

Transport and Environment Committee

10.00am, Thursday, 7 June 2016

Forth Estuary Local Flood Risk Management Plan

Item number	7.7
Report number	
Executive/routine	Executive
Wards	All

Executive Summary

The Flood Risk Management (Scotland) Act 2009 (FRM Act), seeks to promote a proactive approach to Flood Risk Management.

The City of Edinburgh Council has been appointed as Lead Local Authority for the Forth Estuary Catchment Area. A Local Flood Risk Management Plan (LFRMP) is required for the Forth Estuary Catchment, which identifies areas vulnerable to flooding from all sources and potential mitigation actions. The LFRMP also identifies coordination and funding arrangements for programming and implementing actions in the six year cycle of the LFRMP.

Approval is sought to adopt and publish the LFRMP on 22 June 2016.

Links

Coalition Pledges	P28
Council Priorities	CP12
Single Outcome Agreement	SO1

Forth Estuary Local Flood Risk Management Plan

1. Recommendations

- 1.1 It is recommended that the Committee:
 - 1.1.1 approves the final draft LFRMP; and
 - 1.1.2 agrees that authority is given to the Head of Planning and Transport to make any minor amendments.

2. Background

- 2.1 Scotland's approach to how flood risk is managed is changing due to the Flood Risk Management (Scotland) Act 2009 (FRM Act). The FRM Act aims to reduce the adverse consequences of flooding on communities, the environment, transport, cultural heritage and economic activity. More thought is to be given to alternative means of reducing flood risk by avoiding the likelihood of flooding through effective land use planning, maintenance and better control/management of run-off.
- 2.2 The Council has been working in partnership with the Scottish Environment Protection Agency (SEPA), Scottish Water and neighbouring local authorities to identify flooding from various sources and the impact of this flooding. This information was consulted on between 22 December 2014 and 2 June 2015. The findings were reported to the Transport and Environment Committee on 25 August 2015. SEPA built on this work and has now published the Flood Risk Management Strategy (FRMS) which is available on its website at <http://apps.sepa.org.uk/FRMStrategies>.
- 2.3 The Council is the Lead Local Authority for the area around the Forth Estuary. As lead authority the Council, must produce the LFRMP. The LFRMP will provide further information on funding and the timetable for delivering the actions identified in the strategy between 2016 and 2022. The FRMS and LFRMP will be updated every six years.

3. Main report

- 3.1 The Flood Risk Management Strategy is in three sections and provides:
 - 3.1.1 background on the approach to flood risk management;
 - 3.1.2 the causes and consequences of flooding, the agreed objectives and the actions that will be taken in areas considered to be potentially vulnerable to flooding; and
 - 3.1.3 information on the sources of flooding, including surface water.

- 3.2 The LFRMP builds on the Flood Risk Management Strategy and provides more detail, particularly in relation to potential actions to mitigate the risk of flooding. The LFRMP is also in three parts and provides:
 - 3.2.1 background information on the approach taken and the duties of organisations involved in managing flood risk and how this is delivered locally;
 - 3.2.2 an overview and details of the goals and objectives and the actions to be delivered between 2016 and 2022; and
 - 3.2.3 an Annex, which is the main section of the LFRMP, that details the causes and consequences of flooding in discrete areas with potential actions to mitigate.

- 3.3 There are a number of standard actions such as routine maintenance and providing an emergency plan/response and these are listed in Appendix A. There are also the following specific actions which may be progressed subject to funding:
 - 3.3.1 Water of Leith Phase 2 Flood Prevention Scheme (currently under construction);
 - 3.3.2 Coltbridge, Gorgie and Saughton Flood Prevention Works;
 - 3.3.3 Niddrie Burn Flood Protection Study;
 - 3.3.4 Water of Leith Siltation Study; and
 - 3.3.5 Preparation of Surface Water Management Plans.

- 3.4 Surface Water Management Plans (SWMPs) will identify the most sustainable range of actions that will manage and reduce flood risk across the city. To complement the SWMPs an Integrated Catchment Study (ICS) is being undertaken in partnership with Scottish Water, East Lothian Council and Midlothian Council. The ICS covers the Seafield Drainage Operation area and models the interaction of sewers with other potential sources of flooding. It is important that the issue of surface water management is considered holistically to ensure that sustainable cost effective solutions are identified and the flooding is not merely moved to another area. The SWMPs will also detail how the mitigation measures will be delivered.

- 3.5 The Gogar Burn Flood Protection Study will be undertaken between 2022 and 2027 but this may be brought forward.
- 3.6 The LFRMP has now been developed and can be found at <http://www.edinburgh.gov.uk/info/20045/flooding>
- 3.7 A Summary of the LFRMP can be found in Appendix B.
- 3.8 It may be necessary to amend the LFRMP in the future to clarify issues or as further information becomes available. It should be noted that some of these changes may be minor or not relate to the City of Edinburgh Council. It would be of benefit if the Head of Planning and Transport was permitted to make or agree to such non-material changes and changes which do not impact on the Council's budgets. Further updates will be provided through Business Bulletins.

4. Measures of success

- 4.1 Sources of flooding and the areas at risk and level of risk are better understood.
- 4.2 Resources for flood prevention are effectively prioritised and targeted.
- 4.3 There has been effective partnership working with neighbouring local authorities, Scottish Water and SEPA.

5. Financial impact

- 5.1 The Convention of Scottish Local Authorities has now approved the recommendations for funding flood risk actions which are:
 - 5.1.1 Of the capital funding available 80% will be directed to flood works and schemes;
 - 5.1.2 The level of funding for works and schemes will be 80% contribution by the Scottish Government and 20% by the local authorities;
 - 5.1.3 The remaining 20% of the capital funding available will be used to fund other actions outlined in the Strategy; and
 - 5.1.4 This remaining 20% will be distributed proportionally based on the number of properties at risk of flooding in a given local authority area.
- 5.2 The Council has been informed by the Scottish Government that it is not eligible for further funding in relation to the Water of Leith Phase 2 Flood Prevention Scheme and Coltbridge, Gorgie and Saughton Flood Prevention Works. However the Council will receive a proportion of the 20% of the capital funding available to fund other actions outlined in the Strategy.
- 5.3 The national capital funding available for distribution is estimated to be of the order of £250m over the six year cycle that the LFRMP will be in place for.

- 5.4 It should be noted that the Council will fund the Water of Leith Siltation Study and the Niddrie Burn and Gogar Burn Flood Protection Studies from the Flood Prevention Revenue Budget.
- 5.5 The need for the delivery of individual actions in the LFRMP will be considered against all other capital and revenue priorities as part of future budget setting processes over the six-year flood risk cycle.

6. Risk, policy, compliance and governance impact

- 6.1 This approach to managing flood risk has identified possible solutions and should any major construction projects, such as future phases of the Water of Leith Flood Prevention Scheme be progressed, these will be reported separately and be subjected to Assurance Reviews by the Corporate Programme Office.
- 6.2 The LFRMP is a statutory requirement of the FRM Act. The inclusion of potential risk mitigation actions in the Plan does not commit the Council to delivering them.

7. Equalities impact

- 7.1 An engagement and consultation exercise was undertaken in developing the FRMS and this was reported to Committee on 25 August 2015. The key issues identified were:
 - 7.1.1 Access to hard copy and other languages; and
 - 7.1.2 Collation of hard copy responses with online responses.
- 7.2 Once published on the Council website hard copies of the LFRMP will also be made available at all of the Locality Offices, City Chambers and a number of libraries for a six-month period.
- 7.3 The hard copies will be available in plain English, with translation in whole or in part into other languages or Braille available on request.
- 7.4 A draft summary of the LFRMP is contained in Appendix B which will also be made available to the public.

8. Sustainability impact

- 8.1 The ethos of the FRM Act is to manage flood risk sustainably which requires a long term approach to be taken. It is necessary to improve the understanding of flood risk and its impacts before actions can be planned to manage flooding in a way that improves the environment, provides opportunities to restore rivers and coastlines and creates green spaces for everyone to enjoy. To take a sustainable approach to managing flood risk it is necessary to look at whole river or surface water catchments. A catchment approach ensures that flooding is tackled effectively and not moved to another part of the river or wider catchment area.
- 8.2 SEPA undertook a Strategic Environmental Assessment (SEA) to compliment the Flood Risk Management Strategy. The Council received confirmation from the Scottish Government (SEA Gateway) that as the LFRMP is considered to be consistent with the FRMS, no further assessment is required at this stage. If further consideration is required this will be undertaken at a project level.
- 8.3 The Council prepared a Habitats Regulations Appraisal (HRA) to ensure that the LFRMP will not adversely affect the integrity of Special Areas of Conservation and Special Protection Areas.

9. Consultation and engagement

- 9.1 A major public engagement and consultation exercise began on 22 December 2014 and finished on 2 June 2015.
- 9.2 Hard copies of information were made available at all of the Neighbourhood Offices, City Chambers, Waverley Court and at a number of libraries.
- 9.3 Scottish Natural Heritage was consulted on the HRA and their views have been taken into account.

10. Background reading/external references

- 10.1 Flood Risk Management (Scotland) Act 2009.
- 10.2 Town and Country Planning (Development Planning) (Scotland) Regulations.
- 10.3 Transport and Environment Committee 25 August 2015 – Flood Risk Management - Consultation and Prioritisation.
- 10.4 Flood Risk Management Strategy which is available at <http://apps.sepa.org.uk/FRMStrategies>.
- 10.5 Forth Estuary LFRMP SEA Screening Report and Responses which are available at <http://www.gov.scot/Topics/Environment/environmental-assessment/sea/SEAG>.

- 10.6 Habitats Regulations Appraisal.
- 10.7 Draft Local Flood Risk Management Plan which is available at <http://www.edinburgh.gov.uk/info/20045/flooding>.
- 10.8 Assessment and Inspection, Clearance and Repair schedule which is available at <http://www.edinburgh.gov.uk/info/20045/flooding>.

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11. Links

Coalition pledges	P28 – Further strengthen our links with the business community by developing and implementing strategies to promote and protect the economic well being of the city
Council priorities	CP12 – A built environment to match our ambition
Single Outcome Agreement	SO1 - Edinburgh’s economy delivers increased investment, jobs and opportunities
Appendices	A - Standard Actions B - Draft Summary Local Flood Risk Management Plan

Appendix A

Standard Actions

Local Flood Risk Management Plan

There are a number of other actions identified in the FRMS and LFRMP which have not been detailed in this report which are:

- 1 Awareness raising;
- 2 Emergency plans/response;
- 3 Flood forecasting;
- 4 Maintain flood prevention schemes;
- 5 Maintain flood warning;
- 6 Maintenance;
- 7 Planning Policies;
- 8 Self help;
- 9 Site protection plans; and
- 10 Strategic mapping and modelling.

Appendix B

Summary of the Local Flood Risk Management Plan for the Forth Estuary

SUMMARY

Scotland's approach to how flood risk is managed is changing due to the Flood Risk Management (Scotland) Act 2009 (FRM Act). The FRM Act aims to reduce the adverse consequences of flooding on communities, the environment, transport, cultural heritage and economic activity. More thought is to be given to alternative means of reducing flood risk either by avoiding the likelihood of flooding through effective land use planning, maintenance and the better control/management of run-off.

The City of Edinburgh Council has been working in partnership with the Scottish Environment Protection Agency (SEPA) and neighbouring local authorities to identify flooding from various sources and the impact of this flooding. This information was consulted on between 22 December 2014 and 2 June 2015. The findings were reported to the Transport and Environment Committee on 25 August 2015. SEPA has built on this work and has now published the Flood Risk Management Strategy which is available on their website at <http://apps.sepa.org.uk/FRMStrategies>

In Edinburgh, approximately 6,600 residential and non-residential properties are at risk of flooding, with annual average damages of £8.5 million.

The City of Edinburgh Council is the lead authority for the area around the Forth Estuary and as lead authority it must produce the Local Flood Risk Management Plan (LFRMP) for this area. The LFRMP provides further information on funding and the timetable for delivering the actions identified in the strategy between 2016 and 2022. The Flood Risk Management Strategy and LFRMP will be updated every six years. The LFRMP can be found at:

<http://www.edinburgh.gov.uk/info/20045/flooding>

The LFRMP should be read alongside the Flood Risk Management Strategy. The LFRMP is also in three parts:

Part 1 provides background information on the approach taken and the duties of organisations involved in managing flood risk and how this is delivered locally;

Part 2 provides an overview and details the goals and objectives and the actions to be delivered between 2016 and 2022; and

Part 3 provides an Annex which is the main section of the LFRMP and this details the causes and consequences of flooding in discrete areas with potential actions to mitigate.

For priority areas (called Potentially Vulnerable Areas or PVA's) there is a short description of the causes and consequences of flooding; the agreed goals or objectives of local flood risk management; and the specific actions that will deliver these goals or objectives in the short to long term. These details are set out in the LFRMP. The actions, as they relate to Edinburgh, are summarised in the table on the following pages.

The boundaries of PVA's are governed by watercourse catchments and do not always correspond to local authority boundaries. The PVA's that lie partially or wholly within the boundaries of the City of Edinburgh are as follows:

<u>Potentially Vulnerable Area (PVA)</u>	<u>Name</u>
10/15	South Queensferry
10/16	Cramond Bridge
10/17	Granton
10/18	Water of Leith catchment
10/19	Braid Burn Catchment
10/20	Niddrie Burn / Burdiehouse Burn Catchment
10/21	Musselburgh
10/22	Lasswade, Penicuik, Dalkeith & Musselburgh
10/27	South Gyle, Broxburn and Bathgate

There are a number of standard actions such as routine maintenance and providing an emergency response. There are also the following site specific actions which may be progressed subject to funding:

- Water of Leith Phase 2 Flood Prevention Scheme;
- Coltbridge, Gorgie and Saughton Flood Prevention Works;
- Niddrie Burn Flood Protection Study;
- Water of Leith Siltation Study; and
- Gogar Burn Flood Protection Study (between 2022 and 2027)

Further information on the actions for Edinburgh is available in the table on the following pages.

It should be noted that all of the actions detailed in the LFRMP are subject to the necessary consents being granted and funding being made available. Funding is yet to be identified for Coltbridge, Gorgie and Saughton Flood Prevention Works.

ACTION	DESCRIPTION	WHO IS INVOLVED	START DATE	END DATE	NOTES
Water of Leith (Phase 2) Flood Protection Scheme	The Water of Leith (Phase 2) Flood Protection Scheme is currently under construction, scheduled to be completed by 2018. The scheme will protect Murrayfield and Roseburn from flooding from the Water of Leith.	The City of Edinburgh Council (CEC) Flood Prevention Team, CEC Water of Leith (Phase 2) Team	2015	2018	
Water of Leith Flood Protection Works Future Phases	Flood protection works have been proposed for Edinburgh to further reduce flooding from the Water of Leith. An updated economic appraisal has been undertaken on this watercourse and the proposed works will likely include Coltbridge, Gorgie and Saughton, subject to the availability of funding.	CEC Flood Prevention Team	TBA	TBA	Funding is not yet identified for this project.
Forth Estuary Flood Risk Management Strategy	<p>The purpose of the Strategy is to identify flooding from various sources, its impacts, and outline action to address this flood risk.</p> <p>The Strategy is in three sections and provides:</p> <ul style="list-style-type: none"> • background on the approach to flood risk management; • the causes and consequences of flooding, the agreed objectives, and the actions that will be taken in areas considered to be potentially vulnerable to flooding; and • shares the information on the sources of flooding, including surface water 	Scottish Environment Protection Agency (SEPA), CEC, local authorities, Scottish Water	2016	2022	Consultation ended June 2015. New plan runs from 2016-2022 Interim progress report 2018/19

ACTION	DESCRIPTION	WHO IS INVOLVED	START DATE	END DATE	NOTES
Forth Estuary Local Flood Risk Management Plan 2016-2025	Delivery plan to address actions to reduce flood risk detailed in the Forth Estuary Flood Risk Management Strategy	SEPA, Scottish Water, CEC and 12 neighbouring local authorities	June 2016	2021	To be published 22 June 2016
Edinburgh and the Lothians Integrated Catchment Study (ICS) (linked with below)	To model the interaction between above and below ground water assets to establish where partnership working is, and will be, required.	Scottish Water	July 2013	2016	Use this study to produce a SWMP
Surface Water Management Plan (SWMP) (linked with the above)	To ascertain the risk of flooding when surface water, watercourses and sewers interact and to develop a strategy to reduce the risk resulting from the interaction between sewers and other sources of flooding	CEC and Scottish Water	2021	2022	The ICS will help inform the SWMP
Water of Leith Siltation Study	The study will establish flood risk in this area of the Water of Leith and make recommendations regarding dredging. The study will also identify various environmental constraints and regulatory approvals which will inform future coordination arrangements.	CEC, Forth Ports, and consultant	May 2016	November 2016	Approval of award contract to be sought in May 2016

ACTION	DESCRIPTION	WHO IS INVOLVED	START DATE	END DATE	NOTES
Niddrie Burn Flood Prevention Study	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 will 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 between SEPA and the City of Edinburgh Council.	CEC, SEPA, and consultant	2017	2022	A programme has been developed to appoint a consultant to assess the need/location and design of a gauging station in 2016/17. Construction of gauging station in 2017/18. Flood study 2021/22.
Gogar Burn flood prevention study	A flood prevention study has been recommended for Gogar Burn in Edinburgh to assess whether direct flood defences and sediment management could reduce flood risk. The study should take a catchment approach and consider the potential benefits and disbenefits and interaction between actions upstream and downstream. This study should also aim to improve the accuracy of the flood mapping in the Gyle / Gogar Burn area.	CEC, SEPA, and consultant	2020	2022	

ACTION	DESCRIPTION	WHO IS INVOLVED	START DATE	END DATE	NOTES
Water of Leith Flood Protection Scheme	Continue to maintain the existing flood protection scheme	CEC	Ongoing	Ongoing	
Maintain the Water of Leith (Phase 2) Flood Protection Scheme in Murrayburn and Roseburn when completed in 2018	Reduce risk to community facilities and economic damages to properties in Edinburgh at Murrayfield and Roseburn	CEC	2018	Ongoing	
Braid Burn flood Protection Scheme	Continue to maintain the existing flood protection scheme, reducing the risk of flooding to homes and businesses along the Braid Burn between Redford Road and Portobello	CEC, Scottish Water, Network Rail, SEPA, Scottish Natural Heritage, and private landowners	Ongoing	Ongoing	
Greendykes and Nether Craigour	Continue to maintain the existing flood control structure, flood storage area and flood defences	CEC	Ongoing	Ongoing	
Flood warning system	Continue to maintain existing flood warning systems. Floodline will send a message by phone or text if a flood warning or flood alert has been forecast in your area.	SEPA	Ongoing	Ongoing	

ACTION	DESCRIPTION	WHO IS INVOLVED	START DATE	END DATE	NOTES
Coastal flood defences	Continue to maintain existing flood defences along the coast.	CEC, Scottish Water, Network Rail, Marine Scotland, SEPA, Scottish Natural Heritage, and private landowners	Ongoing	Ongoing	
Reservoir maintenance	Continue to maintain the reservoirs in the upper catchment of the Water of Leith to reduce peak flows and lower river levels downstream.	CEC	Ongoing	Ongoing	
Assessment and Inspection, Clearance and Repair	Local authorities have a duty to assess watercourses and coastlines and carry out repair works where such works would substantially reduce flood risk.	CEC, asset/land managers	Ongoing	Ongoing	Watercourses are inspected and maintained

ACTION	DESCRIPTION	WHO IS INVOLVED	START DATE	END DATE	NOTES
Emergency Response	CEC responsibilities may include activating flood defence systems, provision of sandbags and other flood prevention controls, road traffic management, closures and diversions, assisting with warning and alerting arrangements, contributing to media and public information strategies, establishing emergency rest centres for the care and welfare of persons evacuated or affected, coordinating the longer term recovery measures for rehabilitation of the community and restoration of the environment.	During severe flooding, CEC will work in partnership with the Emergency and Health Services, SEPA, Met Office, Scottish Water, Voluntary Organisations and other agencies to coordinate the response to the incident.			
Planning authority	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.	CEC	Ongoing	Ongoing	Avoid an overall increase in flood risk

ACTION	DESCRIPTION	WHO IS INVOLVED	START DATE	END DATE	NOTES
Strategic Mapping and Modelling	Scottish Water will review the assessment of flood risk within the highest risk sewer catchments to improve knowledge and understanding of surface water risk	Scottish Water	2016	2021	Reduce overall flood risk
Awareness Raising	SEPA and the responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact. From 2016 SEPA will engage with the community through local participation in national initiatives, including partnership working with Neighbourhood Watch Scotland. In addition, SEPA will engage with local authorities and community resilience groups where possible. Local authorities will be undertaking additional awareness raising activities. Further details will be set out in the Local FRM Plan.	SEPA, Scottish Flood Forum, community flood action groups and local authorities			The City of Edinburgh Council will engage at a project level when required.
Strategic Mapping and Modelling	SEPA will seek to develop flood mapping to improve understanding of coastal 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			Reduce overall flood risk

ACTION	DESCRIPTION	WHO IS INVOLVED	START DATE	END DATE	NOTES
Strategic Mapping and Modelling	SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 2,600km ² of improved surface water data is currently available within this Local Plan District.	SEPA			
Site Protection Plans	Site protection plans are developed to identify whether normal operation of a facility can be maintained during a flood. This may be due to existing protection or resilience of the facility or the network. Edinburgh Airport operates a site protection plan.	Edinburgh Airport			
Flood Forecasting	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.	SEPA, Met Office			
Self help	Everyone is responsible for protecting themselves and their property from flooding.	Property owners, businesses and residents			