

Members' Library Service Request Form

Date of Document	29/04/16
Originator	David Northcott
Originator's Ref (if any)	
Document Title	Local Flood Risk Management Plan

Please indicate if access to the document is to be “unrestricted” or “restricted”, with regard to the terms of the Local Government (Access to Information) Act 1985.

Unrestricted	<input type="checkbox"/>	Restricted	<input type="checkbox"/>
--------------	--------------------------	------------	--------------------------

If the document is “restricted”, please state on what grounds (click on grey area for drop-down menu):

For Publication

Please indicate which committee this document should be recorded into (click on grey area for drop-down menu):

Cabinet

Additional information:

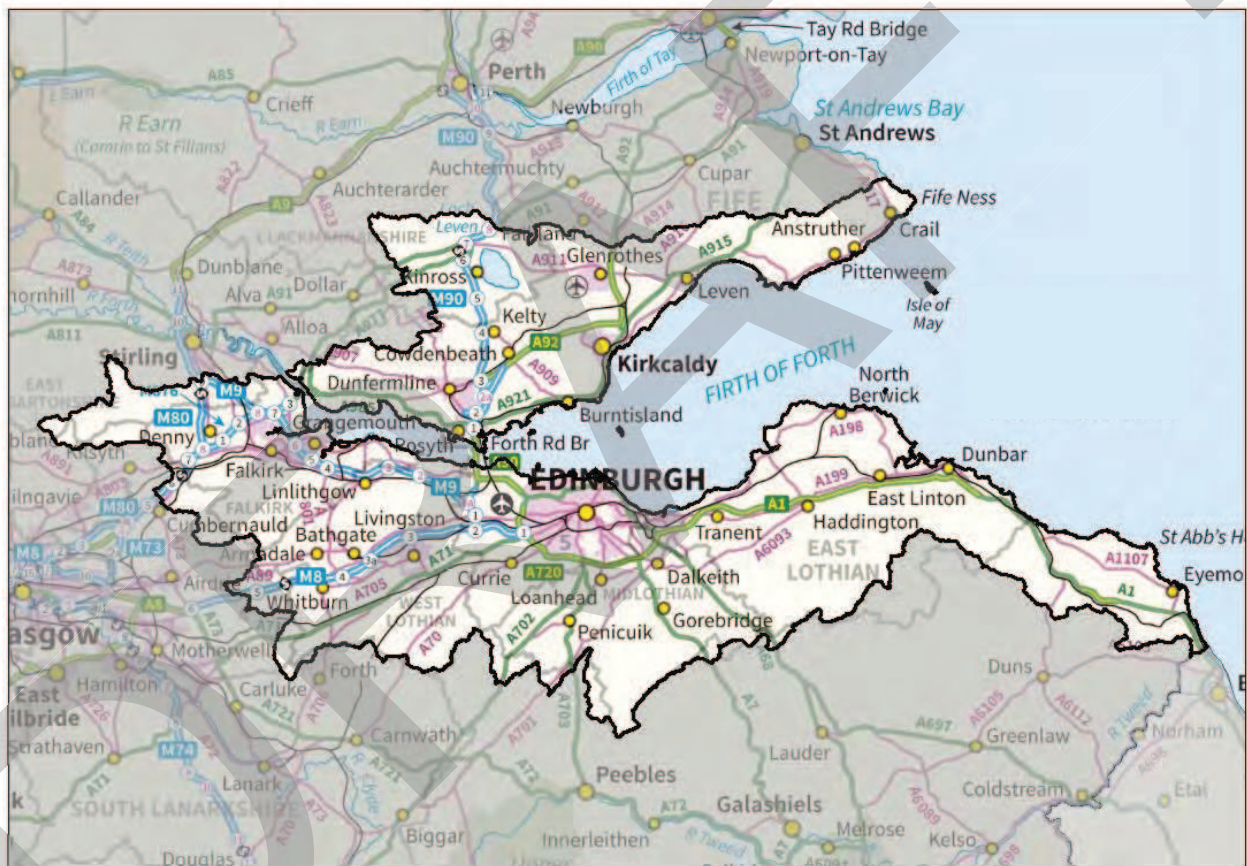
Appendix 1 referred to in report to Cabinet, 10 May 2016, entitled Local Flood Risk Management Plan

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

For Office Use Only:	
Library Reference	47/16
Date Received	29/04/16
Bulletin	Apr 2016

Flood Risk Management (Scotland) Act 2009:

Local Flood Risk Management Plan Forth Estuary Local Plan District



This has been produced from Ordnance Survey on behalf of Controller of Her Majesty's Service Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.100023420 (2016)

Published by: City of Edinburgh Council
22 June 2016



• EDINBURGH •

THE CITY OF EDINBURGH COUNCIL



West Lothian
Council



East Lothian
Council



Midlothian



Scottish Environment
Protection Agency

Buidheann Dion
Àrainneachd na h-Alba



Scottish
Water
Trusted to serve Scotland



Clackmannanshire Council
www.clacksweb.org.uk



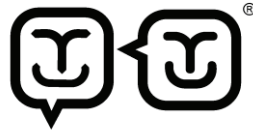
sustainable thriving achieving

East Dunbartonshire Council

www.eastdunbarton.gov.uk



Forestry Commission Scotland
Coimisean na Coilltearachd Alba



HAPPY TO TRANSLATE

You can get this document on tape, in Braille, **large print** and various computer formats if you ask us. Please contact Interpretation and Translation Service (ITS) on 0131 242 8181 and quote reference number 15-1476. ITS can also give information on community language translations. You can get more copies of this document by calling 0131 469 3687.

DRAFT

Delivering sustainable flood risk management is important for Scotland's continued economic success and well-being. It is essential that we avoid and reduce the risk of flooding, and prepare and protect ourselves and our communities.

This is the first Local Flood Risk Management Plan for the Forth Estuary Local Plan District, describing the actions which will make a real difference to managing the risk of flooding and recovering from any future flood events.

The task now for us – local authorities, Scottish Water, SEPA, the Scottish Government and all other responsible authorities and public bodies – is to turn our Local Flood Risk Management Plan into action.

Foreword

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 future events and improve Scotland's ability to manage and recover from any events which do occur.

The publication of this Local Flood Risk Management Plan is an important milestone in implementing the Flood Risk Management (Scotland) Act 2009 and improving how we cope with and manage floods in the Forth Estuary Local Plan District. The aim of the Plan is to translate this legislation into actions to reduce the damage and distress caused by flooding. This plan will cover actions identified in the first planning cycle from 2016 to 2022.

Responsible authorities are taking action to manage flood risk in partnership in a more coordinated, sustainable and targeted way, to ensure the benefits of intervention will make the greatest impact. To support this new approach, Scotland has been separated into 14 Local Plan Districts. These districts are based on river catchments and cross administrative and institutional boundaries, therefore some local authorities will be covered in more than one Local Plan District. Each Local Plan District produces a Local Flood Risk Management Plan specific to their area.

The Forth Estuary Local Plan District is led by the City of Edinburgh Council and the Local Flood Risk Management Plan is published by the City of Edinburgh Council on behalf of a partnership comprising 13 local authorities: City of Edinburgh Council (lead authority), Clackmannanshire Council, East Dunbartonshire Council, East Lothian Council, Falkirk Council, 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 Forestry Commission Scotland. The Forth Estuary Local Plan District boundary is illustrated in Figure 1.

In summary, there are 29 areas that have been identified as being potentially vulnerable to flood risk across the Forth Estuary Local Plan District (the extent of which is shown in figure 1). These include 14,000 residential and 3,800 non-residential properties. The estimated annual average damage of these flood risks is £36 million.

This Local Flood Risk Management Plan presents actions to avoid and reduce the risk of flooding, and prepare and protect ourselves and our communities within these Potentially Vulnerable Areas and across the Local Plan District. These actions include 10 flood protection schemes or works; 26 flood protection studies; as well as new flood warning schemes, surface water management plans, and natural flood

management studies and works. The delivery of many of these actions may be dependent on the availability of funding.

However, we can all play our part in managing flood risk as we are able. Individuals are the first line of defence against flooding and have responsibilities to protect themselves from flooding. The publication of this Local Flood Risk Management Plan shows that the coordinated and collaborative efforts of public bodies can be brought together to deliver sustainable outcomes. However, the actions in this Local Flood Risk Management Plan can only be delivered with the support of all the public bodies, The Scottish Government, and most importantly you and your communities.

This Local Flood Risk Management Plan therefore provides the blueprint upon which SEPA, local authorities and Scottish Water and any other responsible authorities will deliver their flood risk management responsibilities and, in particular, that all steps should be taken to manage flooding in a sustainable manner.

We would like to thank all those who contributed to the development of this Local Flood Risk Management Plan which will help shape the way in which floods and their impacts are managed across the Forth Estuary Local Plan District.

.....
Lesley Hinds
Convenor of the Transport and Environment Committee
City of Edinburgh Council

.....
Paul Lawrence
Director of Place
City of Edinburgh Council

22nd June 2016

Contents

Chapter 1: What is a Local Flood Risk Management Plan?	1
1.1 How to read this Local Flood Risk Management Plan	2
1.1.1 Potentially Vulnerable Areas (PVAs)	2
1.2 How we have developed the Local Flood Risk Management Plan	2
1.3 Consultation, engagement and advice	3
1.4 Roles and responsibilities for flood risk management planning	4
1.5 Identification of objectives, appraisal and prioritisation of actions	5
1.6 Strategic Environmental Assessment and Habitats Regulations Appraisal ...	6
1.7 Links with other plans, policies, strategies and legislative requirements	6
1.7.1 River basin management planning	7
1.7.2 Scottish Water Business Plan 2015 – 2021	7
1.7.3 Integrated Catchment Studies	8
1.7.4 Surface water management planning	9
1.8 Next steps and monitoring progress	10
1.9 Licensing acknowledgements	10
Chapter 2: Managing Flood Risk in the Forth Estuary Local Plan District	11
2.1 Understanding of flooding within the Forth Estuary Local Plan District	11
2.1.1 Flood risk in the Forth Estuary	14
2.2 Objectives and Actions in the Forth Estuary Local Plan District	17
2.3 Flood risk, objectives, actions and prioritisation for the Forth Estuary Potentially Vulnerable Areas	25
2.4 Other flood risk activities by local authorities in the Forth Estuary Local Plan District	26
2.4.1 Section 18 & 59: Works of Clearance and Repair	27
2.4.2 Section 56: General Power to manage flood risk	27
Chapter 3: The Way Forward	29
<u>Annexes</u>	
Annex 1: Potentially Vulnerable Areas	31
Annex 2: Local Plan District roles & responsibilities	520
Annex 3: Consultation and engagement	525
Annex 4: Links to other plans, policies, strategies and legislative requirements	528
Annex 5: Land use planning guidance	537
Annex 6: Supporting information	539
Annex 7: Acknowledgements	543
Annex 8: Glossary	545
Annex 9: Habitats Regulation Appraisal	558
Annex 10: Contact details of Forth Estuary Local Plan District Partners	559

List of Acronyms and Abbreviations

A full definition of these terms is provided in the Glossary, included in [Annex 8](#).

AAD	Annual Average Damages
FCS	Forestry Commission Scotland
FRM	Flood Risk Management
ICS	Integrated Catchment Study
LA	Local Authority
LPD	Local Plan District
LDP	Local Development Plan
LLA	Lead Local Authority
NFM	Natural Flood Management
NFP3	National Planning Framework
Plan	Local Flood Risk Management Plan for the Forth Estuary
PVA	Potentially Vulnerable Area
SEPA	Scottish Environmental Protection Agency
SWMP	Surface Water Management Plan
SDP	Strategic Development Plan
TIF	Tax Incremental Finance
RBMP	River Basin Management Plans

Chapter 1: What is a Local Flood Risk Management Plan?

The Local Flood Risk Management Plan (also referred to as the Plan) has been developed to detail the actions adopted to reduce the devastating and costly impact of flooding in the Forth Estuary Local Plan District. The Plan supplements the [Flood Risk Management Strategy](#)¹ for the Forth Estuary Local Plan District developed by SEPA in consultation with local authorities, Scottish Water, and transport and utility companies. This Local Flood Risk Management Plan covers the Forth Estuary Local Plan District. There are fourteen plan areas within Scotland each with their own Strategy and Local Flood Risk Management Plan. The geographical coverage of the plan areas is governed by river catchments as opposed to Local Authority boundaries. The Flood Risk Management Strategies were developed to coordinate the efforts of all organisations that tackle flooding from all sources and in both urban and rural areas. They set the objectives to tackle flooding and identify actions to deliver these objectives. Objectives and actions have been set and agreed by all responsible authorities and prioritised over six-year planning cycles. The Flood Risk Management Strategies set out the short to long term ambition for flood risk management in Scotland, identifying where the risk of flooding and benefits of investment are greatest.

The Plan takes the actions contained in the Flood Risk Management Strategy and adds details as to who will be responsible for implementing actions, a timetable of when actions will be delivered, a description of the co-ordination requirements and funding arrangements. The Plan covers the first six-year implementation cycle from 2016 to 2022.

By publishing The Plan, individuals and local communities are provided with information that allows them to better manage their own responsibilities. Everyone can take action with the confidence of what others are doing and with the clear knowledge of when they are undertaking these actions. It is through this risk-based and plan-led approach that flood management will improve for the individuals, communities and businesses at risk in the Forth Estuary Local Plan District.

The contents of The Plan have been agreed by the lead authority, all responsible authorities, Scottish Water and SEPA.

This Plan is a requirement of the Flood Risk Management (Scotland) Act 2009.

This Plan is a technical document and whilst every effort has been made to present information in an easy to understand way, some terms require further explanation. A full glossary of terms has been provided in [Annex 8](#).

¹ Forth Estuary Flood Risk Management Strategy, SEPA (December 2015). Found at (<http://apps.sepa.org.uk/FRMStrategies/forth-estuary.html>)

1.1 How to read this Local Flood Risk Management Plan

The Plan has three chapters:

- Chapter one explains what a local flood risk management plan is, how it has been developed and the obligations different partners have to fulfil duties under the Flood Risk Management (2009) Scotland Act
- Chapter two provides a summary of flood risk in the Forth Estuary Local Plan District and an overview of objectives and actions that apply across the Local Plan District
- Chapter three summarises the way forward following publication of the Plan.
- [Annex 1](#) provides the detail of the objectives, actions, funding arrangements, delivery periods and collaborative working set within each Potentially Vulnerable Area (see section 1.1.1) for the first flood risk management cycle 2016 – 2022 along with historical information.
- Annexes 2 to 10 provide additional supporting information. A full glossary is also provided in [Annex 8](#).

This Plan should be read alongside the Flood Risk Management Strategy² for the Forth Estuary Local Plan District. The Flood Risk Management Strategy has been developed in parallel by SEPA and provides additional background information and a national context. The strategies were approved by Scottish Ministers and published in December 2015. Both The Plan and the Flood Risk Management Strategy will be updated every six years.

1.1.1 Potentially Vulnerable Areas (PVAs)

A key term to understand in reading this Plan is 'Potentially Vulnerable Areas' or PVAs. Potentially Vulnerable Areas are catchments identified as being at risk of flooding and where the impact of flooding is sufficient to justify further assessment and appraisal. SEPA identified 243 Potentially Vulnerable Areas in the National Flood Risk Assessment and these are the focus of the first FRM planning cycle. Within the Forth Estuary Local Plan District there are 27 Potentially Vulnerable Areas (PVA) and 2 Candidate Potentially Vulnerable Areas (PVAc). Candidate Potentially Vulnerable Areas are those areas identified after the National Flood Risk Assessment (2011), as a result of new information, where the impact of flooding is potentially sufficient to justify further assessment and appraisal.

1.2 How we have developed the Local Flood Risk Management Plan

Many organisations and individuals have been involved in helping to improve flood risk management in Scotland and provide a fully holistic approach. It is recognised

² Forth Estuary Flood Risk Management Strategy, SEPA (December 2015). Found at (<http://apps.sepa.org.uk/FRMStrategies/forth-estuary.html>)

that a piecemeal or reactive approach to tackling flooding is not efficient or effective. Working jointly to overcome administrative, institutional and geographical boundaries is essential to deliver effective flood risk management.

The Plan has been developed in close partnership between all responsible authorities, SEPA and Scottish Water. In local partnerships, here and throughout Scotland, SEPA has provided the technical analysis and the evidence to ensure that a nationally consistent approach is taken. Local authorities and Scottish Water have made sure that local knowledge and expertise has informed the decision-making process. The Forth Estuary Local Flood Risk Management Plan has been developed in partnership by:

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

It should be noted that South Lanarkshire Council, East Dunbartonshire Council and Stirling Council areas cover only a small portion of the Forth Estuary Local Plan District and these areas do not experience significant flooding within this plan area. As such, these local authorities have had no significant input to the Forth Estuary Local Flood Risk Management Plan. The Clyde and Loch Lomond Local Flood Risk Management Plan represents flood risk management more fully for South Lanarkshire Council and East Dunbartonshire Council. The Forth Local Flood Risk Management Plan represents flood risk management for Stirling Council.

1.3 Consultation, engagement and advice

Local authorities were keen to hear from the people and communities that live under the threat of flooding, to ensure that local priorities are considered and that efforts to manage flooding are targeted where most can be achieved. A public consultation was held in 2015 during the development of the Flood Risk Management Strategy and the Plan. The consultation was a joint exercise between SEPA and the lead authority. The views and representations of the respondents were taken into account in developing and finalising this Plan.

In addition to input from the public consultations, advice has been sought from relevant organisations at key stages. The Flood Risk Management Strategies and

Local Flood Risk Management Plans have benefitted from input from the Forth Local Advisory Group throughout the process, providing important area-based knowledge. Advice was also taken from a National Flood Management Advisory Group consisting of over 50 member organisations, reflecting the national importance and impact of flooding on our communities, economy, environment and cultural heritage. Some of the work carried out has been complex and technical in nature for which professional advice was sought. Working together, SEPA, The Scottish Government, local authorities, Scottish Water, Forestry Commission Scotland, and other key interested organisations have assisted each other and developed industry best practice guidance for flood risk management planning.

Further detail on consultation and engagement can be found within [Annex 3](#).

1.4 Roles and responsibilities for flood risk management planning

Individuals are the first line of defence against flooding and have responsibilities to protect themselves from flooding. Being prepared by knowing what to do and who to contact if flooding happens can reduce the damage and disruption that flooding causes.

SEPA is Scotland's national flood forecasting, flood warning and strategic flood risk management authority. SEPA has a statutory duty to produce Scotland's Flood Risk Management Strategies. SEPA works closely with other organisations responsible for managing flood risk through a network of partnerships and stakeholder groups to ensure that a nationally consistent approach to flood risk management is adopted. SEPA also has a responsibility to identify where in Scotland there is the potential for natural flood management (NFM) techniques to be introduced.

In running Floodline, SEPA provides direct warnings, live flooding information and advice on how to prepare for or cope with the impacts of flooding 24 hours a day, seven days a week. To help forecast for flooding SEPA works in partnership with the [Met Office through the Scottish Flood Forecasting Service](#). SEPA has piloted surface water flood forecasting to help urban areas improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.

To raise awareness of flooding at a national level SEPA runs education initiatives, community engagement programmes and an annual campaign to promote the useful advice and information available through Floodline. SEPA works in partnership with local authorities, Neighbourhood Watch Scotland, Ready Scotland and others to share our resources and help to promote preparedness and understanding of how flood risk is managed.

Local authorities work together for flood risk management planning purposes through a single lead authority which is responsible for producing a Local Flood Risk Management Plan. It is the responsibility of your local authority to implement its flood protection actions agreed within the Plan whether that is new engineering projects, raising awareness of flooding or clearance and repair activities on the watercourses the council manages, subject to the availability of funding. During severe flooding, local authorities will work with the emergency services and coordinate shelter for people evacuated from their homes.

Forestry Commission Scotland is a responsible authority for flood risk management and as a major landowner and land manager has the potential to contribute to flood risk reduction.

Scottish Water is a responsible authority for flood risk management and is working closely with SEPA, local authorities and others to coordinate plans to manage flood risk. Scottish Water has the public drainage duty and is responsible for foul drainage and the drainage of rainwater run-off from roofs and any paved ground surface from the boundary of properties. Additionally, Scottish Water helps to protect homes from flooding caused by sewers either overflowing or becoming blocked. Scottish Water is not responsible for private pipework or guttering within the property boundary.

Further detail on some of the key roles is outlined in [Annex 2](#).

1.5 Identification of objectives, appraisal and prioritisation of actions

The identification of objectives and selection of actions was led by SEPA as part of the Flood Risk Management Strategy with significant input from local authorities and Scottish Water.

Working collaboratively with local partnerships, SEPA has agreed the objectives for addressing the main flooding impacts. Actions that could deliver these agreed objectives have been appraised for their costs and benefits to ensure the right combinations are identified and prioritised. The actions considered in the development of the strategy include structural actions (such as building floodwalls, restoring flood plains, or clearance and repair works to rivers) and non-structural actions (such as flood warning, land use planning or improving our emergency response). Structural and non-structural actions are used together to manage flood risk effectively.

An assessment of the potential for natural flood management was used to help identify opportunities for using the land and coast to slow down and store water. Natural flood management actions have been recommended in areas where they could contribute to the management of flood risk. In such instances these actions are described as part of flood protection or natural flood management studies.

To prioritise actions across Scotland, SEPA made a technical, risk-based assessment of the costs and impacts of actions. This independent assessment was used alongside information from partner organisations jointly agree priorities and identify indicative delivery dates for actions. A National Prioritisation Advisory Group was established to provide guidance to SEPA on the priority of flood risk management actions, having considered both the technical ranking prepared by SEPA and issues of local priority. This group was made up of representatives from SEPA, local authorities, CoSLA and Scottish Water.

The prioritised actions to meet agreed flood risk management objectives in the first six-year cycle (outlined in both Chapter 2 and [Annex 1](#) of this Plan) have been based on the assumption that the necessary funding is made available. It has been assumed that The Scottish Government will make the necessary funding available during the first planning cycle which may be supplemented by individual local authorities. However, given the timing of spending reviews and annualised financial settlements for local government, the actual ability to deliver all the actions set in the Flood Risk Management Strategies in December 2015 and detailed in this Plan will be dependent on the availability of the necessary funding in each year of the six year Plan.

1.6 Strategic Environmental Assessment and Habitats Regulations Appraisal

A Strategic Environmental Assessment (SEA) and Habitats Regulations Appraisal (HRA) have been undertaken for the Flood Risk Management Strategy document that has informed this Plan. As the Plan is based on the Flood Risk Management Strategy, no further SEA assessment has been undertaken. In order to confirm this was appropriate the City of Edinburgh Council submitted an SEA screening report via SEA Gateway. Screening responses received via SEA Gateway confirmed that the Plan is consistent with the Flood Risk Management Strategy and therefore no further assessment is required at this time. Project level impact assessments will be undertaken where required by planning and environmental regulations.

The City of Edinburgh Council as lead local authority and competent authority, also undertook a Habitats Regulations Appraisal to ensure that the Plan will not adversely affect the integrity of Special Areas of Conservation and Special Protection Areas. Scottish Natural Heritage was consulted on the appraisal and their views have been taken into account. Mitigation has been applied where required to ensure that the Plan will not adversely affect the integrity of Special Areas of Conservation and Special Protection Areas. For further detail please see [Annex 9](#).

1.7 Links with other plans, policies, strategies and legislative requirements

The Plan does not stand in isolation. As far as is practicable, an integrated approach to land and water management has been pursued. When developing Flood Risk

Management Strategy and the Plan, early links were made with other relevant aspects of water and land management including local development plans, river basin management plans and emergency plans. In turn, the responsible authorities will work proactively to ensure the findings from these flood risk management plans and strategies will influence other planning initiatives in an interactive and iterative cycle. Making these links has helped identify opportunities to deliver multiple benefits from flood risk management goals, objectives and actions. Further information about other plans and policies are provided in [Annex 4](#).

1.7.1 River basin management planning

Reducing flood risk in Scotland through the development of Flood Risk Management Strategies has provided an opportunity to connect with plans to improve the quality of Scotland's water environment. For example, coordination between river basin management and flood risk management can reduce flood risk, whilst improving water quality and biodiversity.

SEPA is coordinating the delivery of River Basin Management Plans and Flood Risk Management Strategies, working to ensure that there is integration and coordination between them. This coordination, particularly in regard to consultation and engagement but also in delivering environmental improvements, will be important for stakeholders many of whom have an interest in both the plans and strategies.

1.7.2 Scottish Water Business Plan 2015 – 2021

Scottish Water's investment programme is set out in its business plan 2015-2021, which can be found on its website (<https://www.scottishwater.co.uk/about-us/publications/strategic-projections>).

Scottish Water's customers have told them that reducing internal property flooding from sewers is a high priority and this is reflected in Scottish Water's Business Plan commitments for the period 2015-2021. Addressing sewer flooding is of the highest importance to Scottish Water, as highlighted by its customers who have helped shape the investment plans for 2015-2021.

In recognition of this high priority, within the period 2015-2021, Scottish Water will invest c£115m to improve the hydraulic capability of the sewer network so that it can remove all customers from the high risk internal sewer flooding register (greater than 10% chance of flooding per annum) as quickly as possible, typically within four years of their problem being confirmed. However Scottish Water has made a commitment to those customers on the register on 31 March 2015 that they will no longer be on the register by 31 March 2021.

Scottish Water customers have also highlighted external flooding is important. As a result, between 2015-2021, it is investing c£40m to develop and to begin to

implement solutions to reduce the flood risk for 400 high priority external sewer flooding areas suffering from frequent repeat flooding events.

As a responsible authority under the Flood Risk Management (Scotland) Act 2009, Scottish Water is also working collaboratively with third parties such as SEPA and local authorities through the Flood Risk Management Planning process which will assess the risk of flooding into the future.

As part of that work, Scottish Water has allocated investment to undertake further modelling and assessment in sewer catchments within Potentially Vulnerable Areas to improve knowledge and understanding of flood risk from the sewers in these areas, as required under Section 16 of the Flood Risk Management (Scotland) Act 2009. Scottish Water is also working in partnership with SEPA and local authorities, to lead on the production of Integrated Catchment Studies across key catchments. Work carried out under these Flood Risk Management (Scotland) Act 2009 duties will continue to inform future investment requirements for Scottish Water.

1.7.3 Integrated Catchment Studies

Integrated Catchment Studies (ICS) are led by Scottish Water in partnership with local authorities and SEPA. These studies will improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and (where appropriate) the sea. This will improve the understanding of contributions these drainage networks play in local surface water flood risk.

Two ICS studies were undertaken in the Forth Estuary Local Plan District in investment period covering 2010-2015; these were in Falkirk and Edinburgh and the Lothians. These studies are moving towards solution development in investment period 2015-2021, this will identify the actions to reduce flood risk across the catchments with outputs feeding directly into the local authority led Surface Water Management Planning process.

There are five studies being carried out in investment period 2015-2021 in the Forth Estuary Local Plan District. These are: Bathgate, Linlithgow, Dunnswood, Dunfermline and Iron Mill Bay and Levenmouth. These studies will go through a scoping and modelling phase and will culminate in defining the sources and mechanisms of flooding in the catchments along with an understanding of the impacts of that flooding. Solution Development will then be undertaken which will help inform potential actions to reduce flood risk across the catchments. The outputs will also feed in to the local authority led Surface Water Management Planning process.

Further information about ICS work can be found in [Annex 4](#).

1.7.4 Surface water management planning

Surface water flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead. Surface water flooding is widespread in the Forth Estuary Local Plan District. Surface water management planning is therefore a key component of the flood risk assessment that has led to the development of this Plan.

Each local authority will consider surface water planning for their area and plans will be prepared. The exact format and detail of these plans is not known at present. Local knowledge with input from Scottish Water will help local authorities in deciding upon the format of the plans and level of detail to be presented. Careful consideration will be given to establish the extent of each Surface Water Management Plan (SWMP) dependent upon the findings once this information has been collated. In some instances a single SWMP covering an entire local authority may be appropriate but where issues are more complex a number of separate plans may be required. Indeed it may be necessary for more than one local authority to contribute to a SWMP where issues cross electoral boundaries.

North Lanarkshire Council will be starting work on a Surface Water Management Plan for Cumbernauld (East) in the first cycle (2016-2022) of the Local Flood Risk Management Plan. This will be supported by an Integrated Catchment Study led by Scottish Water working in partnership with North Lanarkshire Council that will also be undertaken in the first cycle.

Perth and Kinross Council have completed surface water investigations for Milnathort which will culminate in the implementation of a surface water flood protection scheme.

West Lothian Council's surface water management plan was prepared on behalf of the West Lothian Council by independent consultants, Mott MacDonald, in liaison with and managed by officers from the Flood Risk Management team. Works have been identified in the SWMP but no timescale can be set for these works until a funding process is agreed. It is likely these works will be implemented in a later planning cycle.

Further information about SWMP work can be found in [Annex 4](#).

1.8 Next steps and monitoring progress

The Plan runs from June 2016 until June 2022. Over this period the Forth Estuary local partnership will continue to meet periodically to monitor progress towards implementing the actions detailed in [Annex 1](#) of the Plan. Now that the Plan has been published the role of lead authority has been passed to

Between June 2018 and 2019, the lead authority will publish an interim report on the progress towards implementing the actions identified in the Plan. The mid-term report will be made publically available.

Between June 2021 and 2022, the lead authority will publish a final report on the progress towards implementing the actions contained in the Plan. The final report will be made publically available.

Throughout Scotland, the second cycle of Flood Risk Management Strategies and Local Flood Risk Management Plans will be published in December 2021 and June 2022 respectively to cover the next planning cycle from 2022-2028.

1.9 Licensing acknowledgements

Full licensing acknowledgements can be found in [Annex 7](#) of this Plan.

Chapter 2: Managing Flood Risk in the Forth Estuary Local Plan District

This Plan is a technical document and whilst every effort has been made to present information in an easy to understand way, some terms require further explanation. A full glossary of terms has been provided in [Annex 8](#).

Section 2.1 presents an understanding of flooding in the Forth Estuary Local Plan District.

Section 2.2 presents the objectives and actions for flood risk management to be achieved across the Local Plan District.

Section 2.3 introduces Potentially Vulnerable Area datasheets which can be seen in their entirety in [Annex 1](#). As detailed in section 1.1.1 Potentially Vulnerable Areas are catchments identified as being at risk to flooding and where the impact of flooding is sufficient to justify further assessment and appraisal. Section 2.3 provides a high level summary of actions to manage flooding in each Potentially Vulnerable Area. Furthermore, this section indicates which local authority area is within a particular Potentially Vulnerable Area, to provide a clear picture of flood risk management at a localised level. Potentially Vulnerable Area datasheets in Annex 1 summarise the risk and history of flooding in the area as well as providing fully detailed actions, to manage flooding that have been prioritised for delivery between 2016 and 2022. Implementation information for each action is also included.

Section 2.4 describes other flood risk activities undertaken by local authorities in the Forth Estuary Local Plan District so as to provide as full a picture as possible of how flood risk is managed.

2.1 Understanding of flooding within the Forth Estuary Local Plan District

This chapter provides an overview of flooding and flood risk in the Forth Estuary Local Plan District. The information included has been adapted and extracted from the Forth Estuary Flood Risk Management Strategy³. This chapter summarises the characteristics and impacts of flooding from river, coastal and surface water sources on the Forth Estuary Local Plan District and how flooding from these mechanisms are to be managed. Flooding from other sources is described in more detail in the Forth Estuary Flood Risk Management Strategy. The agreed goals or objectives to be achieved Forth Estuary wide are clearly set out. Most importantly, the actions that will deliver progress against these Forth Estuary wide goals over the first six-year planning cycle from 2016 and 2022 are described, including when they will be implemented, which organisation is responsible, and how they are to be funded.

³ Forth Estuary Flood Risk Management Strategy, SEPA (December 2015). Found at (<http://apps.sepa.org.uk/FRMStrategies/forth-estuary.html>).

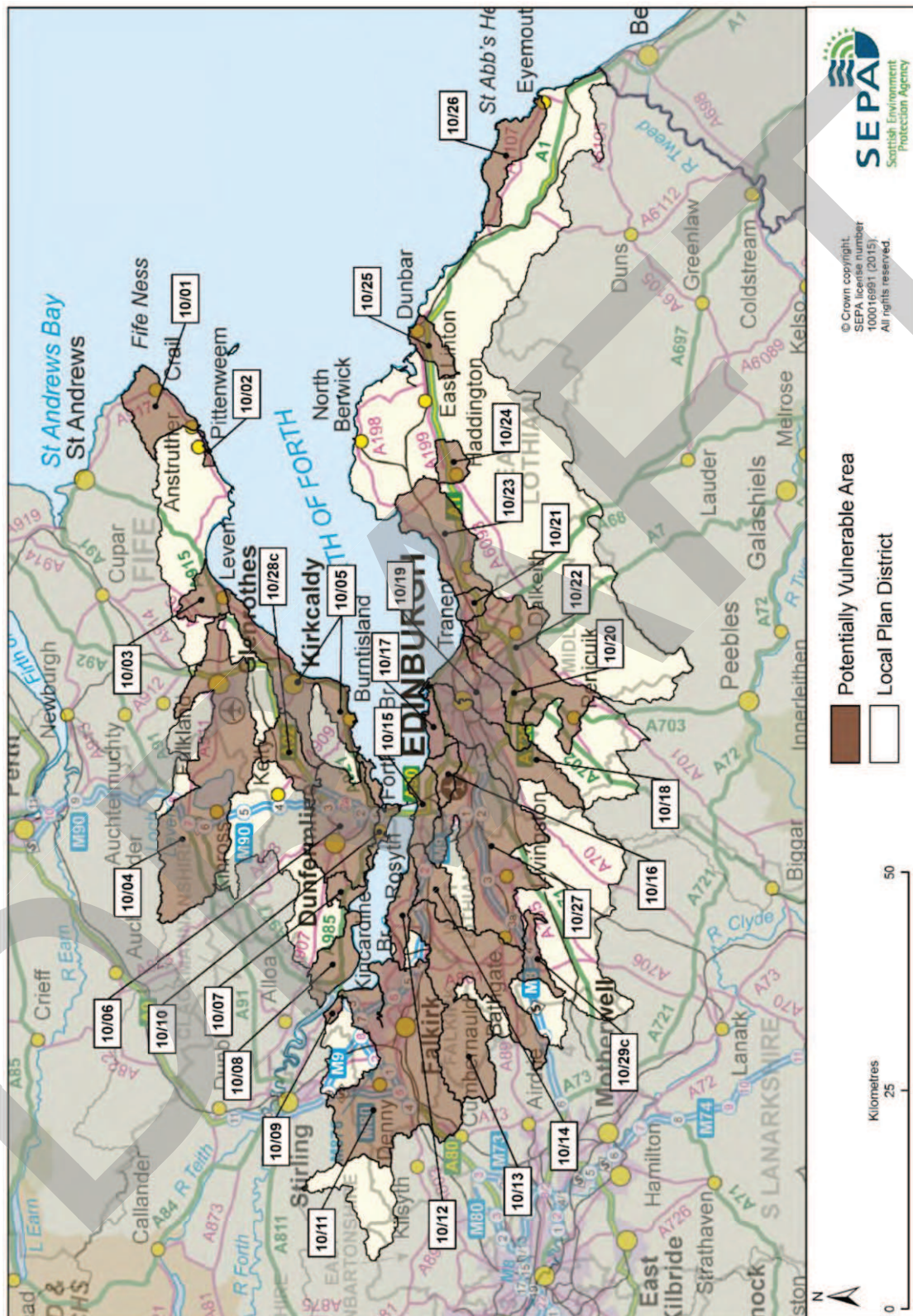
The Forth Estuary Local Plan District covers an area of 3,256km² with a population of approximately 1.4 million. It contains 13 local authorities, 27 Potentially Vulnerable Areas and 2 candidate Potentially Vulnerable Areas. The extent of the Forth Estuary Local Plan District and the location of the Potentially Vulnerable Areas are shown in Figure 2. It includes the urban areas of Edinburgh, Livingston, Cumbernauld, Falkirk, Dunfermline, Kirkcaldy and Glenrothes.

The main river catchments include the River Leven, River Carron, River Avon, River Almond, Water of Leith, River Esk, River Tyne and the Eye Water. The largest lochs / reservoirs include the Carron Valley and Loch Coulter reservoirs that are in the River Carron catchment. Other lochs/ reservoirs include Loch Leven in the River Leven catchment, Cobbinshaw Reservoir in the River Almond catchment, and Harperrig, Threipmuir and Harlaw Reservoirs in the Water of Leith catchment.

The Forth Estuary Local Plan District includes part of the central belt that is heavily urbanised. Rural areas are located to the north of the Firth of Forth, in East Lothian and along the Berwickshire coast in the Scottish Borders. Across the area the main types of land cover include heather and grassland (37%), arable and horticultural land (35%), and coniferous and broadleaved woodland (13%). Urban areas represent approximately 10% of total land cover.

The Local Plan District has 375km of coastline that includes the Firth of Forth and the Berwickshire coast. The Firth of Forth is the largest estuary on the east coast of Scotland. It extends 95km from Stirling in the west, where the River Forth flows into the estuary, to Fife Ness in the east where it meets the North Sea.

Figure 2: The Forth Estuary Local Plan District catchment group. *Reproduced from Forth Estuary Flood Risk Management Strategy, SEPA (December 2015).*



2.1.1 Flood risk in the Forth Estuary

There are approximately 14,000 residential and 3,800 non-residential properties at risk to flooding within the Local Plan District⁴. This equates to approximately 16% of all properties at risk to flooding nationally. Within the Local Plan District, approximately 2% of all residential and 6% of all non-residential properties are at risk and it is estimated that 95% of these properties are located within Potentially Vulnerable Areas or candidate Potentially Vulnerable Areas. The Annual Average Damages from flooding (see glossary) are approximately £36 million.

River flooding is the main source of flood risk, followed by surface water flooding. The Annual Average Damages caused by river flooding are £18 million, those caused by surface water flooding are £12 million and those caused by coastal flooding are £5.5 million (Figure 3).

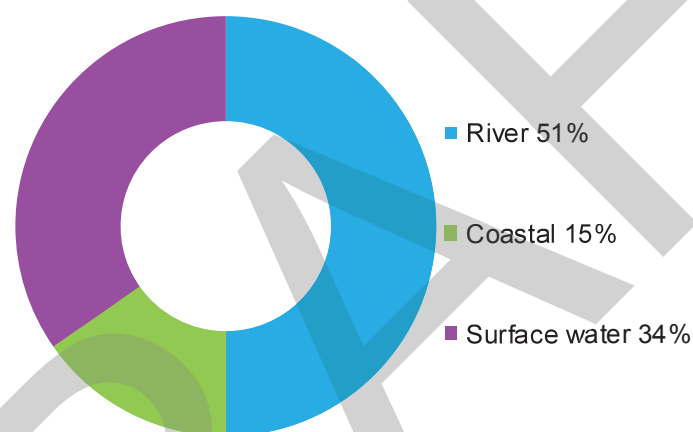


Figure 3: Annual Average Damages by flood source. *Reproduced from Forth Estuary Flood Risk Management Strategy, SEPA (December 2015).*

Table 1 and Figure 4 show the number of properties at risk and the Annual Average Damages caused by flooding in the main towns and cities within the Local Plan District. This includes damages to residential properties, non-residential properties, transport and agriculture. Please note that economic damages to airports and rail infrastructure were not assessed, as information on damages at this scale is not available. Further details of flood risk from distinct sources (river, coastal and surface water) can be found in Section 3 of the SEPA Forth Estuary Flood Risk Management Strategy³.

⁴ Forth Estuary Flood Risk Management Strategy, SEPA (December 2015). Found at (<http://apps.sepa.org.uk/FRMStrategies/forth-estuary.html>).

Table 1: Main areas at risk to flooding. *Reproduced from Forth Estuary Flood Risk Management Strategy, SEPA (December 2015).*

Location	Residential and non-residential properties at risk to flooding	Annual Average Damages
Edinburgh	6,600	£8.5 million
Musselburgh	1,800	£3.8 million
Grangemouth	810	£940,000
Carron-Carronshore-Bainsford	640	£930,000
Dunfermline	420	£1.2 million
Haddington	370	£700,000
Linlithgow	330	£860,000
Leven-Methil	300	£850,000
Falkirk	300	£400,000
Livingston	290	£380,000

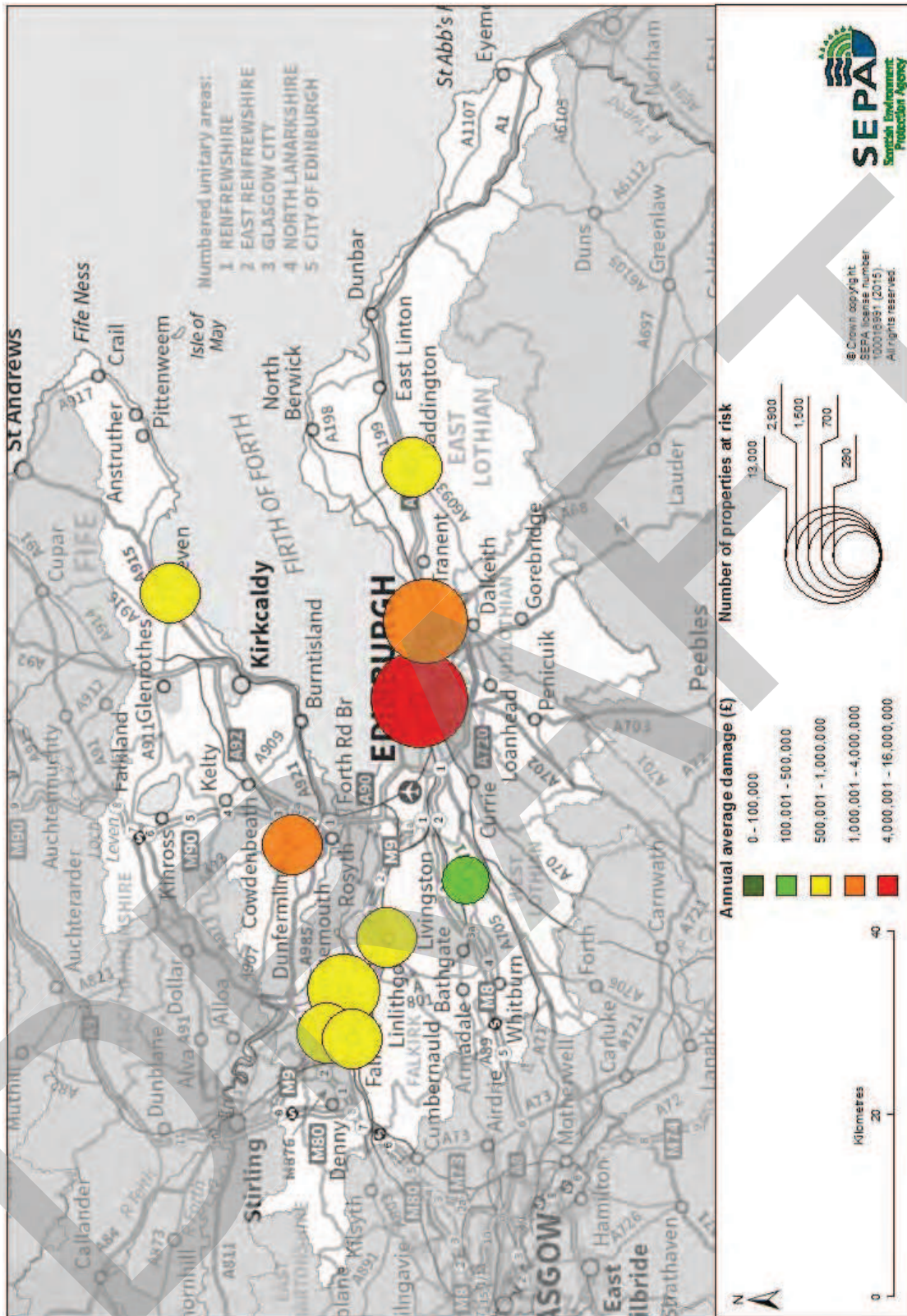


Figure 4: The Forth Estuary Local Plan District showing areas with most properties at risk to flooding and associated damages. *Reproduced from Forth Estuary Flood Risk Management Strategy, SEPA (December 2015).*

2.2 Objectives and Actions in the Forth Estuary Local Plan District

The objectives are the shared aims for managing flood risk. Actions describe where and how flood risk will be managed. Objectives and actions have been set by SEPA and agreed to by authorities responsible for flood risk management following consultation.

Table 2 provides a high level summary of actions to manage flood risk over the six year plan period across the Local Plan District and within local authority boundaries within the Local Plan District. Some flood risk management objectives and actions apply to all areas, whether designated as a Potentially Vulnerable Area or not. For example, flood risk can be managed through national planning policy or as part of ongoing statutory duties for local authorities. Table 3 summarises these generic actions and includes further information about responsibility, timetable, funding arrangements and coordination requirements for the whole of Forth Estuary Local Plan District.

The focus of this Plan is to manage flood risk in Potentially Vulnerable Areas where specific actions apply in addition to the generic actions listed below (Table 3). As detailed in section 1.1.1 Potentially Vulnerable Areas are catchments identified as being at risk to flooding and where the impact of flooding is sufficient to justify further assessment and appraisal. Potentially Vulnerable Area datasheets for the Forth Estuary Local Plan District have been compiled in [Annex 1](#) of this report. These datasheets summarise information from the Flood Risk Management Strategy including background to the area, summary of flooding impacts, the history of flooding and objectives to manage flooding in the Potentially Vulnerable Area. The core focus of the Potentially Vulnerable Area datasheets is to provide information on the actions to manage flood risk over the six year plan period in the area. This has been provided in a number of tables which identify who will be responsible for the delivery and implementation of the actions, along with a timetable of when the actions will be undertaken and the funding arrangements. Furthermore for flood protection schemes, the ranking of the scheme at a national, local authority and Local Plan District level is identified as well as the costs and benefits of the scheme.

For completeness, each Potentially Vulnerable Area includes details on both the generic actions to manage flooding Local Plan District wide as applicable to the specific Potentially Vulnerable Area and detail on specific actions to manage flooding in the Potentially Vulnerable Area.

Table 2: Summary of Actions to be implemented Local Plan District (LPD) wide

Area	Actions						
	NFM ⁶ study	NFM ⁵ works	Flood Protection Study	Flood Protection scheme/ works ⁷	SWMP ⁸	ICS	New flood warning ⁹
LPD10	3	0	26	10	17	7	3
City of Edinburgh Council	0	0	2	2	TBC ¹⁰	0	0
Clackmannanshire Council*	0	0	0	0	TBC	0	0
East Dunbartonshire Council*	0	0	0	0	TBC	0	0
East Lothian Council	1 ¹¹	0	3	2	TBC	0	0
Falkirk Council*	0	0	5	1	TBC	0	0
Fife Council*	1	0	10	0	TBC	0	0
Midlothian Council	0	0	1	0	TBC	0	0
North Lanarkshire Council*	0	0	0	0	TBC	0	0
Perth & Kinross Council*	0	0	0	2	TBC	0	0
Scottish Borders Council *	0	0	1	0	TBC	0	0
South Lanarkshire Council*	0	0	0	0	TBC	0	0
Stirling Council*	0	0	0	0	TBC	0	0
West Lothian Council	1	0	4	3	TBC	0	0
Scottish Water*	0	0	0	0	0	7	0
SEPA*	0	0	0	0	0	0	3

* Councils and responsible authorities may have other actions in other LPDs.

⁶ Natural Flood Management

⁷ Includes proposed flood protection schemes and surface water management works.

⁸ Includes surface water management priority areas as identified in the FRM Strategy. It should be noted that surface water management works are currently not prioritised. Please note that information on the number of SWMPs that will be produced by each local authority is currently not available.

⁹ Two flood warning schemes extend beyond the boundary of the Forth Estuary Local Plan District.

¹⁰ TBC denotes To Be Confirmed

¹¹ This NFM is listed in 2 Potentially Vulnerable Areas

Table 3: Summary of Actions to be implemented Local Plan District wide

Selected Action	Brief Description	Lead authority	Delivery period	Coordination Arrangement	Funding Arrangement
Flood Forecasting 100990009	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 (refer to Glossary in Annex 8 for definition). 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.	SEPA	Ongoing	SEPA / Met Office joint initiative. Hydrological information is provided by SEPA and meteorological information is provided by the Met Office. SEPA uses the information to predict the likelihood and timing of river, coastal and surface water flooding.	SEPA's flood forecasting service is funded through Scottish Government's grant in aid allocation. The Met Office receives funding from the UK Government.
Self Help 100990011	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and the Resilient Communities Initiative, and ensuring that properties and businesses are insured against flood damage.	N/A	Ongoing	In the event of severe issues local authorities will work with the public to support community resilience where appropriate. This will be done by developing and reviewing emergency plans facilitating, community plans and providing information on property level	This will be funded by the property owner.

Selected Action	Brief Description	Lead authority	Delivery period	Coordination Arrangement	Funding Arrangement
				protection.	
Maintenance 100990007	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	Local authority, asset/ land managers	Ongoing	The local authorities will work with private landowners to ensure that works are coordinated and that the infrastructure is maintained. The local authorities will liaise with Scottish Water, Network Rail, SEPA and Scottish Natural Heritage etc. Scottish Water will keep responsible authorities informed of large scale capital maintenance work to identify opportunities for coordination.	The relevant local authority will fund maintenance and repair work from its Revenue Budget, where it has that responsibility. Other asset owners (including the public) will be encouraged to fund works associated with maintenance and repair. Scottish Water is funded by customer charges as set by its economic regulator, all business activities required under this action by Scottish Water are accounted for in its Capital Maintenance expenditure.

Selected Action	Brief Description	Lead authority	Delivery period	Coordination Arrangement	Funding Arrangement
Emergency Response 100990014	<p>Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.</p>	Category 1 & 2 Responders	Ongoing	<p>Local authorities, the Emergency Services and SEPA initiate the relevant Emergency plan /Response as appropriate in relation to flood forecasting and warning flood information. This triggers a coordinated approach from Category 1 and Category 2 responders that may include voluntary groups.</p>	<p>Funding is allocated to Category 1 and 2 responders by the Scottish Government for dealing with emergency response. In extreme cases Scottish Government may reimburse responders after an extreme event. Where required, local authority responsibilities for emergency response are largely funded by the relevant local authority's relevant budget. SEPA's emergency plan/response activities are funded by Scottish Government through SEPA's grant in aid settlement.</p>

Selected Action	Brief Description	Lead authority	Delivery period	Coordination Arrangement	Funding Arrangement
<p>Planning Policies 100010001</p>	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 5. SEPA has a statutory role in relation to the provision of flood risk advice to planning authorities. This role is expressed in Section 72 of the FRM Act, 2009. SEPA also has a duty to cooperate with planning authorities in the preparation of development plans. When consulted in relation to planning applications for development or for site allocations in development plans, or where the planning authority considers there may be a risk of flooding, SEPA will provide advice. The advice provided by SEPA will be with respect.</p>	<p>Planning Authority</p>	<p>Ongoing</p>	<p>The local authorities' Flooding Teams work closely with their Planning colleagues to ensure that appropriate policies and actions are put in place to reduce flood risk. SEPA's land use planning activities will be coordinated with the activities of other responsible authorities as required.</p>	<p>The responsible authorities land use planning activities will be funded by the responsible authorities' Revenue Budget. SEPA's land use planning activities are funded by Scottish Government through SEPA's grant in aid settlement.</p>

Selected Action	Brief Description	Lead authority	Delivery period	Coordination Arrangement	Funding Arrangement
	<p>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 at: http://www.sepa.org.uk/environment/land/planning/</p> <p>Scottish Water is a statutory consultee within the planning legislation and is required to comment on all outline or full planning applications which are referred to by a local authority. More general information and flooding guidance will be available on the website at: https://www.scottishwater.co.uk/you-and-your-home/your-home/flooding-information</p>				
<p>Awareness Raising 100990013</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. From 2016 SEPA will undertake flood risk education and awareness raising activities. Across Scotland, SEPA will create and share communication and education</p>	<p>SEPA, Scottish Water and Local authority</p>	<p>Ongoing</p>	<p>Awareness raising will be coordinated through Local Plan District partnerships between responsible authorities, SEPA, Scottish Water, local authorities and community flood action groups. Local authorities</p>	<p>SEPA's awareness raising activities are funded by Scottish Government through SEPA's grant in aid settlement. Discrete proposals will be funded by the relevant local authorities.</p>

Selected Action	Brief Description	Lead authority	Delivery period	Coordination Arrangement	Funding Arrangement
	<p>resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will support SEPA and responsible authorities with their awareness raising activities as required and provide targeted flooding communications for Scottish Water specific activities. Scottish Water will raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies. More general information and flooding guidance will be available on the website at: https://www.scottishwater.co.uk/you-and-your-home/your-home/flooding-information</p>			will raise awareness when developing discrete proposals.	

2.3 Flood risk, objectives, actions and prioritisation for the Forth Estuary Potentially Vulnerable Areas

The table below summarises the actions to manage flood risk in the 27 Potentially Vulnerable Areas and 2 candidate Potentially Vulnerable Areas of this Local Plan District. [Annex 1](#) provides further detail for each of the Potentially Vulnerable Areas listed. A hyperlink is provided for digital readers, please click on the Potentially Vulnerable Area reference e.g. 10/01 below and press the Ctrl button at the same time. Table 4 summarises the actions to be carried out in the Forth Estuary Local Plan District during Planning Cycle 1 (2016-2022). It should be noted that some actions not included in this plan will be carried into Planning Cycle 2 (2022- 2028).

Table 4: Summary of Potentially Vulnerable Actions (PVAs)

PVA	Location	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							✓	N/A	✓	✓			✓	✓	✓		✓	✓
10/02	Pittenweem							✓	N/A	✓	✓			✓	✓	✓		✓	✓
10/03	Leven			✓	✓			✓	N/A	✓	✓			✓	✓	✓		✓	✓
10/04	Kinross, Milnathort, Glenrothes and Kinglassie	✓		✓	✓			✓	✓	N/A	✓		✓	✓	✓	✓		✓	✓
10/05	Kirkcaldy, East Wemyss and Methil	✓			✓			✓	✓	✓	✓			✓	✓	✓		✓	✓
10/06	Inverkeithing, Rosyth, Dunfermline and Wellwood				✓			✓	✓	N/A	✓			✓	✓	✓		✓	✓
10/07	Cairneyhill				✓	✓		✓	✓	✓	✓			✓	✓	✓		✓	✓
10/08	Hawkhill, Kincardine, Kennet Pans and Culross	✓			✓			✓	✓	✓	✓			✓	✓	✓		✓	✓
10/09	Airth			✓	✓			✓	N/A	N/A	✓			✓	✓	✓		✓	✓
10/10	North Queensferry and Inverkeithing							✓	✓	✓	✓			✓	✓	✓		✓	✓
10/11	Falkirk, Grangemouth, Lauriston, Denny, Redding, Dunipace, Cumbernauld, Carron and Stenhousemuir	✓		✓	✓			✓	✓	✓	✓		✓	✓	✓	✓		✓	✓
10/12	Bo'ness							✓	✓	✓	✓			✓	✓	✓		✓	✓

PVA	Location	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	Linlithgow Bridge, Bathgate, Whiteside and Slamannan				✓	✓	✓	✓	✓	N/A	✓			✓	✓	✓		✓	✓
10/14	Philipstoun							✓	N/A	N/A	✓			✓	✓	✓		✓	✓
10/15	South Queensferry							✓	N/A	N/A	✓			✓	✓	✓		✓	✓
10/16	Cramond Bridge						✓	✓	N/A	✓	✓			✓	✓	✓		✓	✓
10/17	Granton				✓		✓	✓	✓	✓	✓			✓	✓	✓		✓	✓
10/18	Water of Leith catchment	✓					✓	✓	✓	✓	✓			✓	✓	✓		✓	✓
10/19	Braid Burn catchment						✓	✓	✓	✓	✓			✓	✓	✓		✓	✓
10/20	Niddrie and Burdiehouse Burn catchment				✓		✓	✓	✓	N/A	✓			✓	✓	✓		✓	✓
10/21	Musselburgh	✓					✓	✓	✓	N/A	✓		✓	✓	✓	✓		✓	✓
10/22	Lasswade, Penicuik, Dalkeith and Musselburgh	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓
10/23	Cockenzie and Port Seton, Longniddry and Prestonpans				✓		✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓
10/24	Haddington	✓					✓	N/A	✓	✓	✓		✓	✓	✓	✓		✓	✓
10/25	Dunbar and West Barns				✓		✓	N/A	✓	✓	✓		✓	✓	✓	✓		✓	✓
10/26	Berwickshire Coast				✓		✓	N/A	✓	✓	✓		✓	✓	✓	✓		✓	✓
10/27	South Gyle, Broxburn and Bathgate	✓					✓	✓	✓	N/A	✓		✓	✓	✓	✓	✓	✓	✓
10/28c	Cowdenbeath			✓	✓		✓	N/A	N/A	✓	✓		✓	✓	✓	✓		✓	✓
10/29c	Whitburn				✓			N/A	N/A	✓	✓		✓	✓	✓	✓		✓	✓

*Note: N/A is used where there is no formal Flood Protection Scheme or flood warning scheme present.

2.4 Other flood risk activities by local authorities in the Forth Estuary Local Plan District

The Plan presents the actions to manage flood risk in the Forth Estuary Local Plan District. These actions are at a Local Plan District wide scale or are targeted at specific Potentially Vulnerable Area's. In addition to the actions in this Plan, responsible authorities are undertaking other activities to manage flood risk as

included in the Flood Risk Management (Scotland) Act 2009. These main activities, which have a significant effect on reducing flood risk should be considered in conjunction with the Plan and are summarised as follows:

2.4.1 Section 18 & 59: Works of Clearance and Repair

Based on an assessment of the condition of a body of water, local authorities must prepare a schedule of clearance and repair works that would substantially reduce the risk to flooding of land. This is commonly referred to as a Schedule 18, which is made available by each local authority within the Local Plan District for public inspection. Under s.59 of the Act, the local authority must carry out the works in the Schedule 18 if it considers that this will contribute to (but not affect) the implementation of actions in the Plan. Details of how to access Schedule 18s for each local authority in the Local Plan District are included in [Annex 4 Section 2](#) of the Plan.

2.4.2 Section 56: General Power to manage flood risk

Section 56 of Flood Risk Management (Scotland) Act 2009⁹ states that the Local Authorities general power to manage flood risk is as follows:

1. A local authority may do anything which it considers—
 - a. will contribute to the implementation of current actions described in any relevant Local Flood Risk management Plan,
 - b. is necessary to reduce the risk of a flood in its area which is likely to
 - i. occur imminently, and
 - ii. have serious adverse consequences for human health, the environment, cultural heritage or economic activity, or
 - c. will otherwise manage flood risk in its area without affecting the implementation of the actions in any relevant Local Flood Risk management Plan,
2. Without contradicting the general powers outlined above a local authority may in particular—
 - a. carry out any operations as part of a flood protection scheme,
 - b. carry out any other flood protection work,
 - c. carry out any temporary works required for the purposes of a flood protection scheme or any other flood protection work,
 - d. enter into agreements or arrangements with any other person—
 - i. for the carrying out by that person or by the authority of any work which could be done by the authority under this Part, or
 - ii. relating to the management by that person of land in a way which can assist in the retention of flood water or slowing the flow of such water,

⁹ Flood Risk Management (Scotland) Act 2009, Scottish Government, (2009). Found at (<http://www.legislation.gov.uk/>)

- e. make contributions towards expenditure incurred by any other person doing something which could be done by the authority under this Part,
- f. make payments to any other person in compensation for income lost as a result of entering into agreements or arrangements for the management of land by that person in a way which can assist in the retention of flood water or slowing the flow of such water,
- g. receive from any other person contributions towards expenditure incurred by the authority in exercising any of its functions under this Part.

DRAFT

Chapter 3: The Way Forward

All of the responsible authorities will work in collaboration in an attempt to achieve these goals which have been set out. The responsible authorities will continue to liaise with members of the Local Advisory Group (LAG) for the Forth Estuary. This Plan will be closely monitored and reviewed by the Lead Authority, who will publish a progress report not earlier than two years and not later than three years after this Plan is finalised. Towards the end of this six year cycle a lessons learned exercise will be undertaken to help inform the Plan which will be prepared for the next cycle. It is anticipated that many of the studies to be undertaken will help to inform future actions.

Annexes

[Annex 1:](#) Potentially Vulnerable Areas Datasheets

[Annex 2:](#) Local Plan District roles & responsibilities

[Annex 3:](#) Consultation and engagement

[Annex 4:](#) Links to other plans, policies, strategies and legislative requirements

[Annex 5:](#) Land use planning

[Annex 6:](#) Supporting Information

[Annex 7:](#) Acknowledgements

[Annex 8:](#) Glossary

[Annex 9:](#) Habitats Regulation Appraisal

[Annex 10:](#) Contact details of Forth Estuary Local Plan District Partners

Annex 1: Potentially Vulnerable Areas

This Plan is a technical document and whilst every effort has been made to present information in an easy to understand way, some terms require further explanation. A full glossary of terms has been provided in [Annex 8](#).

This section provides further detail for each of the 27 Potentially Vulnerable Areas and 2 candidate Potentially Vulnerable Areas listed in Table 5 below. As detailed in Section 1.1.1 of the Plan, Potentially Vulnerable Areas are catchments identified as being at risk to flooding and where the impact of flooding is sufficient to justify further assessment and appraisal. For each Potentially Vulnerable Area, there is a short description of the causes and consequences of flooding. The agreed objectives are clearly set out and, most importantly, the actions that will deliver these objectives are prioritised, described and provide a high level implementation plan for the action in terms of coordination arrangements, funding arrangements, delivery lead and delivery period. A hyperlink is provided for digital readers, please click on the location name below.

Table 5: Summary of Potentially Vulnerable Areas (PVAs) for Forth Estuary Local Plan District

PVA	Location	Local Authority Area	Page number
10/01	Crail	Fife Council	33
10/02	Pittenweem	Fife Council	44
10/03	Leven	Fife Council	55
10/04	Kinross, Milnathort, Glenrothes and Kinglassie	Fife Council and Perth & Kinross Council	71
10/05	Kirkcaldy, East Wemyss and Methil	Fife Council	96
10/06	Inverkeithing, Rosyth, Dunfermline and Wellwood	Fife Council	113
10/07	Cairneyhill	Fife Council	131
10/08	Hawkhill, Kincardine, Kennet Pans and Culross	Fife Council and Clackmannanshire Council	148
10/09	Airth	Falkirk Council	165
10/10	North Queensferry and Inverkeithing	Fife Council	178
10/11	Falkirk, Grangemouth, Lauriston, Denny, Redding, Dunipace, Cumbernauld, Carron and Stenhousemuir	Falkirk Council, North Lanarkshire Council and Stirling Council	193
10/12	Bo'ness	Falkirk Council and West Lothian Council	221
10/13	Linlithgow Bridge, Bathgate, Whiteside and Slamannan	Falkirk Council, North Lanarkshire Council and West Lothian Council	237
10/14	Philipstoun	Falkirk Council and	261

PVA	Location	Local Authority Area	Page number
		West Lothian Council	
10/15	South Queensferry	City of Edinburgh Council and West Lothian	273
10/16	Cramond Bridge	City of Edinburgh Council	285
10/17	Granton	City of Edinburgh Council	299
10/18	Water of Leith catchment	City of Edinburgh and Midlothian Council	316
10/19	Braid Burn catchment	City of Edinburgh Council	338
10/20	Niddrie and Burdiehouse Burn catchment	City of Edinburgh, East Lothian Council and Midlothian Council	355
10/21	Musselburgh	City of Edinburgh Council, East Lothian Council and Midlothian Council	371
10/22	Lasswade, Penicuik, Dalkeith and Musselburgh	City of Edinburgh, East Lothian Council and Midlothian Council	390
10/23	Cockenzie and Port Seton, Longniddry and Prestonpans	East Lothian Council	411
10/24	Haddington	East Lothian Council	429
10/25	Dunbar and West Barns	East Lothian Council	442
10/26	Berwickshire Coast	Scottish Borders Council	457
10/27	South Gyle, Broxburn and Bathgate	City of Edinburgh and West Lothian Council	472
10/28c	Cowdenbeath	Fife Council	495
10/29c	Whitburn	West Lothian Council	510