

# Transport and Environment Committee

10.00am, Thursday, 18 May 2023

## Response to motion by Councillor Lang - Flooding in Kirkliston and the wider Almond catchment

Executive/routine Wards Council Commitments	Routine Almond
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### 1. Recommendations

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- 1.1 It is recommended that Transport and Environment Committee notes:
  - 1.1.1 The actions in the published Local Flood Risk Management Plan and the prioritisation of flood studies across the Edinburgh area;
  - 1.1.2 The ongoing development of the Edinburgh Surface Water Management Plan and the importance of including opportunities into wider Council projects;
  - 1.1.3 That a River Almond Flood Study will take time to develop and is unlikely to identify a suitable flood scheme;
  - 1.1.4 That it is not currently feasible to attract Scottish Government funding for the development of a Kirkliston flood scheme through current Scottish Flood Risk Management funding arrangements;
  - 1.1.5 That the Breastmill location is in a historically high-risk flooding area and that mitigation and recovery is more appropriate than flood prevention; and
  - 1.1.6 The short-term and long-term actions identified in this report.

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## Response to motion by Councillor Lang - Flooding in Kirkliston and the wider Almond catchment

### 2. Executive Summary

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- 2.1 This report provides a response to the motion by Councillor Lang on [2 February 2023](#) outlining short-term mitigations and long-term solutions which could address flooding in Kirkliston and the wider Almond catchment, including the approaches which may need to be made to the Scottish Government with regards to new infrastructure investment based on the current Scottish Flood Risk Management funding arrangements.

### 3. Background

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- 3.1 Substantial flooding occurred in Kirkliston on 30 December 2022, resulting in significant damage to three residential homes and outbuildings, a local business, a local children's nursery and the scout hut next to the Niddry Burn. Whilst flood gates substantially protected properties from the Niddry Burn, most flooding occurred from the River Almond.
- 3.2 It was reported that the flooding resulted in three of the four main roads in and out of Kirkliston becoming impassable for a number of hours, cutting off homes in the Gateside estate.
- 3.3 It was reported that flooding occurred to Edinburgh Airport main runway, the airport taxi drop-off area, and several local roads around the west of Edinburgh, including the access road into the airport. In the same event, Harvest Road and Cliftonhall Road in Newbridge were also impassable due to road flooding.
- 3.4 SEPA advised the 30 December 2023 event was the second highest on record for the River Almond, recorded at the Craigiehall gauge (downstream from Edinburgh Airport), 6mm lower than the highest level on record from 27 April 2000.

#### **Breastmill / B800 area**

- 3.5 The Breastmill area at the confluence of the Niddry Burn and River Almond is a known high risk flood area. Flooding to the properties occurred on four previous occasions and there were two near misses between 2000 and 2020, as well as unrecorded road flooding events.

- 3.6 SEPA Flood Maps identify the Breastmill area as High Risk of flooding and state *'Each year this area has a 10% chance of flooding'*.
- 3.7 Since 2003, the Council has undertaken several improvements in the area to provide additional flood protection from the Niddry Burn. These measures have included improvements to the banking and bunds, construction of a flood wall to the front of the former `Crannog' property (now the Orchard children's nursery); installation of a river sensor and installation of flood gates and barriers at private properties.
- 3.8 In 2006 a planning application was submitted for the `Crannog' property, for change of use from residential to a children's nursery. Flood risk at this time was not a main consideration as part of the planning process, however the Breastmill area had a known history of flooding.
- 3.9 In 2011 an application (11/04086/FUL) was submitted to extend the children's nursery building, which was determined as a mixed decision since it would *"result in an unacceptable threat to occupants due to the flood risk from the River Almond and Niddry Burn, which are close to the application site"*. The application was later granted on appeal with the condition that *"The applicant shall have regard to the additional measures recommended by the Council's Flood Prevention Officer in regard to concrete flooring, raised electrical sockets, water resistant coatings and other advice etc"*. This further highlights the known flood risk within the area).

#### **B9080 Stirling Road flooding**

- 3.10 Flooding has previously been experienced at the B9080 Stirling Road during extreme rainfall events where the road drainage has exceeded the designed capacity. It is known that the drainage is working as the water has cleared after the rainfall abated.
- 3.11 This has resulted in the road becoming impassable at the point where the road surface is lower than the Kirkliston Leisure Centre football pitch. There is also a dip in the road surface towards the motorway bridge.

## **4. Main report**

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- 4.1 The Forth Estuary, Local Flood Risk Management Plan (2022-2028) (LFRMP) has been published (further detail on this is included in the business bulletin update to this Committee). For the Edinburgh area, this includes development of the Surface Water Management Plan and flood studies for the Gogar Burn and the Braid Burn. It is not intended that the River Almond study will be considered until the next cycle of the LFRMP (expected 2028-2034).
- 4.2 The actions in the LFRMP have been determined on a priority basis along with the available resources and funding. The Council may take additional actions within the six-year cycle that are not included in the plan.
- 4.3 Scottish Government funding is available for promoted flood schemes, however there is already a shortfall in this funding allocation for Cycle 1 of the LFRMP (2016-

2022), as well as a significant shortage for schemes in the actions for Cycle 2 (2022-2028). The promotion of any formal flood scheme takes time to develop (which can be several years) and is subject to cost/benefit ratios.

- 4.4 Without a full flood study on the Almond it is not possible to say where measures would be appropriate or what the impact on other areas might be. This study is not scheduled to commence until at least 2029 and could take three to five years to complete. However, it could commence earlier, depending on completion of other studies, resources and funding.
- 4.5 It is unlikely that the cost/benefit ratio determined from this study would justify flood protection measures solely for the buildings referenced in Paragraph 3.1. River flood protection schemes are incredibly expensive, and the monetary benefits need to outweigh the costs before LFRMP funding would be considered. The national guidance for promoting flood protection schemes primarily focusses on risk to properties rather than the surrounding road infrastructure.
- 4.6 The Edinburgh SWMP does include the Kirkliston area, with the B9080 identified as a known area of flood risk. The plan indicates this to be road flooding with no direct risk to properties.
- 4.7 Following flooding in 2000, the shingle island downstream of Maitland Bridge, Lochend Road, was dredged and has since naturally reformed. Since then, it has been established that dredging of watercourses has little impact on peak flows and is not a sustainable practice for management of flood risk. Dredging of the River Almond or the Niddry Burn would not meet current environmental requirements.
- 4.8 Road gullies and drainage systems are not designed to cope with high intensity storms and large volumes of water over a short duration, meaning their design capacity (as per national standards) is often exceeded, and they can become overwhelmed. Water will usually drain when the rain passes; confirming the gullies are performing adequately and additional cleaning will not bring further benefit.

#### **Immediate actions**

- 4.9 As a result of recent flooding events and as part of the Council's ongoing regular maintenance, the following actions have been completed:
  - 4.9.1 The earth bunding around the field entrances at the B800 and the Scout hut has been reinstated/augmented, plus bunding has been added to the cross-field ditch which was previously seen to surcharge during flood events;
  - 4.9.2 The fallen trees across the Niddry Burn, plus on Maitland Bridge, have been cleared, as well as tree and vegetation removal from the silt/pebble island downstream of the bridge; and
  - 4.9.3 Minor strengthening to the flood gates at Orchard Nursery has been completed. This will help protect against bow waves from traffic when the B800 is flooded from the Niddry Burn. The gates do not, however, offer any protection from the River Almond.

## 5. Next Steps

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### Short term plans

5.1 In the short term, it is planned to:

- 5.1.1 Continue to develop the Edinburgh SWMP, which can be used to identify potential opportunities for reducing flood risk. It is intended that opportunities identified within the SWMP will be explored when other Council projects are taken forward (e.g. Roads, Parks, Active Travel). The SWMP is not a guarantee that projects will be undertaken;
- 5.1.2 Undertake a mini flood study, using the SWMP information, at the B9080 Stirling Road area. This will allow flooding mechanisms to be better understood and identify options for possible interventions to address the road flooding. Even if some interventions are identified, it is unlikely that all water could be removed, and it may be necessary to accept that at least some roads will always flood during heavy rain. This action will be funded as part of the Surface Water Enhancements programme as part of the additional capital funding allocation for flood management in 2023/2024 (which is the subject of a separate report to Committee), and will be undertaken within the 2023/2024 financial year; and
- 5.1.3 Consider early proposals for the development of the field to the south of Kirkliston, adjacent to the B800 at Breastmill cottages. Initial discussions with developers' consultants have highlighted potential improvements that could provide additional flood storage, reduce road flooding as well as reduce flood risk to the existing properties. Any development would be subject to planning permission and would require a detailed Flood Risk Assessment for the new development.

### Medium-Long term plans

5.2 In the medium to long term it is planned to:

- 5.2.1 Raise awareness of the SWMP and surface water flooding across internal stakeholders so that projects can include improvement measures. This is already happening and will continue to progress over the coming years;
- 5.2.2 Undertake flood catchment study of the River Almond and Niddry Burn to identify current flood risk and potential opportunities. This is unlikely to happen until after the current LFRMP Cycle ends in 2028;
- 5.2.3 Depending on results of the flood catchment study, consider potential mitigation measures to protect from flooding from the River Almond. This would follow the action in 5.2.22.3; and
- 5.2.4 Raise awareness to highlight there needs to be an acceptance that the area is very likely to flood again, and it is not possible to fully prevent this from

happening. Property owners should consider self-protection measures to prevent flood water from entering the buildings whilst flooding the surrounding area. There also needs to be an acceptance that roads will flood and can even convey water – it is unlikely that roads will ever be fully prevented from flooding. This action is also already happening but will continue to progress over the coming years as knowledge of flooding in Edinburgh increases through various projects.

## **6. Financial impact**

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- 6.1 The immediate actions and ongoing development of the Edinburgh SWMP can be funded from the existing Flood Management Revenue Budget. The mini flood study can be funded from the additional Capital budget allocated for flood management measures.
- 6.2 The River Almond flood study is not included in the current LFRMP actions due to prioritisation of other flood studies, as well as the current resources and budgets. Additional resources could allow this to be progressed earlier, however this would need to consider other priorities and Consultant availability to undertake the study.
- 6.3 A flood study could cost in the region of £200,000 and take between 3-5 years to complete.
- 6.4 It should be noted that the flood study would need to be completed first, before determining if a flood scheme for Kirkliston would be appropriate and if the flood scheme funding would be possible.
- 6.5 There is already a significant shortfall in Scottish Government funding for developed and promoted flood protection schemes. At this time, it is unlikely that a flood scheme for Kirkliston would make the list of prioritised schemes. This is based on national guidance where flood schemes are based on the number of properties at risk from flooding, rather than surrounding infrastructure.
- 6.6 The mini flood study on the B9080 Stirling Road will be funded from the capital allocation for flood management through the Surface Water Enhancements Programme (as reported separately to Committee today).

## **7. Stakeholder/Community Impact**

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- 7.1 Whilst acknowledging the effects that flooding causes residents around Kirkliston, and throughout Edinburgh, it is sometimes necessary to be realistic about what can be achieved, and continue to be informative and engaging, but also explain when difficult decisions need to be made.
- 7.2 No consultation on flooding has been carried out to date in the Kirkliston area. If a specific scheme or improvements are identified the relevant stakeholder engagement would be undertaken at this time.

- 7.3 Officer-level discussions have taken place with the Breastmill property owners. The Orchard Nursery owners have been advised to take advice from the Scottish Flood Forum as to what can be done to make the property more flood resilient.
- 7.4 The Council guidance for new development already includes factors for climate change and sustainable development. It has been demonstrated that new development can reduce the risk of flooding in adjacent areas. Retrofitting of existing property is more challenging, and therefore it is often necessary to accept that flooding will occur, and therefore implement measures to mitigate the effects of flooding, and facilitate a speedy recovery, rather than attempting to prevent it.

## **8. Background reading/external references**

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- 8.1 The Forth Estuary, Local Flood Risk Management Plan (2022-2028) (LFRMP) has been published by Falkirk Council and also available on the Council's website.  
<https://www.edinburgh.gov.uk/flooding/local-flood-risk-management-plan>
- 8.2 Detail on advice and organisational responsibilities can be found at these links:
- 8.2.1 The Council - <https://www.edinburgh.gov.uk/flooding>
- 8.2.2 Scottish Flood Forum - <https://scottishfloodforum.org/>
- 8.2.3 SEPA - <https://www.sepa.org.uk/environment/water/flooding/>
- 8.2.4 Scottish Water - <https://www.scottishwater.co.uk/Your-Home/Your-Waste-Water/Sewer-flooding>

## **9. Appendices**

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- 9.1 None.