

Appendix G

Assessment of Local Flood Risk

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1 Introduction

- 1.1 The Flood and Water Management Act (2010) requires an assessment of local flood risk for the purposes of the Strategy.
- 1.2 This appendix is a 'live' document which will be updated periodically as new flood risk information becomes available.
- 1.3 The Assessment is a high-level analysis of local flood risk information to help the LLFA and others take a risk-based approach towards prioritisation of resources. It is predominantly focused upon estimated risk. Please note that if a community is estimated to be at lower risk and flooding is experienced, the necessary support will still be provided.
- 1.4 The allocation of resources to investigate local flood risk and develop local projects is determined by several other factors too including:
- funding opportunities;
 - technical feasibility;
 - cost benefit analysis, including other benefits (e.g., environmental); and
 - flooding over recent years.

2 Prioritisation in practice since 2015

- 2.1 Communities that have been prioritised for further investigation are usually because one or more of the following is true.
- a) Flooding to the community has triggered a formal flood investigation.
 - b) The community has reported flooding that is solely or primarily from local sources (surface water, groundwater or ordinary watercourses).
 - c) The community had been identified as being at high risk of flooding from local sources or were identified as being a priority community in the Council's 2015 Local Flood Risk Management Strategy.
- 2.2 The Council and partners have actioned and progressed various activities for these communities across Leicestershire.

3 Updated Assessment of Local Flood Risk

Groundwater

- 3.1 **Groundwater flood risk** is comparatively low in Leicestershire, and there have been minimal reports of groundwater flooding. The previous Strategy included the Environment Agency's Areas Susceptible to Groundwater Flooding dataset, which provided groundwater flood risk vulnerability from bedrock sources and superficial deposits, in 1km grid squares.
- 3.2 For the purposes of this assessment, the Council has procured the British Geological Society [Groundwater Flooding Susceptibility](#) dataset, an updated dataset with a more detailed effective spatial resolution of 50m². The data shows the degree to which areas are susceptible to groundwater flooding based on geological and hydrogeological conditions. It does not show the likelihood of groundwater flooding occurring (i.e., it is a hazard not risk-based dataset).
- 3.3 The data will be used to help prioritise any investigatory work into groundwater flood risk, alongside other data such as groundwater flooding incidences.

Ordinary watercourse and surface water

- 3.4 There is currently no available single dataset communicating flood risk from **ordinary watercourses**.
- Where upstream catchments are greater than 3km², risk will usually be mapped as part of the Environment Agency's Risk of flooding from Rivers or the Sea dataset. This applies to the downstream sections of larger ordinary watercourses.
 - A small number of ordinary watercourses have been modelled as part of local studies and projects, or to support flood risk assessments.
- 3.5 For the purposes of the Strategy, local flood risk has mainly been assessed by using the national Risk of Flooding from Surface Water (RoFfSW) maps. RoFfSW is the most up to date dataset for surface water flood risk, and provides some indication of flood risk from ordinary watercourses.
- 3.6 RoFfSW has been used to estimate the number of properties potentially at local flood risk at a community level. The assessment has not been for the purposes of identifying the likelihood of whether individual properties will flood. The 1% annual exceedance probability (1 in 100 year) extent layer of the dataset is used.
- 3.7 Where more detailed local models are available (Swithland, Breedon on the Hill and Stoney Stanton), the predicted flood risks (i.e., number of properties predicted to be at risk) have been used in preference to the national RoFfSW data.
- 3.8 RoFfSW may also highlight properties which are at risk of main river flooding (e.g., Sileby). This will be considered when reviewing the risk levels indicated.
- 3.9 Figure 1 illustrates the calculated level of local flood risk to communities across Leicestershire. The darker the shade of blue, the higher the number of properties within that community estimated to be at risk of flooding from local sources in the 1 in 100-year flood event.
- 3.10 The County Council and others can use this information to help direct resources using a risk-based approach.

4 Climate change

- 4.1 An internal Council wide Climate Change Risk and Resilience Review was undertaken in 2021. This noted a “strong awareness of climate change risks” within local flood risk management in Leicestershire.
- 4.2 Adapting to climate change is a principle of the Strategy. The effects of climate change upon local flood risk must be considered.
- 4.3 The Environment Agency provides [climate change allowances](#) for the purposes of flood risk assessment, in the form of peak changes in river flow and rainfall intensity. These can be used if you are a “*risk management authority developing a flood and coastal risk project, scheme or strategy*”.
- 4.4 Peak rainfall intensity is best used for surface water mapping in small (less than 5km²) and / or urbanised drainage catchments. This is appropriate for much of Leicestershire, as many ordinary watercourse catchments are less than 5km², with some exceptions (e.g., catchment upstream of Swithland Reservoir).
- 4.5 The below table displays the estimates for increases in peak rainfall intensity for 1 in 100 year storms, based upon a 1981-2000 baseline. Peak rainfall intensity for such storms is expected to increase by 20%, and as much as 40%.

Time period	Central estimate	Upper estimate
2022 – 2060	20%	40%
2061 – 2125	25%	40%

5 Next steps

- 5.1 The Council are currently developing detailed surface water flood modelling for the County. There is the possibility of better understanding the effects of climate change, by applying peak rainfall climate change allowances to model inputs. It is possible that some areas will be more affected by climate change than others.
- 5.2 The Environment Agency are also in the process of updating the National Flood Risk Assessment (NAFRA2), which will include model outputs that replace RoFfSW.
- 5.3 This assessment will be updated when new data becomes available.

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