



**CORPORATE & ENVIRONMENTAL
OVERVIEW & SCRUTINY COMMITTEE:**

**MEMBERS UPDATE 2019/20
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Article of: Director of Development and Regeneration Services

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SUBJECT: HURLSTON BROOK FLOOD RISK STUDY

Wards affected: Derby, Knowsley and Scott

1.0 PURPOSE OF ARTICLE

1.1 To brief Members on the technical aspects of the LCC Hurlston Brook Flood Risk Study that considers seven key areas in Ormskirk.

2.0 BACKGROUND

2.1 Lancashire County Council (LCC) is the Lead Local Flood Authority (LLFA) for the Ormskirk area and therefore under s19 of the Flood and Water Management Act 2010 (FWMA) has a duty to investigate flooding. This duty is defined in the Act as follows:

19 Local authorities: investigations

- 1) *On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate—
 - (a) which risk management authorities have relevant flood risk management functions, and
 - (b) whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.*
- 2) *Where an authority carries out an investigation under subsection (1) it must—*

- (a) publish the results of its investigation, and*
- (b) notify any relevant risk management authorities.*

2.2 WLBC is a risk management authority, the definition of which is contained within the FWMA, which reads:

“Risk management authority” means—

- (a) the Environment Agency,*
- (b) a lead local flood authority,*
- (c) a district council for an area for which there is no unitary authority,*
- (d) an internal drainage board,*
- (e) a water company, and*
- (f) a highway authority.*

2.3 Therefore, while the LLFA has a key regulatory role, it is not solely responsible for the management of all water assets in Ormskirk. However, LCC did commission a study to investigate flood risk across Ormskirk, and in particular in the Hurlston Brook catchment so far as it affects Ormskirk. The study was intended to ultimately notify any relevant risk management authorities (RMAs) of its findings in an area which suffered from significant flooding in December 2015. This study has now been finalised and is available to view at:

<https://www.lancashire.gov.uk/council/performance-inspections-reviews/environmental/technical-report/>

2.4 The vast majority of the highway drains and surface water sewers in Ormskirk either drain directly, or indirectly via ordinary watercourses and culverts, to Hurlston Brook. There are also elements of highway drainage that connect to the original combined sewer system resulting in surface water being conveyed with wastewater to New Lane Wastewater Treatment Works in Burscough.

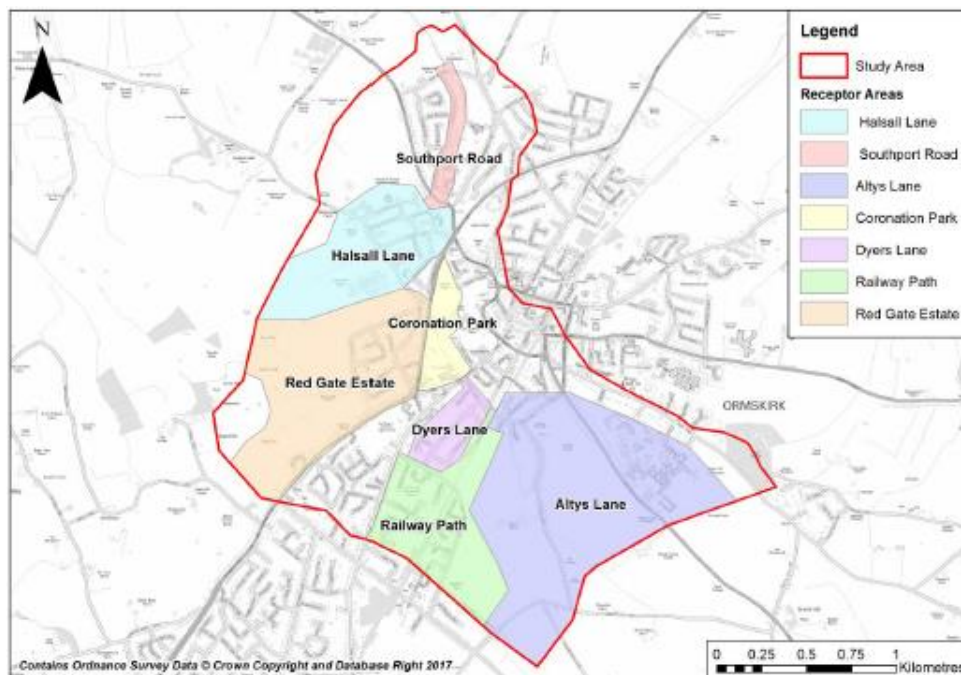
2.5 With the exception of public sewers, a significant proportion of buried drainage systems, including highway drainage, are uncharted. Consequently, the difficulties encountered when trying to resolve or deal with flooding are compounded. There are no existing measures in place to manage the overland flow of floodwater in Ormskirk.

3.0 OBSERVATIONS ON THE STUDY

3.1 This is a comprehensive study that combines a hydraulic sewer model provided by United Utilities with a hydraulic watercourse model developed by Jacobs using a suite of 'tried and trusted' software programmes.

3.2 The combined model has not been fully calibrated due to an absence of any gauged data for the watercourses, but it has been verified through comparison with observed flooding. The sewer model has been validated using flow and rainfall data gathered in the field.

- 3.3 Regardless of the level of confidence that the hydraulic modelling engineers may have in the models and the options they have produced, it is vitally important that it is noted that it is highly unlikely that any option would guarantee no further flooding. There will always be a residual risk for reasons outside of the relevant RMAs control, namely climate change.
- 3.4 On Boxing Day 2015 Ormskirk experienced extensive flooding and much of the evidence gathered on that day was used to support the study. It was provided by feedback from local residents via questionnaires and through the local Flood Action Group. Although largely anecdotal this information has been taken into account in preparing the study.
- 3.5 Ormskirk flooding mechanisms comprise:
- Runoff from fields, which is made worse if ground is fully saturated or is well compacted due to conventional agriculture;
 - Runoff from Highway exacerbated by runoff from fields and paved over gardens;
 - Groundwater flooding; and
 - Overflowing watercourses due to blocked inlets to culverts and bridge openings caused by debris being washed or blown into watercourses.
- 3.6 A comprehensive optioneering exercise has been undertaken for each of the seven key flooding receptor areas identified in the study (see plan below), the results of which were compared and scrutinised and then ranked by considering economic influence and technical effectiveness (e.g. Rank 1 illustrates the option that provides the greatest depth reduction, either locally or further downstream, and has the greatest damage influence).



Key Receptor Areas

(taken from Figure 1.3 on p.3 of the Flood Risk Management Viability Report)

- 3.7 18 options for flood alleviation measures were considered, of which 7 were considered suitable to take forward for economic appraisal in the study. These 7 shortlisted options are described in chapter 6 of the Flood Risk Management Report (pp.34-43), and are as follows:
- Option 1 – Flood Storage along Alty's Lane
 - Option 6 – Flood Storage on Alty's Lane playing fields
 - Option 9 – Flood Storage within Coronation Park
 - Options 10 & 12 – Flood Storage behind Asmall Lane
 - Option 14 – Flood Storage within Little Hall Farm
 - Option 18 – Flood Storage within Redgate Farm
- 3.8 Due to the nature of the flooding in Ormskirk, no single option is effective at reducing the risk of surface water flooding for the entire catchment on its own. Instead, a combination of the options would be required.
- 3.9 This process considered damage to properties at risk, direct damages to associated vehicles and indirect damages associated with schools and substations that have been applied to the relevant non-residential property type.
- 3.10 No damages have been calculated associated with flooding to transport infrastructure and no allowance for climate change has been included in the economic assessment.
- 3.11 All of the measures involving storage are above ground and rely on floodwater to drain away by gravity. This is a prudent move as the bed of Hurlston Brook is naturally the lowest lying ground in the catchment area so any below ground storage would require pumping out, thus increasing cost and future maintenance implications.

4.0 IMPLICATIONS OF THE STUDY AND NEXT STEPS

- 4.1 All but one of the 7 shortlisted options are on land in private ownership and the total cost of delivering the flood alleviation measures and maintaining the existing flood alleviation systems (which would be essential if any new measures were to have any benefit) would be in the region of £10 million. As such, Lancashire County Council are not currently in a position to deliver any of the 7 options in the foreseeable future.
- 4.2 However, LCC would recommend that, where new development was proposed in the future around Ormskirk (and particularly on land in the ownership of one or more of these potential flood alleviation schemes), it might be appropriate for those new developments to consider implementing some of the above options (or measures that would have an equivalent beneficial effect on surface water flowing into the Hurlston Brook) as part of their surface water management proposals for their developments.

- 4.3 As a Local Planning Authority, the Council cannot require a developer to implement a proposal that would create betterment compared to the existing surface water run-off from a greenfield site, but in implementing improvements in surface water drainage from their sites to ensure that they do not make the existing situation worse, it is possible that any development proposals on or near the land identified for the 7 shortlisted options may need to / choose to implement mitigation measures that will alleviate some of the flooding associated with Hurlston Brook.

5.0 SUSTAINABILITY IMPLICATIONS

- 5.1 It is the increasing intensity of rainfall that is the principal concern for flooding related to the Hurlston Brook, as this leads to flash floods as existing drainage systems are unable to cope with the amount of rainwater that the original designs never envisaged. As such, as pointed out above and in the study itself, the options identified in the study, even when taken in combination, will not entirely remove the risk of flooding, and so this will be an ongoing residual risk for residents and businesses in the properties affected by such flooding.

6.0 FINANCIAL AND RESOURCE IMPLICATIONS

- 6.1 Given that the report does not identify the relevant RMA for delivering any of the options identified, there are no financial or resource implications for this Council at the current time. However, one of the shortlisted options is on Council-owned land, and several assets in the existing surface water drainage systems in Ormskirk cross Council-owned land.

7.0 RISK ASSESSMENT

- 7.1 This item is for information only and does not contain any recommendation. It therefore does not require a formal risk assessment.

Background Documents

There are no background documents (as defined in Section 100D(5) of the Local Government Act 1972) to this Report.

Equality Impact Assessment

This report is for information only and so does not have any direct impact on members of the public, employees, elected members and / or stakeholders. Therefore, no Equality Impact Assessment is required.

Appendices

None.