 of this report council's review and update website links periodically.

## Cowdenbeath (Potentially Vulnerable Area 10/28c)

Local Plan District	Local authority	Main catchment
Forth Estuary	Fife Council	River Ore (Fife)



### Summary of Progress for Cowdenbeath

There are approximately 150 residential properties and 40 non-residential properties at risk of flooding. The Annual Average Damages are approximately £580,000. Further information can be found in the LFRMP under PVA 10/28c.

Since publication of the LFRMP in June 2016 Scottish Water has progressed the Integrated Catchment Study for Leven Valley, which includes Cowdenbeath.

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### Overview of actions to manage flooding in Cowdenbeath (PVA 10/28c)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/28c			G	G		G				G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in Cowdenbeath (PVA 10/28c)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Study (100970005)</b>	<b>G</b>	Cardenden (Bowhill) study recommended	Fife Council	2016-20	Flow and watercourse surveys implemented.	
<b>Flood Protection Study (100980005)</b>	<b>G</b>	Cowdenbeath study recommended	Fife Council	2016-20		
<b>New Flood Warning (100990010)</b>	<b>G</b>	The area under consideration includes properties affected by flooding in Fife and Perth & Kinross and is likely to include Bowhill which is affected by flooding from the River Ore. Further feasibility assessment will be required to assess delivery potential and the final detail of communities for which warnings can be provided will be determined during the scoping process.	SEPA	Launch May 2021	Initial investigation into flood risk and potential new flood warning areas undertaken across Fife.	Feasibility assessment to determine scope of new hydrometric infrastructure and flood warning service requirements due to be completed 2018 -19
<b>Surface Water Plan/Study (100920018)</b>	<b>G</b>	Surface water study and plan to include Cowdenbeath, Leuchatsbeath and Lumphinnans using Leven Valley ICS and S16 Assessment data.	Fife Council	2016-21		
<b>Surface Water Plan/Study (100920019)</b>	<b>G</b>	SR 15 Integrated catchment study for the Leven Valley drainage catchment to support the SWMP process for Cowdenbeath, Leuchatsbeath and Lumphinnans by improving understanding of surface water flood	Scottish Water in partnership with local authorities.	2018-21	Flow Survey complete. Manhole and ancillary survey complete. Watercourse surveys complete.	Historical Verification & Catchment Flood Assessment delivery

		risk and the interaction with other sources of flooding.				
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise community awareness of flood risk Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities & land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency/planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report. Fife Council Updated Flood Emergency Plan published Nov 2018.	Further to the planned actions described in Fig 3 of this report. Fife Council Emergency Plan will be updated Nov 2019.
<b>Planning Policy (100010001)</b>	<b>G</b>	Ensure LDP content reflects flood risk Refer to Figure 3; page 40	Fife Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report

## Whitburn (Potentially Vulnerable Area 10/29c)

Local Plan District	Local authority	Main catchment
Forth Estuary	West Lothian Council	River Almond



### Summary of Progress for Whitburn

There are approximately 180 residential properties and 10 non-residential properties at risk of flooding. The Annual Average Damages are approximately £270,000. Further information can be found in the LFRMP under PVA 10/29c.

Since publication of the LFRMP in June 2016 West Lothian Council has completed a flood study in Whitburn, one of their priority fluvial study areas.

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### Overview of actions to manage flooding in Whitburn (PVA 10/29c)

PVA	Flood protection Scheme/Works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Site protection plans	Emergency plans/response	Planning policies
10/29c				G						G			G	G	G		G	G

## Summary of progress of actions to manage flood risk in Whitburn (PVA 10/29c)

Action	Status (Red; Amber; Green)	Description	Delivery Lead	Planned Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
<b>Flood Protection Study (100940005)</b>	<b>G</b>	Study for Whitburn and the White Burn	West Lothian Council	2016-17	Study completed Sep 2018.	
<b>Flood forecasting (100990009)</b>	<b>G</b>	Link to Scottish Flood Forecasting Service Refer to Figure 3; page 26	SEPA	Ongoing	Refer to Interim progress described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Self help (100990011)</b>	<b>G</b>	Raise awareness of self-help measures available to property owners Refer to Figure 3; page 26	Community	Ongoing	No additional self help activities have been carried out in this PVA, beyond those already described in Fig 3 of this report.	Further to the planned actions described in Fig 3 of this report council's review and update website links periodically.
<b>Awareness raising (100990013)</b>	<b>G</b>	Raise flood risk awareness with communities Refer to Figure 3; page 29	Responsible Authorities	Ongoing	No additional awareness raising activities have been carried out in this PVA, beyond those already described in Fig 3 of this report.	Further to the planned actions described in Fig 3 of this report council's review and update website links periodically.
<b>Maintenance (100990007)</b>	<b>G</b>	Inspect and maintain locations of identified flood risk Refer to Figure 3; page 33	Responsible Authorities & land/asset managers	Ongoing	No additional maintenance activities been carried out in this PVA, beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Emergency plans / response (100990014)</b>	<b>G</b>	Raise awareness of Plans and actions in place for flood incidents Refer to Figure 3; page 37	Category 1 and 2 Responders	Ongoing	No additional emergency / planning response activities have been carried out in this PVA, beyond those already described in Figure 3 of this report.	Refer to the planned actions described in Figure 3 of this report.
<b>Planning Policy (100010001)</b>	<b>G</b>	Ensure LDP content reflects flood risk Refer to Figure 3; page 40	West Lothian Council and Responsible Authorities	Ongoing	No additional planning policy actions have been carried out in this PVA, beyond those already described in Fig 3 of this report.	Refer to the planned actions described in Figure 3 of this report.

# **Appendix 1: Flood risk management responsibilities in Scotland and the legal requirement for the publication of this INTERIM REPORT**

## **Flood risk management in Scotland**

The Scottish Ministers, SEPA and responsible authorities must exercise their flood risk related functions with a view to reducing overall flood risk (reference Section 1(1) of the Flood Risk Management (Scotland) Act 2009).

SEPA, through the preparation of a national flood risk assessment and setting of objectives to reduce the level of flood risk published in the Local Flood Risk Management Strategies, and lead local authorities through the publication of Local Flood Risk Management Plans, which detail how and when actions agreed to meet SEPA objectives are to be carried out, SEPA and all responsible authorities act to manage flood risk in a sustainable way.

[Forth Estuary Local Flood Risk Management Strategy](#)

[Forth Estuary Local Flood Risk Management Plan](#)



## Legal requirement

This document sets out the conclusions of the review of the Local Flood Risk Management Plan (LFRMP) for the Forth Estuary Local Plan District (LPD) as required by Section 37 of the Flood Risk Management (Scotland) Act 2009 (the “Act”).

### **37 Local flood risk management plans: interim report**

- (1) Not earlier than 2 years and not later than 3 years after a local flood risk management plan is finalised, the lead authority must —
  - (a) review the plan, and
  - (b) publish a report on the conclusions of the review including information on the progress that has been made towards implementing the measures identified in the implementation part of the plan.
- (2) The lead authority must make copies of the report available for public inspection.

The Forth Estuary LFRMP, which includes the ‘implementation part of the plan’, was published in June 2016. The Interim Report is therefore to be published between July 2018 and June 2019. The Interim Report will provide a summary of the LFRMP actions (‘measures’) and the proposed delivery timescales.

The information on progress will include:

- an assessment of the progress towards implementing each of the actions;
- reasons for any actions where delivery is not as planned; and
- a description of arrangements planned to deliver the remaining actions and to address delayed actions.

The Interim Report is published by the 'lead authority' as defined by Section 34(9) of the Act, in partnership with SEPA and the 'responsible authorities', as defined by Section 5 of the Act. The approval of the Interim Report will be in accordance with the agreed governance arrangements in the LPD. The responsible authorities for the Forth Estuary LPD are:

- Falkirk Council (lead authority)
- Clackmannanshire Council
- The City of Edinburgh Council
- East Dunbartonshire Council
- East Lothian Council
- Fife Council
- Forestry Commission Scotland
- Perth & Kinross Council
- Midlothian Council
- North Lanarkshire Council
- Scottish Borders Council
- Scottish Water
- South Lanarkshire Council
- Stirling Council
- Forestry Commission Scotland
- West Lothian Council

The lead authority must also publish a Final Report on the LFRMP under Section 38 of the Act between July 2021 and June 2022 (not earlier than 5 years and not later than 6 years from the publication of the plan). The Final Report will provide an assessment of current actions and a summary of current actions not implemented, with reasons for their non-implementation. The Final Report will also include a description of any other measures implemented, which the lead authority considers have contributed to the achievement of the objectives summarised in the LFRMP.

## **Publication**

The published Interim Report for the Forth Estuary LFRMP will be made available for public inspection, as per Section 37(2) of the Act, via the website of the lead authority, Falkirk Council:

[Falkirk Council Flooding webpage](#)

Links to the published Interim Report for the Forth Estuary LFRMP will also be provided from Scottish Government, SEPA and other responsible authority websites.

A hard (paper) copy of the published Interim Report for the Forth Estuary LFRMP will also be available for public inspection on weekdays between 9am and 5pm at Abbotsford House, Davids Loan, Falkirk, FK2 7YZ on request from Falkirk Council.

Copies of the published Interim Report for the Forth Estuary LFRMP may also be available by arrangement at offices of other responsible authorities. It is advised that the responsible authority be contacted to make such arrangements.

Detailed arrangements for publication of the Interim Report for the Forth Estuary LFRMP are in Appendix 3.

## **Appendix 2: Terms and conditions of use**

### **Ownership**

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### **Data Protection**

You agree not to use the Forth Estuary Local Flood Risk Management Plan INTERIM REPORT in any way that constitutes a breach of the Data Protection Act 1998.

### **No Partnership or Agency**

Nothing in these Terms and Conditions are intended to, or shall be deemed to, establish any partnership or joint venture between you and Falkirk Council, or SEPA, or other responsible authority.

### **No Interference**

Nothing within these Terms and Conditions interferes with the statutory rights or obligations of you, or Falkirk Council, or SEPA, or other responsible authority.

### **Jurisdiction**

These Terms and Conditions are governed by Scots law and in the event of any dispute you agree to submit to the exclusive jurisdiction of the Scottish Courts.

## Appendix 3: Publication details

### Summary of Proposed Communications Activities

The following communications activities will be used to publicise and make the interim report available:

Upon finalising the Interim Report for the Forth Estuary LFRMP, Sections 37(2), 53 and 54 of the Flood Act also specifically require Falkirk Council, as the lead authority, to

- Publish an Interim Report on the Forth Estuary LFRMP;
- Make copies of the Interim Report available for public inspection free of charge and at all reasonable times;
- Publicise the arrangements for making it available by means of a notice in the appropriate newspapers (at least one Scottish newspaper and such local newspapers within the LPD as considered appropriate)

The Interim Report for the Forth Estuary LFRMP will be made available on request for viewing by arrangement with Falkirk Council, a pdf version will also be made available on the Council's website

A letter (with a pdf version on DVD) will be sent to SEPA and the Scottish Ministers.

On or before the publication date 31<sup>st</sup> May 2019 public notices will be placed in the Scotsman and local newspapers as directed by the local authorities within the LPD in order to fulfill duties to publicise the Interim Report in accordance with Sections 37, 53 and 54 of the 2009 Act.

As the lead authority for the Forth Estuary LPD, we would suggest that the other local authorities within the Forth Estuary LPD Partnership undertake the following minimum activities in order to coordinate communications across the Forth Estuary LPD as follows:

- Update Council webpages to provide an update on the Flood Act and a link to the Forth Estuary LFRMP and SEPA strategies
- Social media announcements - each local authority will be able to share/like/retweet each other's social media posts to increase the audience reached

SEPA, Scottish Forestry and Scottish Water are also invited to advertise the publication of the Interim Report on their websites and via social media.

Any further communications activities are then up to each individual responsible authority based on their individual Communications and / or Consultation policies and procedures.