22/23 November 2017 Floods in Lancashire

Flood & Water Management Act 2010

Section 19 Investigation – Covering Report

July 2019

Lancashire County Council

www.lancashire.gov.uk

Contents

Executive Summary

On the night of 22/23 November 2017, an intense rain storm was recorded travelling from the Irish Sea coast at Blackpool to the north-easterly extent of Lancaster District. Whilst some other parts of the county were affected in more modest ways, communities lying under the path of this storm experienced extreme downpours that exceeded the intensities experienced during Storm Desmond (5/6 December 2015).

This rainfall event was highly damaging. It overwhelmed natural and constructed drainage networks in its path, causing extensive surface water and river flooding. It dislodged soil/silt and vegetation which blocked drainage networks that might otherwise have coped with the surface water.

Over 900 homes and other premises in Lancashire were flooded that night, either within the property boundaries or inside habitable rooms. The Environment Agency evacuated 70 households from their homes in Galgate overnight, and United Utilities staff worked through the night to gain control over sewer flooding across the Blackpool and Thornton-Cleveleys areas of the Fylde. Many roads including those used for critical emergency access (including the M6 motorway and the A6) were obstructed by flood water, and bow-waves from passing traffic caused standing water to enter houses and other property close to the roads. Trains north of Preston were cancelled and problems continued overnight with 9 flood warnings and 12 flood alerts still in place on the morning of 23 November.

Appendix B to this report documents the investigations made into the localised flood events that have been reported to the Council either directly by our residents or their representatives, or via the flood Risk Management Authorities (RMAs) if they received the first reports directly.

SECTION 1 – INTRODUCTION AND PURPOSE OF THE REPORT

1.1 Flood & Water Management Act 2010 Duty

1.1.1 Lancashire County Council (LCC) as a Lead Local Flood Authority (LLFA) has a duty to investigate flooding in accordance with Section 19 of the Flood and Water Management Act 2010 (FWMA) as follows:

1.1.2 Section 19 states:

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.

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.

1.1.3 The terms 'risk management functions' and 'risk management authorities' are defined in Section 2.

1.2 Lancashire & Blackpool Local Flood Risk Management Strategy

1.2.1 In addition to the requirements of Section 19 of the FWMA, the Lancashire and Blackpool Local Flood Risk Management Strategy (LFRMS) sets out how flood risk should be managed locally.

1.2.2 The LFRMS states that the Section 19 investigations will help to:

Improve the understanding of flood risk by providing an invaluable tool for understanding the sources and mechanisms of flooding;

Identify assets that have a flood risk management function, which may need to be designated; and

Identify where additional works and studies are likely to be necessary, that LCC or other risk management authorities can integrate into their prioritised flood risk management plans.

SECTION 2 - DEFINITIONS AND RESPONSIBILITIES

2.1 Key Definitions

2.1.1 The Risk Management Authorities

2.1.1.1 The risk management authorities (RMAs) are identified in the FWMA as follows:

a. The Environment Agency,
b. The 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.

2.1.1.2 Each of these organisations has powers and duties under various legislation and regulations for the responsible management of natural water, flood risk and in some cases coastal erosion.

2.1.1.3 The FWMA requires all the RMAs to cooperate with other relevant authorities in the exercise of their flood and coastal erosion risk management functions.

2.1.1.4 In Lancashire, the RMAs support partnership working in the following ways:

- at operational levels by joint investigations and through the Making Space for Water meetings;
- at tactical level by sharing priorities and direction between organisational managers, and
- at strategic level by engaging with Councillors/Cabinet Members/Senior Managers.

2.1.1.5 Lancashire, Blackpool and Blackburn-with-Darwen are also represented on the North West Regional Flood and Coastal Committee where cross-boundary projects, resources and data are shared with Cumbria, Greater Manchester, Merseyside and Cheshire.

2.1.1.6 The village of Earby in Pendle District is a special case in that it lies within a river catchment that falls towards North Yorkshire, so its local Environment Agency services are supplied through the Yorkshire team. This gives the Lancashire partnership a direct connection to the Yorkshire Regional Flood & Coastal Committee. Earby also receives services from the Earby and Salterforth Internal Drainage Board (IDB), which replaces a number of the lead local flood authority functions.

2.1.2 The Risk Management Functions

2.1.2.1 The RMAs have responsibility for flood risk management functions as defined under Section 4 (2) of the FWMA:

(a) a function under this Part,
(b) a function under section 159 or 160 of the Water Resources Act 1991,

(c) a flood defence function within the meaning of section 221 of that Act,
(d) a function under the Land Drainage Act 1991,
(e) a function under section 100, 101, 110 or 339 of the Highways Act 1980, and
(f) any other function, under an enactment, specified for the purposes of this section by order made by the Minister.

2.1.2.2 For the purpose of this investigation, the functions of the RMAs in the emergency response and the emergency recovery to the December 2015 flood events have also been taken into account, because of the scale and extent of flooding in Lancashire during that month.

2.1.3 Riparian Landowners

2.1.3.1 The legal term 'riparian' is applied to landowners who own land adjoining or containing a river or watercourse. They have certain rights to use the water flowing across their land for their own purposes, and in regard to flood risk management they also have a number of responsibilities, including the following:

- to maintain the bed and banks of the watercourse, and also the trees and shrubs growing on the banks
- to clear any debris, even if it did not originate from their land. This debris may be natural or man-made
- to keep any structures within their ownership clear of debris. These structures include culverts, trash screens, weirs and mill gates

2.1.3.2 If riparian landowners do not fulfil their responsibilities they may face enforcement action taken by the relevant RMA.

2.1.4 Interconnections between responsibilities

2.1.4.1 Public sewers in Lancashire are principally the responsibility of United Utilities plc or Yorkshire Water plc. Copies of the record maps indicating the location of public sewers in Lancashire are held in the water companies head offices. These companies also keep records of pumping stations and any water treatment works which form part of the public sewage system.

2.1.4.2 Private drainage systems are the responsibility of each owner whose property it drains. Where more than one property uses a private pipe, responsibility is normally shared proportionately. The private system comprises all the pipes up to the point of connection with a public sewer (this can include the entire system where connected to a septic tank, cesspool or soakaway). Formal records indicating the location of private drainage systems are not held by any RMA. The deeds of a property may include details.

2.1.4.3 The highway surface water drainage of all adopted public roads, other than trunk roads or motorways, is the responsibility of LCC as the local highway authority, including roadside drainage gullies and certain roadside ditches. Drainage from trunk roads and motorways is the responsibility of Highways England (formerly the Highway Agency). Drainage of private unadopted roads is normally the responsibility of private property owners who make use of or adjoin the road.

2.1.4.4 Land drainage comprises systems of rivers, watercourses, ditches, culverts, pipes, lakes and ponds intended to drain water resulting from rainfall and flows from underground sources. Typically the primary responsibility for maintaining responsible flows in land drainage systems lies with the riparian owner or owners, with the LLFA, Environment Agency, IDB or local councils holding enforcement powers to use if the land owner/s default in their duties.

2.1.4.5 All drainage systems eventually discharge into the sea as the lowest possible point for water to collect. In Lancashire, this is at Morecambe Bay or the Irish Sea directly.

2.1.4.6 All drainage networks are formed from combinations of these systems to overcome historic demands of efficiency, simplicity and convenience. For example, a highway gully may well connect to a length of highway drainage pipe before connecting to a private ditch, or a public surface water sewer, or directly to a main river. The original reasoning for these arrangements may now be forgotten or inappropriate for current needs, but the physical interconnection of drainage systems means that it is often impossible to tell just from looking at flood water exactly where the barrier to flow arises and therefore exactly which organisation may need to take remedial action.

2.1.4.7 It is therefore vital for the RMAs to share information and collaborate during investigations and that they are allocated to the appropriate organisation to lead.

2.2 Key Functions of the RMAs

2.2.1 Environment Agency

The flood risk management responsibilities of the Environment Agency include the following:

a. strategic overview for all forms of flooding;
b. provision of a National Strategy for Flood and Coastal Erosion Risk Management (FCERM) to cover all forms of flooding;
c. a power to request information from third parties in connection with flood risk management duties. Risk management authorities have a duty to co-operate with the Environment Agency in the provision of such information;
d. a duty to co-operate with other relevant authorities in the exercise of flood risk management functions, which may include the sharing of information with other relevant authorities;
e. a duty to have regard to Local Flood Risk Management Strategies;
f. a duty to be subject to scrutiny from lead local flood authorities' democratic processes;
g. responsibility for managing coastal flooding;
h. responsibility for managing fluvial flooding from main rivers;
i. updated provisions for the regulation of reservoirs;
j. permissive powers to carry out maintenance work on main rivers under Section 165 of the Water Resources Act 1991;
k. the provision of flood forecasting and warning services;
l. the provision of flood maps;
m. the provision of flood related information and advice;

n. investment in flood defences, supplemented through partnership funding where appropriate;
o. a power to take enforcement action where flow in a main river has been impeded and may cause a flood risk.

2.2.2 Lancashire County Council

2.2.2.1 LCC has a dual risk management role, in its capacity as both highway authority and LLFA.

2.2.2.2 The County Council as the LLFA has a number of duties and powers, in addition to the duty to investigate flooding set out above. These include:

a. a duty to develop, maintain, apply, monitor and consult on an LFRMS for its area (copy available from the LCC website www.lancashire.gov.uk);
b. a duty to develop and maintain a register of structures or features which might impact on flood risk, including ownership and condition (the Flood Risk Asset Register is available on the LCC website www.lancashire.gov.uk);
c. the management of the consenting process for works that are likely to affect the flow characteristics of ordinary watercourses (Land Drainage Consent – guidance available on the LCC website www.lancashire.gov.uk);
d. a power to undertake works for managing flood risk from surface run-off or groundwater;
e. a power to request information from third parties in connection with flood risk management duties. RMAs have a duty to co-operate with the LLFA in the provision of such information;
f. a power to designate structures and features that affect flooding or coastal erosion.
g. a power to take enforcement action where there is an obstruction to an ordinary watercourse that may cause a flood risk.

2.2.2.3 LCC as the local highway authority has a duty under the Highways Act 1980 to maintain highways that are maintainable at public expense. This includes responsibility for highway drainage, as well as for the condition and safety for users of all highway assets including roads, footways, bridges and culverts, street lighting and traffic signals.

2.2.2.4 as local highway authority, LCC has a duty to co-operate with other relevant authorities in the exercise of flood risk management functions, which may include the sharing of information with other relevant authorities

2.2.2.4 LCC also has private responsibilities for land drainage where it is a land owner.

2.2.3 City and Borough Councils

2.2.3.1 The flood risk management responsibilities of City and Borough councils include the following:

a. a power to designate structures and features that affect flooding or coastal erosion;
b. a duty to exercise their flood risk management functions in a manner consistent with local and national strategies, and to have regard to those strategies in their other functions;

c. a duty to be subject to scrutiny from LLFAs democratic processes;
d. a power to do works on ordinary watercourses
e. a duty to co-operate with other relevant authorities in the exercise of flood risk management functions, which may include the sharing of information with other relevant authorities.
f. a power to take enforcement action where there is an obstruction to an ordinary watercourse that may cause a flood risk.

2.2.3.2 City and Borough Councils have a number of wider functions and roles that can be relevant to flood risk management and response. These include local planning, housing, environmental health and community engagement activity, as well as private responsibilities for land drainage where they are a land owner.

2.2.4 Internal Drainage Board

2.2.4.1 An Internal Drainage Board (IDB) is a local public authority established in areas of special drainage need in England and Wales. IDBs have permissive powers to manage water levels within their respective drainage districts. IDBs undertake works to reduce flood risk to people and property and manage water levels to meet local needs.

2.2.4.2 The expenses of an IDB are predominantly funded by the local beneficiaries of the water level management work they provide. Each IDB sets a budget for its planned work in the forthcoming year and any investments it needs to make for future projects.

2.2.4.3 More information about IDBs can be found from the Association of Drainage Authorities (www.ada.org.uk).

2.2.4.4 Earby and Salterforth IDB was not involved in the flooding event of 22/23 November 2017.

2.2.5 Water Companies

The flood risk management responsibilities of water companies (in Lancashire: United Utilities plc and Yorkshire Water plc) include the following:

a. a duty as sewage undertakers under Section 94 of the Water Industry Act 1991, to provide & maintain sewers for the drainage of buildings and associated paved areas within property boundaries;
b. responsibility as sewerage undertakers for lateral drains and public sewers, the latter being defined as a conduit, normally a pipe that is vested in a Water and Sewerage Company, or predecessor, that drains two or more properties and conveys foul, surface water or combined sewage from one point to another point and discharges via a positive outfall;
c. responsibility for any flooding which is directly caused by its assets – i.e. its water or sewerage pipes;
d. a duty to be subject to scrutiny from lead local flood authorities' democratic processes;

e. a requirement to exercise flood risk management functions in a manner consistent with the national strategy and guidance and have regard to the local strategies and guidance;
f. a duty to co-operate with other relevant authorities in the exercise of flood risk management functions, which may include the sharing of information with other relevant authorities.

2.3 Civil Contingencies Responsibilities

The RMAs listed above (with the exception of the IDBs) have additional responsibilities under the Civil Contingencies Act 2004, which provides the statutory basis for dealing with a response to flooding in emergency situations. These include flood preparedness planning and flood response.

SECTION 3 – METHODOLOGY

3.1 Interpretation of the Section 19 Duty

3.1.1 This covering report provides a commentary on the flooding events of the night of 22/23 November 2017.

3.1.2 Appendix B records the many individual communities affected by flooding that night, and the nature of the flooding where that can be confidently expressed, the Risk Management Authorities (RMAs) with duties relating to that flooding mechanism, any work known to have been done to mitigate the risk of that type of event happening again, and any investigations or works for RMAs still to complete.

3.1.3 Appendix C records the individual streets on which various flooding incidents have been reported at the time of publication of this report.

3.1.4 RMAs will be able to provide updates on specific investigations and any further works arising.

3.1.5 The understanding gained from these further investigations will identify remedial actions that can be taken forward by the relevant RMA (or RMAs together) to reduce the risk of internal flooding to properties and manage impact of similar flood events in the future.

3.1.6 Drainage networks interconnect in sometimes complicated ways for historic reasons. Partnership working and joint investigations between the RMAs are essential to identify the appropriate options in all 229 communities and to deliver flood risk management improvements.

SECTION 4 – THE WEATHER EVENT

4.1 The rainfall in Lancashire on the night of 22/23 November 2017 was extremely heavy. The local water company, United Utilities plc, reported that rainfall had reached "unprecedented levels". In the 24 hours from 09:00 GMT Wednesday 22 November, the weather station at Hazelrigg (Lancaster University) recorded 73.6mm (2.90in) of rain - the highest level in more than 50 years since the centre started weather observations.

4.2 These levels were higher than during Storm Desmond in December 2015 when 59.7mm (2.35in) of rain fell in a 24 hour period.

4.3 Whilst reports of flooding that night were received from every district of the county, the track of the heaviest rainfall is identified by the most intense of he flooding events and is known to have been as follows:

a) Landfall on the Blackpool and Fylde coast;
b) Tracked eastwards across Thornton-Cleveleys towards Pilling and Cockerham;
c) Travelled northwards over Galgate and Lancaster city to the River Lune at Caton and Halton;
d) Then travelled in a north-easterly direction up the Lune Valley affecting isolated villages as far north as Whittington and Ireby close to the boundary of Lancashire with Cumbria and North Yorkshire.

4.4 Run-off through westerly surface water drainage systems into the Irish Sea and Morecambe Bay were impeded by a normal high tide (reaching 8.34m AOD around 1.30am on 23 November). Some surface water flooding remained into the daytime on 23 November, until drainage outfalls to sea and rivers were unlocked by low tide (reaching 2.20m AOD around 8.00am).

4.5 Electricity North West reported that 500 hundred properties mainly in Blackpool, Thornton-Cleveleys and Poulton on the Fylde coast, lost power due to the weather at some time during the affected period and there were intermitted power cuts in the Preston area. (The exact cause of this power outage has not been investigated through this Section 19 investigation process; ENW report it was 'as a consequence of localised flooding').

4.6 These issues with power supply caused intermittent interruptions to pumping operations along the Fylde coast. United Utilities plc has investigated this situation and its technical report has been taken into account as part of our investigations into flooding in the neighbouring areas of Lancashire (and in particular the Thornton-Cleveleys area). The effects of this experience were felt most significantly in Blackpool, which lies outside the administrative boundary of this council. Blackpool Council's flooding report will be found here once it has been finalised and published: https://www.blackpool.gov.uk/Your-Council/Creating-a-better-Blackpool/Regeneration/Coastal-and-water-improvements/Flooding/Investigations.aspx

4.7 The extreme rainfall intensity and volume falling close to Lancaster University caused watercourses to overtop their banks in the Ellel and Galgate area, which combined with flooding from the River Conder and Burrow Beck to generate high volumes of water that encroached into homes and outbuildings and also obstructed highways.

4.8 Similar effects were experienced on the other side of the hills above the University, where Caton and Halton villages were both overwhelmed by surface water coming out of bank in local watercourses. Caton residents in particular noted large quantities of silt being washed off fields by the flood water as the surface water ran across them before reaching local roads and houses.

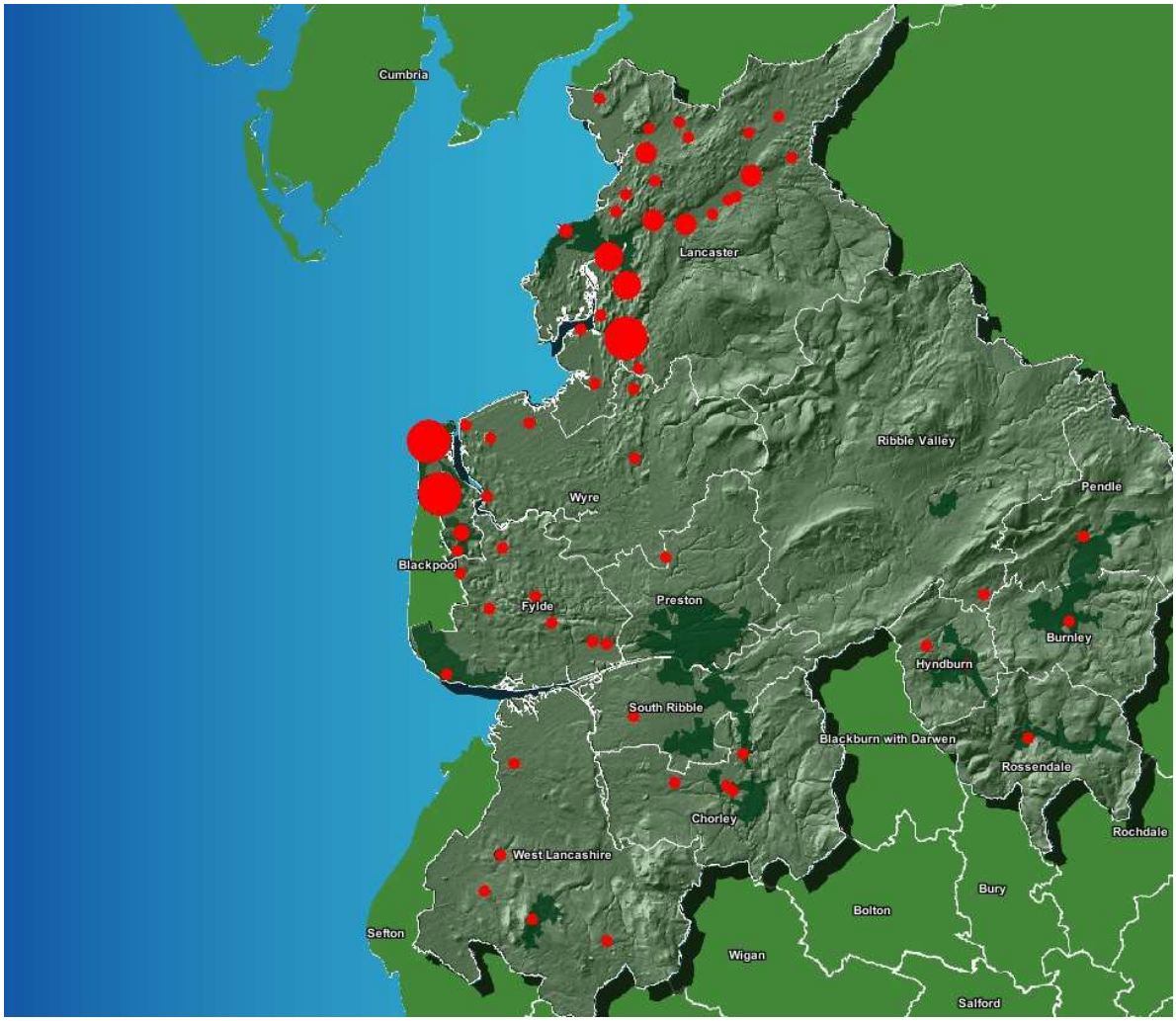

Fig.1. – Indicative locations of reported flooding, Lancashire 22 November 2017

4.9 The rainfall maintained its intensity as it moved up the Lune Valley, bringing the same flooding mechanisms to other smaller villages.

SECTION 5 – RESPONSE TO THE FLOODING

5.1 On the night of the flooding, each local council responded to the events in its area alongside the 'blue light services' (Police, Fire & Rescue and Ambulance Services), United Utilities and the Environment Agency.

5.2 With hindsight, it is surprising that a Major Emergency was not established across the affected district council areas. This would have maximised the scope for the affected organisations to understand the wider aspects of the event as it occurred and would have enabled them to call on additional resources to help manage the incident and minimise the problems experienced. This decision was appraised within the normal post-event multi-agency incident review, and the organisations involved in the emergency response have identified opportunities for future events to be managed differently where appropriate.

5.3 Starting the following morning as flood waters died away, the county council's Highway Services officers started the lengthy process of attending every affected trash screen for which it is responsible, to clear trapped debris, also every highway location reported or known to have been affected by flooding, to remove silt from gullies and drainage systems. United Utilities plc carried out a parallel exercise for the public sewer network, and the Environment Agency began checking and repairing its own assets.

Fig.2 - Flooding problems lasted into the next day

5.4 These immediate responses have restored drainage systems to normal functionality and have not been tested since by subsequent significant rainfall events. Monitoring of the affected locations remains a part of daily business for these RMAs, to identify any scope for improving the systems.

5.5 As the immediate response to the flooding died down and local authorities entered the 'recovery' stage of incident management, various community meetings and drop-in events were held around the affected areas, including:

- Wyre Borough Council's Civic Centre, Poulton-le-Fylde;
- Blackpool Borough Council's Anchorsholme Library;
- Ellel Village Hall (Galgate);
- Halton Village Hall;
- The Victoria Institute, Caton
- Barton Road community centre, Bowerham (South Lancaster).

5.6 These events were attended by all the flood Risk Management Authorities (RMAs), and by representatives of the other emergency responders including from the Fire & Rescue Service. The events gave affected people an opportunity to discuss their experience of the flooding with informed officers who gave relevant advice about both how the flooding was triggered and what different parties could or will do to reduce future risks. At the same time, the RMAs received valuable additional details about the flooding to be used within their investigations and studies.

5.7 Appendix B attached records the various experiences in different communities affected by flooding during this rainfall event. This log identifies the following information:

- District Council area;
- Settlement/locality where flooding was reported;
- Number of properties known to be affected by flooding;
- Our assessment of the primary flooding mechanism/s in that locality;
- Which flood Risk Management Authorities have had a role in managing the flood risks identified;
- What has been done as a consequence of receiving the flooding reports from local people, and/or what more is required at the date of publication.

5.8 Appendix C records the names of the streets reported to the county council, where property is known to have flooded during this event (including homes, gardens/outbuildings, community assets/public highways and other property).

SECTION 6 – NEXT STEPS

6.1 As far possible, the RMAs options for further action are identified in the report to be published. Inevitably there will be change and progress with these issues over time as more details are found and understood. The relevant RMAs can be contacted directly for updates.

6.2 Alongside the formal work of the RMAs, a number of Flood Action Groups and community resilience groups (with a wider remit in their communities beyond just flooding issues) have formed either on their own resources or with support from their District or City councils, the Environment Agency and/or the Lead Local Flood Authority. These groups, and those with longer experience, have provided valuable data for technical appraisals, have given meaningful advice and reassurance to their neighbours, and have been willing partners in studies and projects run by the RMAs.

6.3 In some cases, technical reports have been undertaken (or circumstances are still being investigated or surveys are yet to be commissioned) to assist the RMAs in understanding how flooding has happened and how flood risks might be best managed in the future. These reports aren't published as part of the Section 19 duty, although in many cases they will be available on request to the relevant authority.

6.4 In some cases, more complex options face the RMAs including:

6.4.1 Programmes of Study and/or Works

For example: completing works and studies that were already programmed and funded, using additional data from this event to improve models and assumptions, as well as identifying flood risk challenges that need to be better understood in order for us to devise ways of managing flood risk more effectively.

6.4.2 With Communities

This particularly includes working with landowners who have responsibilities for maintenance of local watercourses and other drainage systems, particularly where these impact on other people, to ensure they are carrying out timely and effective repairs and routine maintenance.

It also includes supporting Flood Action Groups, Parish Councils and other groups with ideas about improving their resilience to future flooding, for example by developing emergency flood response plans. These projects are well-supported by the District/City Council and emergency services if another flood event were to happen.

6.4.3 In Partnership

This includes investigating options for new works and studies where the RMAs have overlapping interests, including identifying funding sources. We also want to develop more joint working with other responsible partners (for example

Network Rail, Rivers Trusts) to maximise the effectiveness of the projects and to unlock the most benefits.

SECTION 7 – SUMMARY AND CONCLUSIONS

7.1 The rainfall event of 22/23 November 2017 was extreme enough to overwhelm natural and man-made drainage networks across a large area of Lancashire, with particularly damaging flooding across Wyre and Lancaster districts.

7.2 Given that flood risk will always be present in a large county area such as Lancashire, it is important that the experiences arising from a major flood event such as this are captured and used alongside technical information to identify and deliver projects and advice to affected people.

7.3 Such work is mostly delivered during the day-to-day activities of the RMAs, and progress on local initiatives is shared with local communities through existing communication channels.

7.4 From the experiences during and after this flood incident, partner organisations are developing an improved understanding of the way our incident response, community engagement and data collection activities are interlinked. This is informing our development of improved procedures to respond to future flooding events.