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Living with Water Hull Household Flood Survey Autumn 2018

Final Report

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Executive Summary

This report presents the results of the 2018 Hull Household Flood Survey and feeds into the Living with Water Partnership's work to reduce the impacts of flooding and increase resilience in Hull. Hull was severely impacted by surface water flooding in 2007 and is highly vulnerable to further flooding. We surveyed over 450 respondents, 37% were flooded and another 22% were affected by flooding, and many wanted to share their experiences for the first time.

Previously being flooded can have serious long-term consequences as a result of:
- **flood damage to the home**
- **difficulties recovering including dealing with unresponsive insurers and poor quality builders**
- **mental and physical health impacts**

Many respondents also blamed the Flood Risk Management agencies for the scale of the flooding in 2007.

Many people are very concerned about flooding, and although flood defences have made some people feel safer, respondents wanted to see the following action:
- **improving the city's drainage and sewer system**
- **protecting greenspace and floodplains from new building**
- **supporting effective property-level flood protection**
- **access to affordable insurance**
- **better surface water flood warnings.**

Living with Water is responding to the findings and trying to develop effective ways to listen to local residents in developing its flood resilience work in Hull.

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Hull City Council
Environment Agency
YorkshireWater
EAST RIDING OF YORKSHIRE COUNCIL

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Key Recommendations

1. **Improve community engagement through an increased focus on working with trusted intermediaries, supporting local volunteers and establishing a local flood group. This can be best achieved through recruiting a community engagement officer to be based in the Council.**

2. **Provide good quality information to local residents on what LWW is doing about flooding, what people can do themselves, and what support is available.**

3. **Ensure the most vulnerable receive help before, during and after flooding, including periodically coordinating flood emergency plans with partners and involving health agencies in flood recovery.**

4. **Work with partners to develop a pilot surface water flood warning system for Hull.**

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Summary of key findings

Introduction

The 2018 Hull Household Flood Survey was conducted by the Energy and Environment Institute of the University of Hull for the Living with Water Partnership - a partnership between Yorkshire Water, Hull City Council (HCC), the East Riding of Yorkshire Council (ERYC), the Environment Agency (EA) and the University of Hull. This survey report forms part of a baseline for Living with Water to monitor the effectiveness of its work to reduce the impacts of flooding and increase resilience. The survey asked about the impacts of the 2007 and 2013 floods, concerns about flooding, and feelings of resilience and preparedness. The survey was focused on three council wards in Hull: Beverley & Newland, Derringham, and North Carr, which were selected due to the different impacts of the 2007 floods and because different types of flood risk management schemes are either being implemented or are planned in these areas.

A total of 457 surveys were completed (one response per household), of which 303 were completed in-person and 154 were online. 346 responses were from residents of the target wards. It is important to note that the results are not generalisable for Hull, for example our door-to-door work focused on areas affected by flooding in 2007, rather than all areas of Hull. Many people were very keen to voice and share their experiences and views – especially as this was the first time that many people have been asked.

Summary of Key Findings Continued

1. Impacts of the 2007 floods

37% of all respondents described that they were flooded or flooding damaged their house. 20% of all respondents had to evacuate their house and 12% of respondents evacuated their house for over 6 months, with one never returning. Derringham was the most affected of the target wards with 58% of respondents saying they were flooded or flooding damaged their house.

20% of all respondents said flooding affected the health and wellbeing of themselves or a member of their household. From these 92 respondents: 75 described impacts on mental health including stress, anxiety and depression, and 34 described impacts on physical health including respiratory illnesses or making existing conditions worse (22 of the 92 respondents described impacts on both mental and physical health with many describing links between mental and physical health impacts for themselves or for their household). There is a very strong link between flood damage to the home, evacuation, and health and wellbeing impacts:

51% of respondents who were flooded or whose houses were damaged reported health impacts:

- **43% reported mental health impacts;**
- **19% physical health impacts;**

(12% reported both)

62% of people evacuated reported health impacts;

- **55% reported mental health impacts;**
- **21% physical health;**

(14% reported both)

In contrast, only 5% of respondents 'otherwise affected' by flooding reported health and wellbeing impacts. In addition, 50% of those who said flooding had damaged their health and wellbeing also said it affected their financial situation. In terms of disruption, there was more evidence of disruption to work (24% of respondents) and essential travel (25% of respondents) compared to other forms of disruption including schooling and childcare.

'What was the worst part of the 2007 floods?' 154 people who were flooded or whose houses were damaged by flooding answered this question: 18% of these respondents described the flooding and helplessness as the worst part and 28% described the devastation caused to their homes. 54% described different aspects of recovery including: the time taken to repair damage and stress in dealing with insurers and builders; living arrangements during repairs such as living in caravans or staying in flood damaged properties; and some people mentioned the lack of outside help during recovery. The following quote illustrates how problems with recovery caused health and wellbeing consequences for some people:

'Stress in having to deal with a loss adjuster who argued with me every step of the way to try to avoid paying for items damaged by the secondary flooding. Eventually I gave up and paid for a lot of things out of my own pocket and this left me upset and with no savings so I was without a fire in my living room for well over a year. I also had to live upstairs in my home for many months as the flooring was up downstairs and fans and dehumidifiers were running constantly. I spent many months angry and tearful'.

Receiving help during the floods. 59% of people who were flooded or whose houses were damaged received help, compared to 11% of people who suffered other effects. The main sources of help for people who were flooded or whose houses were damaged were Insurers (45%), Family, Friends and Neighbours (31%), the council (19%) and Humberside Fire and Rescue Service (5%).

49% of people who were flooded or whose houses were damaged, and 24% of people who suffered other effects felt there should have been more help. This was described in terms of: prevention such as maintaining drainage systems (18%); providing flood warnings (9%); providing help during the floods such as sandbags or closing roads to 4x4 vehicles (19%); providing help during recovery (37%); and long-term help to protect properties and to reduce insurance costs (6%). Help wanted during recovery included advice on dealing with insurers and builders, help with securing living arrangements, or referrals to appropriate healthcare services. Supporting access to appropriate healthcare will require joint working with the HCC Public Health Team which can link to support from health providers including the NHS and the charity and voluntary sector, and information to residents.

2. Impacts of the 2013 floods

Only 8% of respondents were affected by the tidal flooding of 2013 – the target wards chosen were largely unaffected. Of the 34 respondents affected, four respondents were flooded or their houses were damaged by flooding and two said they experienced health and wellbeing consequences. In contrast to 2007, it is reported an official flood warning was issued in 2013, but it is not clear if this was received by the four respondents.

3. What people think about flooding now?

20% of all respondents are very concerned about flooding, with concern highest for people who were flooded or whose houses were damaged in 2007. In terms of target wards, concerns were greatest in Derringham, and lowest in North Carr, reflecting the geographical impacts of the 2007 floods. Over half of respondents (55%) felt that flooding could occur again in the next 30 years.

Individual actions to improve flood preparedness and reduce flood risk.

Nearly two-thirds of residents have taken some measures:

47% had made sure their insurance covered flooding;
28% had implemented property-level measures;
24% had checked their flood risk (including when moving to a new house).

However, only 9% had prepared a flood kit and 6% a flood plan. Six respondents described how they had helped in the community – clearing drains, raising awareness or protecting community green space. 35% of respondents answered they had not taken any measures yet.

21% of respondents said they had signed up to EA flood warnings, which is higher than EA information for the target wards. A later question identified that 57% of respondents felt they will receive a flood warning in good time in the event of a future flood. The survey work identified that respondents are not relying on EA flood warnings with many using weather forecasts instead, but there is also confusion where flood warnings would come from. A key issue is that EA flood warnings do not cover surface water flooding.

In terms of the 127 respondents who had implemented property-level measures, moving valuables to a safe place was the most frequently adopted measure (11%), followed by planting and gardening improvements (7%), which are two non-technical measures. However, it is important to note that the number of people who had implemented different measures is relatively small and many respondents felt their measures were very small-scale, may not be effective, or they might not have done things correctly. For example, some respondents had covered air-bricks themselves, but were worried about implications for causing damp. 19 respondents said they had stored sandbags, indicating that people are not aware that other forms of temporary flood barriers are more effective or where to get them from. The survey responses indicate a clear need for advice on property-level flood protection. One respondent described how advice should have been made available to householders rebuilding their homes after the 2007 floods.

City-wide flood risk management schemes

The Hull Tidal Barrier is the most well-known defence, with 64% of respondents saying they had a 'good understanding'. 'Good understanding' of other schemes was reported as follows: Flood Defence Walls along the Humber Estuary (38%), Flood Alleviation Schemes (29%), improvements to pumping stations (26%), and Sustainable Urban Drainage Systems (SUDS) (15%). Improvements to pumping stations were therefore the least well-understood of the visible city-wide infrastructural projects (as SUDS are small-scale and some have not been built yet). Only 37% of respondents were sure that measures were helping their local community, while 45% of respondents were unsure and 18% felt they were not helping their local community. Respondents in Beverley & Newland were most concerned that measures were not helping their community in comparison to the other wards – there are no visible flood risk management schemes in Beverley & Newland. In contrast, knowledge is higher in Derringham than in other wards - part of the Willerby and Derringham Flood Alleviation Scheme (WADFAS) is located in Derringham. These results indicate that proximity and visibility of flood risk management schemes influences knowledge and makes people feel safer.

Information

Only 69 (15%) of respondents said they had received information about preparing for floods and 39 of these had found it useful. Leaflets were identified as the most effective method to reach respondents – many people wanted good quality detailed information - and providing information in leaflets was also a recommendation in the final report into the 2007 floods by Coulthard et al (2007). The survey work identified digital exclusion was an issue amongst some groups of respondents.

Resilience

51% of respondents ranked their protection from future flooding as very low or low. This includes 59% of respondents from Beverley & Newland who feel less protected against flooding than respondents in Derringham, implying that increased knowledge and proximity to visible flood risk management schemes in Derringham has had positive impacts on feelings of protection. Respondents from North Carr felt they had the highest level of protection amongst the different demographic groups, reflecting the geographical impacts of the 2007 floods.

52% of respondents felt that they would recover slowly or very slowly if there was more flooding, including 60% of respondents who were flooded or whose houses were damaged by flooding, potentially reflecting past painful experiences and declining health and wellbeing for some people.

49% of respondents felt more should be done to reduce their risk of flooding. The most popular answer was improving clearing and maintenance of the drainage system including street drains, drains in '10-foots' (communal back alleys), and historic dykes and ditches. This was followed by the need for householders to protect properties with advice and support; improving city-wide flood risk management schemes; and limiting new building and housing developments on green spaces, flood plains, and historic drains and ditches.

Insurance

In addition to the 47% who answered they had made sure their insurance covers flooding, another 16% would contact their insurers after a flood, but may not have insurance that covers flooding. This leaves 169 people (37%), who could be without insurance altogether. Further analysis identifies that this includes a large proportion of council and private tenants, but also includes 14% of owner-occupiers who were flooded or whose houses were damaged in 2007. A number of respondents said they could not afford insurance, with buildings insurance costs in Hull amongst the highest in the UK.

Helping the most vulnerable

Many people reached by the survey are both vulnerable to flooding and vulnerable to the impacts of flooding. LWW partners should assess if they are able to target and help the most vulnerable 1) prepare for flooding; 2) during flooding and 3) after flooding. However, identifying who is vulnerable is complex. Disadvantage, including financial inequality, ill-health and isolation impact on vulnerability and Hull was the 4th most deprived Local Authority in England in 2019 (HCC 2019). In addition, many people who were flooded in 2007 do not feel that they have recovered from flooding and do not feel that they could cope with flooding again. These issues impact on resilience. For example, the survey reached people aged 80 and over who were flooded in 2007, have remained in their homes but have not implemented flood protection measures, do not access information on-line, would not contact flood risk-management agencies for help if there was another flood, and many of these older people live in the flood-prone area of Derringham. A recent public health assessment identified that Hull has an increasingly older population and approximately 5,000 could be socially isolated (HCC 2018). In addition, some residents of Beverley and Newland were impacted by flooding in 2007, feel unprotected by flood risk management schemes, do not have insurance, and also received low levels of help from family, friends and neighbours during the 2007 floods. Ensuring help is provided to the most vulnerable will require joint working with agencies including Hull City Council's Public Health and Neighbourhood and Housing Teams, Humberside Fire & Rescue and 'Trusted Intermediaries' including charities and the voluntary sector.

Someone to talk to directly

A key cross-cutting issue described by respondents is that is difficult to talk to staff members from flood risk-management agencies directly to report concerns or to ask for support or advice. In addition, it is not always clear who is responsible for what issue, for instance if respondents want to report a concern such as a blocked drain or ditch, or a build-up of water.

Even though many respondents blame Hull City Council for the flooding of 2007, many respondents also see the council as the primary point of contact to help them with these issues. At the time of the survey householders were not able to contact a member of the council flood risk team directly but had to go through a switchboard number or use a general email address. Building up relationships with staff members could help people who are vulnerable to flooding access support.

Recommendations

The findings and recommendations have been discussed with Living with Water on an ongoing basis and Living with Water is continuously assessing the best way to respond. Current responses are summarised under each recommendation in *italics*.

1) Community engagement

Community engagement staff member

LWW should have a dedicated staff member who is responsible for community engagement including: 1) providing information, help and advice to householders, listening to concerns, and 2) working to engage vulnerable and hard-to-reach groups such as older people, private tenants and respondents from ethnic minority backgrounds. This staff member should be based Hull City Council and directly contactable - although it could be a shared Living with Water staff member/ resource. This recommendation could require additional funding due to funding restrictions faced by Local Authorities.

Hull City Council is providing direct access to a named Flood Risk Officer who can be contacted by telephone on 01482 612394 to provide advice and support on a trial basis. The Flood Risk Officer is also contactable on email: flood.risk@hullcc.gov.uk

Community engagement activities

LWW should consider the following activities to share information, engage residents and reach vulnerable people include:

a) Work with Trusted Intermediaries with outreach to vulnerable people (e.g. Housing and Neighbourhood Teams, Sheltered Housing Wardens, Charities, Voluntary and Faith-Based Organisations). Work with charities and the voluntary sector could be developed through focal organisations such as North Bank Forum and Hull Community and Voluntary Services (Hull CVS) and could include Age UK which has strong links with Pickering & Ferens - a local sheltered housing provider and City of Culture Volunteers. For example, Age UK mentioned the opportunity to organise a question and answer session with Flood Risk Management Agencies as a starting point to work with older people. (Funding will be a key issue that affects the ability for charities and voluntary sector organisations to be involved).

b) Support for community-level groups in target at-risk areas. This includes Derringham (as the main flooded council ward) and potentially Beverley and Newland (where there is concern about lack of protection from flooding, and also a large amount of private rented houses). This could be through Flood Wardens, Flood Action Groups or supporting existing community-led grassroots groups. For example, there is the potential to take interested community members from Derringham to a Flood Action Group meeting in neighbouring Haltemprice in the East Riding.

c) Open days at flood alleviation projects (e.g. Pumping Station, Tidal Barrier).

Living with Water has implemented and is planning a wide range of community engagement activities including community awareness events, working with school children and working with volunteers. There are also specific activities targeting Derringham including piloting a water storage system community project and setting up community flood champions and networks.

2) Providing good quality information

LWW should provide information to communities including:

a) What LWW is doing about flooding including: information on the drainage system and maintenance; how pumping stations work; and information on the different flood alleviation projects and future plans.

b) What you can do about flooding:

- Effective flood warnings for different types of flooding including surface water flooding; how to prepare emergency flood kits and how to develop flood plans.
- Property-level protection measures. MDA Flood Resilience Consultants have prepared a one-page infographic (Appendix 1) on property-level flood resistance and resilience measures - LWW should review this infographic and make it relevant for Hull, prioritising actions for householders by effectiveness, ease and cost. This should also include information on more effective alternatives to sandbags.
- Insurance: how to access support and advice, how to get the best out of Flood RE.

c) Who to contact: to report issues, for support and preparation before a flood, and/ or to ask for help in the event of a flood or after a flood.

In terms of providing information, the survey identified leaflets and local television news programmes to be the most favoured ways of sharing information about flood resilience.

Hull City Council is developing a leaflet for households and which will be distributed via Council Tax Bills, events, flood buses, and newsletters.

3) Helping the most vulnerable during and after flooding

LWW should coordinate emergency response plans periodically with key agencies. This could take the form of an annual meeting to refresh plans, discuss issues and refresh contacts. Ensuring help can be provided to the most vulnerable will require joint working with other teams and organisations including the council's Public Health and Neighbourhood and Housing Teams, Humberside Fire & Rescue and Trusted Intermediaries including Charities and the Voluntary Sector.

These coordinated emergency plans should prepare for the same level of flooding as experienced in 2007. Support should include mechanisms to help people recover from flooding by considering the following areas: dealing with insurers and access to trusted builders; availability of healthcare; support for children, childcare and living arrangements.

The Hull City Council Flood Risk Team has identified that it will target the most vulnerable residents for help:

> **Given the extent of flood risk in the city it would be impossible for everyone in the city to receive individual help during a flood incident. There are a number of people in the city who are vulnerable and unable to help themselves during a flood. Therefore, these people will be prioritised in terms of physical help. The help and assistance the Risk Management Authorities can offer to the majority of people is around giving the guidance and tools so they feel able to take action to reduce the risk of flooding and to minimise impact to themselves and their communities.**
>
> Hull City Council Flood Risk Team

4) Develop a surface water flood warning system for Hull

A pilot flood warning system for surface water flooding should be developed for Hull. The EA issues a range of flood warnings (e.g. for river and tidal surges) but there is no warning system in place for surface water flooding. The Pitt Review (2008) identified a need to improve coverage and accuracy of flood warnings after the floods of 2007.

Hull City Council is keen to work with its Living with Water partners and other stakeholders to develop a surface water flood warning system, although this would be a long-term project and would require additional funding.

Introduction

This report presents the 2018 household survey results and assesses flood experience, awareness and resilience amongst residents in three target council wards in Hull[1]. The survey was conducted in collaboration with Living with Water, which is a joint project between Yorkshire Water, Hull City Council (HCC), East Riding of Yorkshire Council (ERYC), the Environment Agency (EA) and the University of Hull. Living with Water (LWW) builds on existing activities to reduce the impact of flooding and increase resilience and has a strong focus on community engagement and support. The Energy & Environment Institute at the University of Hull is helping LWW develop a baseline to monitor the impacts of its work. The baseline will include key indicators from this survey, such as the number of people who have implemented property-level protection.

Background: the 2007 floods in Hull and the risk of further floods

In June 2007, Hull suffered from extensive surface water flooding which 'was the result of exceptional rainfall events on the 15th and 25th of June. The sewerage and pumping infrastructure in Hull was filled to capacity and over-whelmed by the severity of the storms and the concentration of the rainfall' (Coulthard et al 2007b: page 27).

In terms of impacts in Hull, Coulthard et al (2007a) report that 20,000 people were affected by the flooding and one person died during the floods. Approximately 8,800 households were flooded, of which 5,153 were displaced, equivalent to around 6% of all households in the City (Milojevic et al 2016). Milojevic et al (2016) reported that 17% of displaced households remained out of their homes for longer than a year. In addition, 1,300 businesses and 91 out of 99 schools were also affected by flooding (Coulthard et al 2007a). Flood damage was widespread, although areas in the west and north of Hull were most affected including the council ward of Derringham (Coulthard et al 2007a, Milojevic et al 2016).

Hull was also affected by tidal flooding in 2013 (Hull City Council 2015) and Hull is still very vulnerable to flooding from fluvial (river), pluvial (rain) and marine sources (Coulthard & Frostick 2010). In recent years, there has been a considerable amount of work to improve flood protection in Hull, including lagoon-based flood alleviation schemes, river flood defences, flood defences along the Humber estuary, improved pumping stations, more localised flood risk management schemes including Aquagreens and SUstainable Drainage Systems (SUDS), and improvements to historic drains, dykes and ditches (Hull City Council 2015). The estimated cost of these flood risk management schemes is £220m, with funding provided from a variety of sources (Hull City Council 2015).

Conducting the Survey

The survey questionnaire was designed with reference to a wide range of background reading including research on the 2007 floods in Hull by the University of Hull (see Coulthard et al 2007a) and the University of Lancaster (see Medd et al 2015), and household flooding surveys including the National Study of Flooding and Health by Public Health England (Public Health England 2017) and a survey on flood risk perceptions, education and warning in New South Wales, Australia (Becker 2007). The survey comprised both closed, quantifiable, questions to provide measurable indicators and also open, qualitative, questions to capture the experiences, feelings and concerns of residents. The questionnaire used in this survey is contained in Appendix 2.

The survey was conducted in September and October 2018, before a large-scale community awareness-raising event by Living with Water. Three council wards in Hull were selected by the Living with Water partners: Beverley & Newland, Derringham and North Carr. The three areas were selected as they were affected by the 2007 floods in different ways and are the focus of flood risk management schemes which are completed or are planned in the future. The map below shows the areas selected and the main areas of Hull flooded in 2007.

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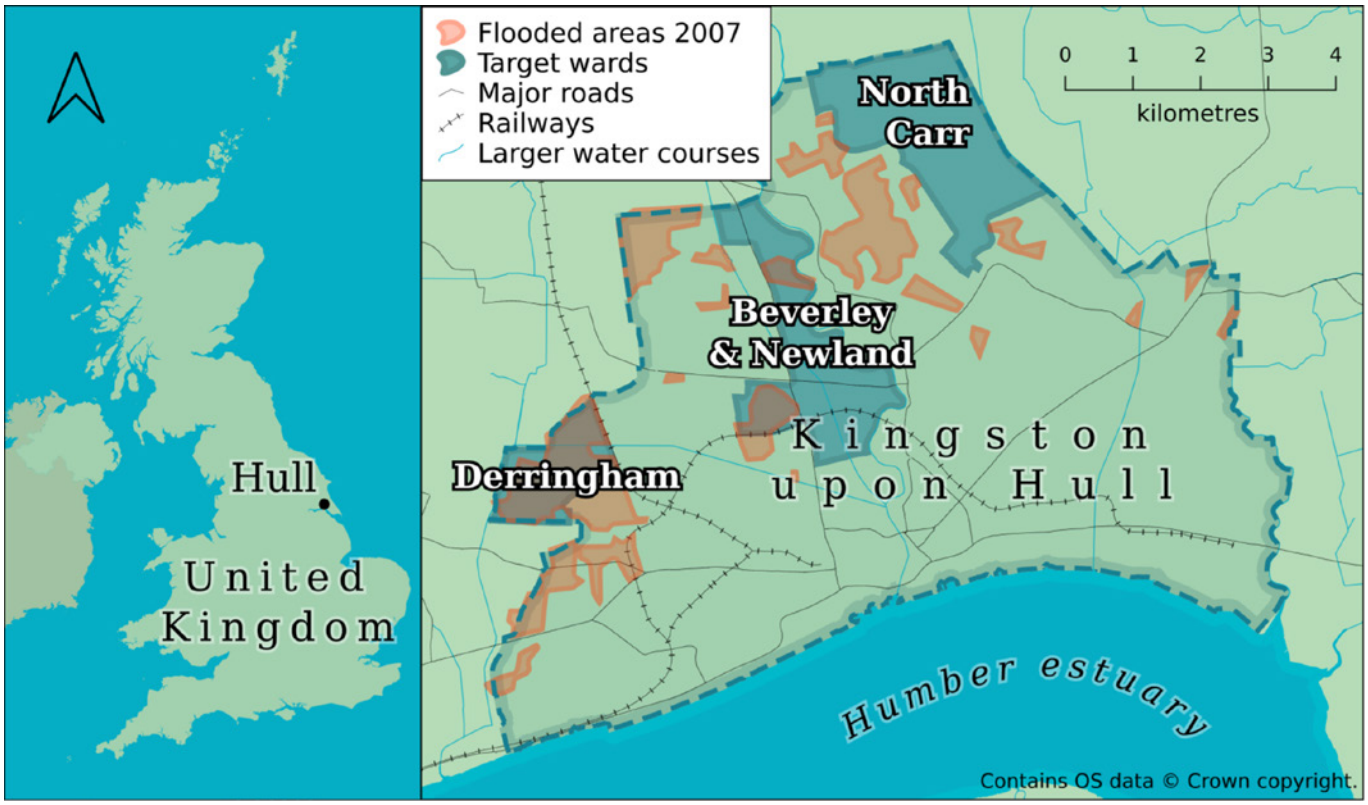
[1] *Further survey work was carried out Haltemprice area of East Riding of Yorkshire over the winter of 2019/ 20.*

Maps of Great Britain and Hull showing areas surveyed



Maps courtesy of Cyrille Médard de Chardon

Background to the target wards

Derringham is in the west of Hull and is home to approximately 12,000 residents – it was particularly badly affected by flooding in 2007 and the most badly affected of the three wards. Beverley & Newland is north of the city centre of Hull and has approximately 17,000 residents. Beverley & Newland is more ethnically diverse than Derringham and North Carr and has a large number of students – it is close to the University of Hull. North Carr is in the north of Hull and has approximately 16,000 residents. North Carr is the most deprived of the three wards and includes the Bransholme Estate (only 2% of wards in England are more deprived). However, there are pockets of deprivation in each of the three council wards, including the Newland area of Beverley & Newland. In 2019, Hull was identified as the 4th most deprived local authority in England and Wales (Hull City Council 2019).

A total of 457 surveys were completed, of which 303 were completed in-person and 154 were online[2]. 346 out of 457 responses were from residents of the target wards: 119 from Beverley & Newland, 169 from Derringham and 62 from North Carr. In-person surveys were conducted by a team of researchers from the University of Hull, who worked through the three target wards on a street-by-street basis. In some cases, respondents requested to be telephoned back to complete their surveys. The survey teams used maps to target flood affected streets in 2007, although other streets within target wards were also visited and not all residents on a flood affected street identified in maps were flooded. The maps for Derringham were the most accurate in identifying flood affected streets. North Carr was the most difficult ward to find flood affected streets and in some cases, residents directed the team to streets in adjacent wards – mainly Kingswood and Sutton.

There was no targeted sampling to ensure a balance between flood affected and non-flood affected households or for demographic characteristics such as age and employment. In addition, the face-to-face survey work was conducted during the day from Monday to Friday, reaching people who were at home at that time. It is therefore important to note that results are not generalisable for the council wards, individual demographic groups or the wider population of Hull. For instance, 31% of our respondents were aged 65 and over, compared to 15% in Hull (Hull City Council 2019). However, the survey reached a similar proportion of economically active people to the level in Hull: 67% of respondents answered they were either employed or self-employed compared to 71% in Hull (Hull City Council 2019). Online access provided an opportunity for other people to answer the survey not reached in-person. Another important factor that could have influenced results is that the survey was conducted after a very dry summer.

[2] Online surveys reached people inside and outside the target wards. Of the 154 online respondents, 30 were from Beverley & Newland (19%), 43 were from Derringham (42%), two were from North Carr (1%) and 79 were from other wards (51%). Online respondents may have a particular interest in flooding: 70% of online respondents were flooded in 2007 compared to 55% of face-to-face respondents. In addition, online respondents were more likely to have attended flood awareness and information events

Survey analysis

The report presents quantitative and qualitative analysis of the overall survey results. Results are also discussed for different groups of respondents: 1) how affected by flooding in 2007[3], 2) demographic groups and 3) council ward. The groups highlighted in the report have been identified by stakeholders as requiring further investigation during the survey process. The numbers of respondents within each group and detailed results are contained in Appendix 3. Council wards identified are: Beverley and Newland, Derringham and North Carr. Demographic groups highlighted include: older people aged 80 and over, people living with disabilities, female respondents, ethnic minority groups [4], owner-occupiers, council tenants and private tenants.There is crossover between groups: for instance, 49% of residents in Beverley in Newland are private tenants, and people aged 80 and over are a subset of people aged 65 and over.

We have also analysed statistical relationships between explanatory variables such as people who were flooded or whose houses were damaged in 2007, and key outcome variables (e.g. concern about flooding). As statistical testing can be complex to report and interpret, the detailed results of the bi-variate analysis are contained in Appendix 4, with the main results considered within the overall analysis.

*[3] Three groups have been created for the analysis in terms of how affected by flooding: **1) Flooded or houses damaged by flooding in 2007 (Flooded/Damaged House); 2) Otherwise affected** (e.g. disrupted by flooding or exposed to flooding but not flooded); and **3) Not affected.** This is in line with research by Waite et al (2017) into the long-term consequences of flooding.*

Respondents were initially asked if they were affected by flooding in 2007. This allowed people not affected in 2007 to skip to the following section of the survey. Respondents were then asked to categorise the impacts of flooding on them: Flooded (property was flooded); Disrupted (homes were not flooded but lives were disrupted by flooding); and Exposed (witnessed effects of flooding, or helped others, but not directly disrupted or flooded).

Respondents were then asked about the impacts of flooding. 151 said that flooding damage their house. However, 11 of these answered that they were disrupted by flooding or exposed to flooding rather than that they were flooded. It is not clear why these respondents did not answer they were flooded but potentially floodwaters did not enter their home at the time of the flood and they were affected by secondary flooding. For instance, one respondent answered that: 'Damage to house was not seen till much later - rising damp'. Reports into the 2007 floods identify that some insurance companies did not define secondary flooding as flooding as the water did not enter the home through the threshold (Whittle et al 2010). Nine of these respondents answered the survey online.

[4] The term ethnic minority has been used instead of BAME and includes white ethnic minority groups such as east Europeans. Please see: https://civilservice.blog.gov.uk/2019/07/08/please-dont-call-me-bame-or-bme/

1. Analysis: The 2007 floods

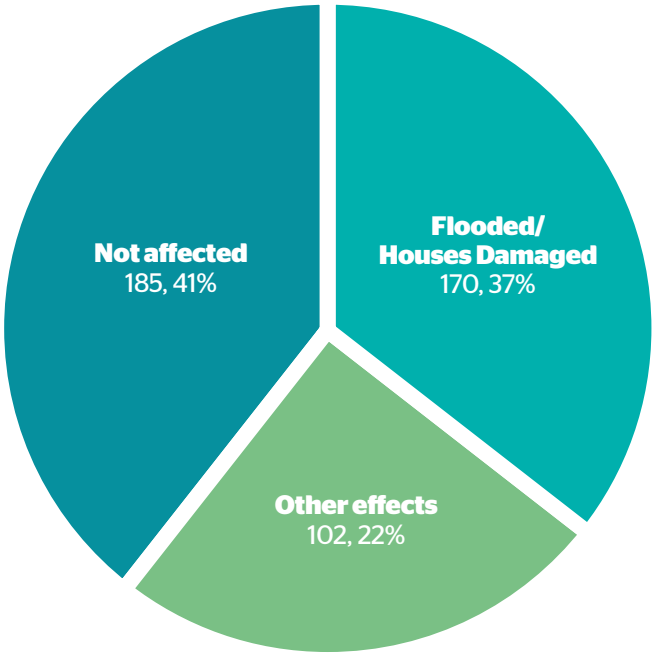
1.1 How respondents were affected by the 2007 floods

The survey reached many people affected by flooding. 37% of respondents (170) said they were flooded or flooding damaged their house. Another 22% (102) were affected by flooding in other ways, including being disrupted by flooding or being exposed to flooding. 41% of respondents were not affected.

Analysis by ward and population groups. Derringham was the most affected council ward: 76% of respondents in Derringham were affected by flooding, and 58% were flooded or suffered damage to the house. In contrast, 24% of respondents in Beverley & Newland were flooded or suffered flood damage to their houses and only 11% of respondents in North Carr.

59% of people aged 80 and over who responded were flooded or their houses were damaged by flooding - the most affected group of respondents. In contrast ethnic minority respondents were among the least affected, with only 14% of respondents flooded or their houses were damaged by flooding – many ethnic minority respondents moved into Hull after 2007.

Figure 1 – How respondents were affected by the 2007 floods



1.1.1
Impacts of the 2007 floods on households

Figure 2 shows the impacts of flooding on respondents, with the most serious impacts to the left. 33% (151) of all respondents answered that flooding damaged their house and 20% (92) people had to evacuate their house. Over 60% (56) of people who evacuated their house moved out of their house for over 6 months, with one never returning (the breakdown of duration of evacuation is shown in Figure 3). 20% of respondents (92 people) answered that flooding affected their health and wellbeing. Disruption of essential travel (25%) and disruption of work (24%) are remembered as the two main areas of disruption. Many people who had a flooded/ damaged house first became aware that their property could be flooded when they saw their garden flooded.

Figure 2 – Analysis of household-level impacts of the 2007 floods

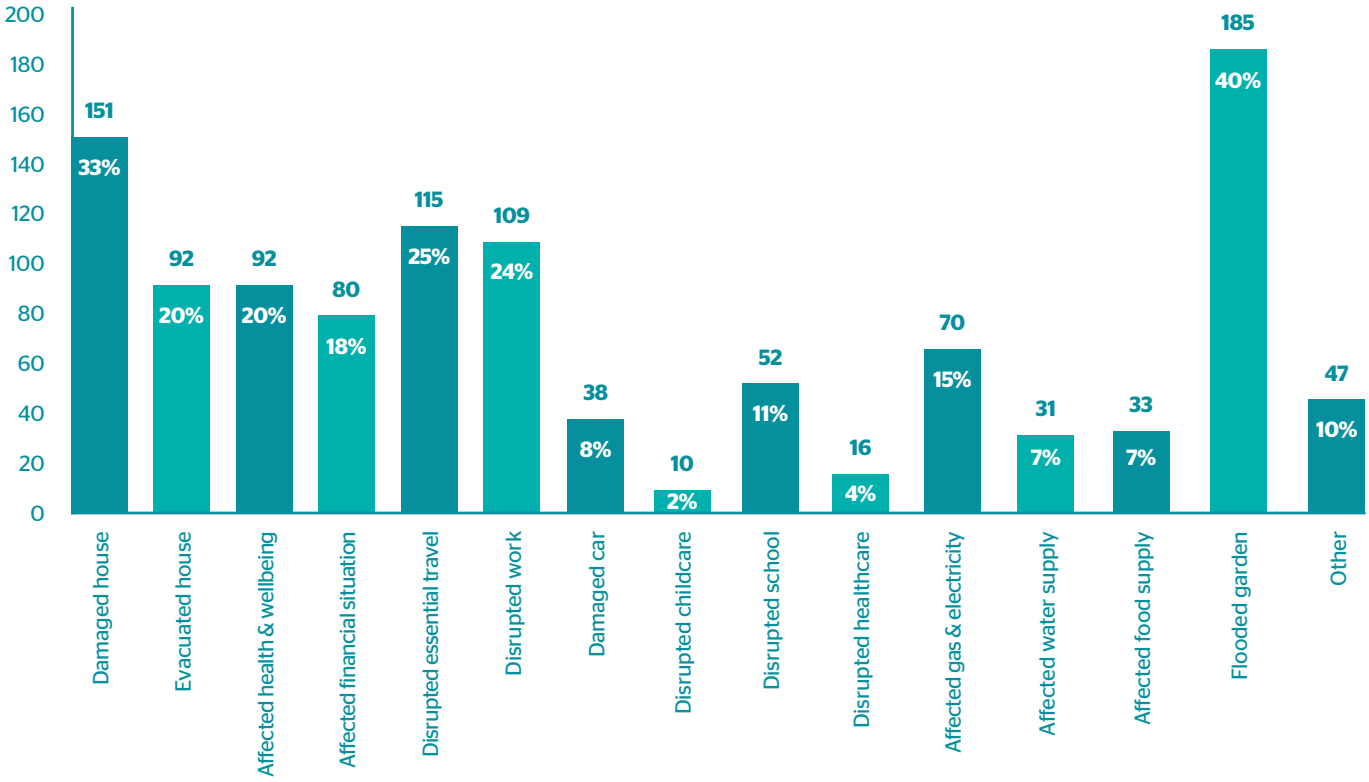
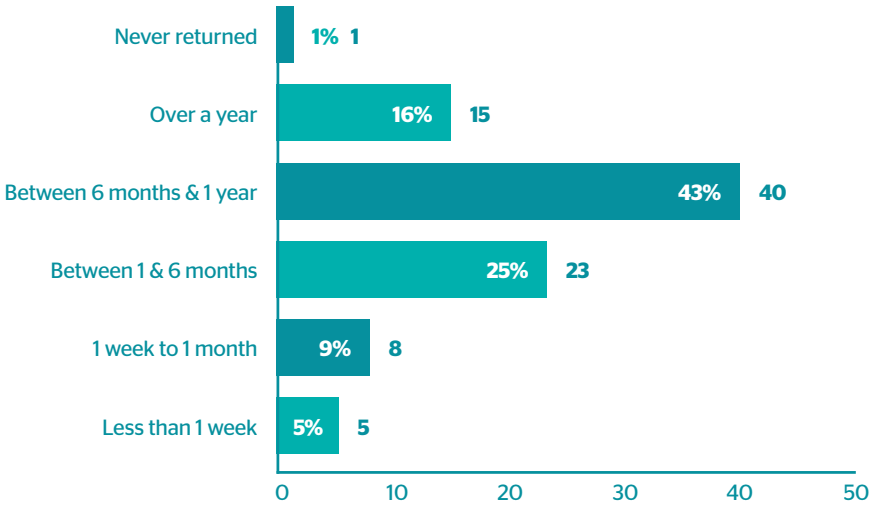


Figure 3 – Duration of evacuation



Analysis by ward and population groups

- Council Wards. Derringham was the most affected ward in all categories and North Carr the least.
- Population groups. Older people aged 80 and over have the highest percentage of respondents whose house was damaged and the highest percentage that also had to evacuate their house and suffered health and wellbeing consequences. All respondents aged 80 and over whose houses were damaged by flooding still lived in their property and 80% of these are owner-occupied. Council tenants and people from ethnic minority backgrounds had comparatively low negative effects.

1.1.2
Impact of 2007 floods on health and wellbeing

92 people answered that they or their family members had suffered health and wellbeing consequences. 75 respondents described how flooding caused mental health impacts and 34 described impacts on physical health. There is considerable crossover in that some people described both impacts on mental health and physical health:

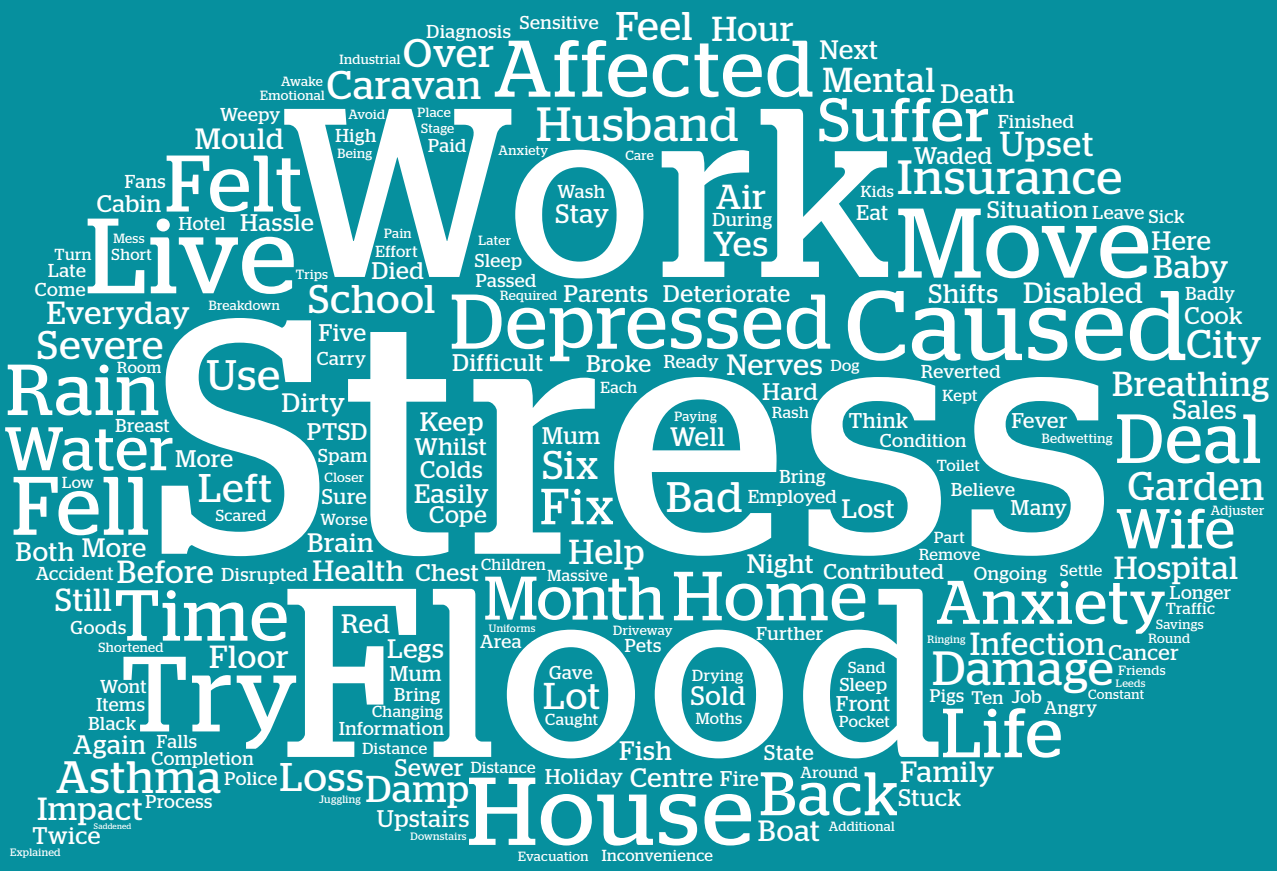
'For a while I lived with severe damp, which affected my breathing. Then I had to move out altogether which was stressful'.

People who were flooded or whose houses were damaged by flooding suffered the most health and wellbeing consequences resonating with research into the consequences of the 2007 and 2013 floods by Pitt (2008), Paranjothy et al (2011) & Jermacane et al (2018):

- 95% of respondents with health and wellbeing consequences were flooded or their houses were damaged by flooding, and 51% of people who were flooded or whose houses were damaged by flooding suffered health and wellbeing consequences.
- 62% of respondents with health and wellbeing consequences had evacuated their house, and 62% of people who evacuated their house suffered health and wellbeing consequences.
- 50% of those who said flooding had impacted on their health and wellbeing also said it affected their financial situation, and 58% of people who had their financial situation affected by flooding suffered health and wellbeing consequences.

The word cloud in Figure 4 shows the key words used in responses and a detailed breakdown of responses is described in more detail below.

Figure 4: Word Cloud - Health and wellbeing impacts



Impacts on mental health:

Stress, anxiety or depression – 70 respondents. Respondents described types of 'stress, anxiety, or depression' with one respondent describing feeling that they had post-traumatic stress disorder. Most were brief in this response, but others offered more information, with some describing severe effects: *'Depression anxiety on going for over ten years'; 'Caused stress and depression, broke up with partner for a short while... stress from floods contributed to this'.* Some referred to pre-existing mental health concerns being exacerbated by the floods: *'Suffered from anxiety and depression before, but flood contributed to a new episode'.*

Five people described the stress caused by having to manage other ongoing health needs and stressful events at the same time as coping with the floods: *'Had anxiety & depression due to diagnosis of breast cancer and death of mum';* '*I was very upset. I made life changing decisions after that. At the same time my house was flooded, lost job, new baby. It was traumatising'.*

Eight respondents explained how problems dealing with insurance companies or builders impacted on their mental health: *'Severe stress camping for six months in a badly damaged home then moving out for six months and dealing with constant hassle from insurance assessors who questioned every stage of the refurbishment'.* The following quote illustrates specific issues with claiming insurance for secondary flooding: *'Stress in having to deal with a loss adjuster who argued with me every step of the way to try to avoid paying for items damaged by the secondary flooding. Eventually I gave up and paid for a lot of things out of my own pocket and this left me upset and with no savings so I was without a fire in my living room for well over a year. I also had to live upstairs in my home for many months as the flooring was up downstairs and fans and dehumidifiers were running constantly. I spent many months angry and tearful'.* Three respondents described financial stresses caused by the floods including the example above.

Six respondents referred to recurring anxieties each time it rains, for example: *'It affected me mentally, each time it rains I get scared'; 'Stress, anxiety, and even today when it rains it won't go away'; 'Was left extremely nervous every time we had heavy rain, in the end I only stayed 6 months after moving back in before I moved from the area'.*

13 respondents described the mental health impacts on family members or stress caused by impacts on family members: *'My 7-year-old reverted back to bedwetting. Moving home, ringing insurance up and trying to be at work at the same time. The stress level for me and my husband was massive'; 'I feel that the stress of the flooding and subsequent damage and evacuation of our home caused my husband, who already suffered ill-health to deteriorate further'; 'My wife couldn't go out. She had a disability. She had cabin fever was stuck in the house and couldn't move'; 'My wife suffered what I would describe as a breakdown'.* One respondent described how they felt the flooding contributed to the death of her husband: *'It was all very stressful. We had sold the house, due for completion the week of the flood. Fell through... Five subsequent sales fell through... I do believe this shortened my husband's life too..... He passed away in 2010'.*

Trying to continue work. Eight people described the challenges of trying to continue in employment at the same time as managing the recovery from flooding (including the respondent above who stated they lost their job). Selected quotes include: *"It was a very stressful time dealing with insurance companies, trying to remove damaged household goods, trying not to let what was happening at home impact on work'; 'Had to work 12-hour shifts at work as well as try to cope with flooding'.* Continuing employment can be considered to have both mental and physical health impacts, such as exhaustion, as underlined in the following quote: *'Stress caused by still having to work, not able to wash nursing uniforms, or carry on with everyday life. Worked night shifts, put up in an hotel in the city centre, very difficult trying to sleep after a nightshift with the city centre traffic, totally exhausted when going back to work the following night'.* One respondent described needing to take sick leave from work: *'Became quite depressed and was on sick leave for 6 weeks or more'.*

Impacts on physical health:

Physical health problems caused by floods - 16 respondents. Twelve described respiratory illnesses including the onset or worsening of breathing/chest-related illnesses resulting from their experiences of flooding, for example: *'For a while I lived with severe damp, which affected my breathing. Then I had to move out altogether which was stressful'; 'During the drying out process the black mould caused breathing problems and affected my sinusitis'; 'Affected asthmatic condition - developed pneumonia while in caravan'*. Two referred to getting infections or rashes from the dirty water: *'Affected nerves. Got infection from dirty flood water'; 'We waded in the flood water to help others who were flooded and the next day, had an angry red rash all over our legs'*. Two reported accidents resulting from the flooding: *'Fell through the floorboards'; 'Slips and falls resulted in trips to hospital'*.

Coping with the impacts of flooding and ongoing physical illnesses or treatment – 17 respondents. Seven people referred to how they were trying to balance the effects of the floods with ongoing physical illnesses: *'I was going through treatment after a Mastectomy'*. Two respondents described difficulties accessing treatment for ongoing health needs for example: *'I was pregnant so it affected being able to get to my appointments due to having to move'*, with another respondent describing difficulties obtaining new cholesterol medication, after leaving some behind when they evacuated from their house. Eight people described how the flooding worsened other physical illnesses or conditions: *'I feel that the stress of the flooding and subsequent damage and evacuation of our home caused my husband, who already suffered ill-health to deteriorate further'; 'He had an accident at work and it's a brain injury. It affected me because it's twice stressful for me. Couldn't cook in, so we had to eat out every day. Lived in the front garden in the caravan until they did the house'*.

Impacts on pets:

Three respondents commented on impacts on their pets including one respondent describing that *'The family dog got ill from the flood water and later died'*.

1.1.3 Disruption caused by the 2007 floods

Disruption of work (24% of respondents) and disruption of essential travel (25% of respondents) are remembered as the two main areas of disruption. However, for those who were flooded or whose houses were damaged: 44% suffered disruption to work and 43% suffered disruption to essential travel. Disruption to work could have compounded financial issues for people who were flooded.

There was less evidence of disruption to schooling and childcare. In terms of schooling the flooding occurred towards the end of term and after exams for many school children and this could have reduced impacts. There is also the possibility that parents recalled the need to provide additional childcare as disrupting their own work rather than disrupting childcare. In terms of demographic groups, owner-occupiers had among the highest levels of disruption to work and essential travel. In terms of council wards, residents from Derringham suffered the most disruption.

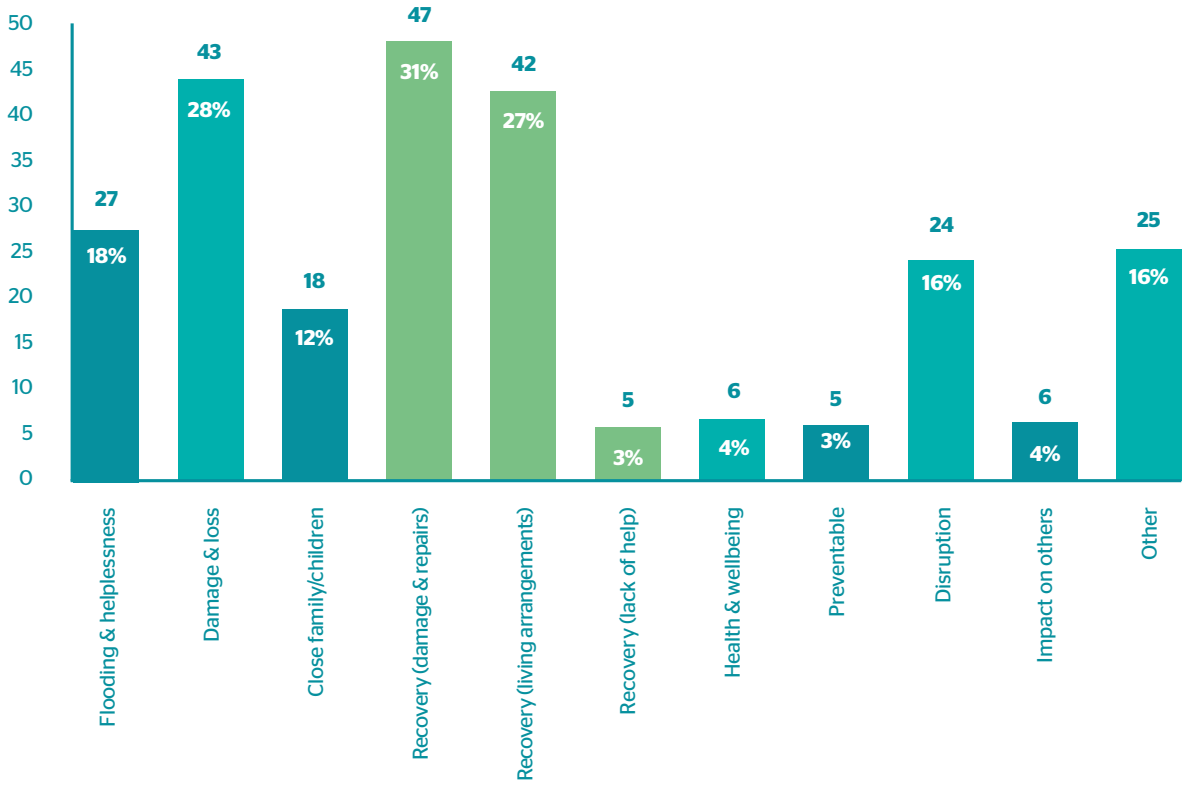
1.1.4 What was the worst part of the 2007 floods?

Respondents were asked to describe the worst part of the 2007 floods and 240 respondents answered this question. 154 respondents were flooded or suffered damage to their house - Figure 5 shows their responses grouped into main categories and examples of illustrative quotes are contained below. However, some responses include multiple issues, for example:

'The destruction of things in your house that you care about. The isolation. You couldn't do what you normally did. Your carpets you chose carefully were damaged without repair. Seeing the water day after day and wondering when it's going to go away. Looking at the sky and dreading it coming back.'

Responses related to different aspects of recovery are highlighted in Green.

Figure 5 – The worst parts of the 2007 floods



The different categories are explored in more detail below, supported by quotes from respondents.

- Flooding in the house including helplessness, seeing water enter the house, and secondary flooding - 27 responses. Responses included: *'Feeling helpless as it happened. Having no control over what was happening and just seeing all the things you worked hard to achieve just absolutely devastated'; 'Lack of warning and feeling of helplessness'; 'Not being able to do anything about the rising flood water on the street as it came into the house'; 'Seeing water rise inside my house and not being able to do anything about it'.*

Four people specifically mentioned not realising they had been flooded or suffering from secondary flooding: *'From a personal point of view I did not realise at the time I was affected but later found out that I had been flooded under the floorboards and had extensive damp problems'; 'Not knowing - the real damage to the house came in 2008'.*

- Devastation and destruction, loss of personal possessions and associated memories that have been built up over time – 43 responses which included: *'Home and memories destroyed'; 'Losing personal possessions you can never replace'; 'Seeing everything we had worked and saved for being destroyed and disposed of'; 'Seeing my childhood home damaged'.*

- 18 respondents described impacts on family and children as the worst aspect. There were safety concerns for children: *'My 5-year-old grand-daughter was left alone outside school'; 'Fear of what might happen and if children would get home safely'.* Many described the impact on children and other family members: *'The sheer disruption and upset of my children ages 7, 6, 3 and a 10-week premature baby we basically lost everything downstairs including all their toys'; 'Seeing wife and children upset, crying and having to move out, then having to deal with poor builders'.* Other respondents described the impacts on their parents: *'Seeing the emotional devastation my parents faced when their home flooded. They were elderly at the time and had no support other than me';* with one respondent describing how witnessing the impacts on parents was worrying as a child: *'It was scary to see .... my parents panic'.*

- Recovery including upheaval, time taken and problems with insurers and builders – 47 respondents: *'Disruptive, took weeks for the house to be sorted out - Environmental Health had to get involved'; 'That it took almost a year to get the property sorted out'; 'The long period waiting for the waters to recede and the equally long drying period when my house was an empty shell'.* A number of people referred to having problems with insurance firms/loss adjusters or struggling with tradespeople and builders, including the following examples: *'My husband and I are both pensioners and as our children live in other parts of the country we had no one to help us move out and we found it very stressful dealing with the insurance company'; 'Horrendous – we couldn't salvage much in the property. The insurance company was very slow, the loss adjustor couldn't cope with workload'; 'Getting the damage fixed. The builders put in a quote to the insurers and then make every effort to do the work as cheaply as possible to make more profit'; 'Being robbed by the work men supposedly fixing our house'.* Three people referred to having no insurance.
- Recovery and living arrangements – 42 responses: *'Having to leave the house, we didn't know what we were coming back to'; 'Having to move out of house. Difficult to rent a place for 5 - 6 months. People lived in caravans and I didn't want that'. 'Having to move out whilst pregnant to the other side of the city but then have to keep coming backwards and forwards to see the builders and check on our possessions. The whole thing was a big shock and very disruptive to our lives. Our baby was born whilst living in our temporary house which was odd because I had envisaged that we would be back home by then but the work took longer than expected'.*

A number described moving into caravans as the worst element *'Having to live away from my home initially and then living in a caravan on the driveway'; 'Having to live in caravan - having house destroyed after it had just been refurbished'.* In addition, people described living in a caravan over winter or bringing up children in a caravan as very difficult: *'Living in a cold caravan over winter, and trying to support two teenage children through school'.*

Others referred to continuing to live in a flood damaged house during repairs: *'Wish we moved out, but worried about looting'; 'Living upstairs for nearly 3 months while our home dried out and was repaired'; 'Living upstairs while the full ground floor was stripped out including the flooring and joists. Basically a cold damp building site'.*

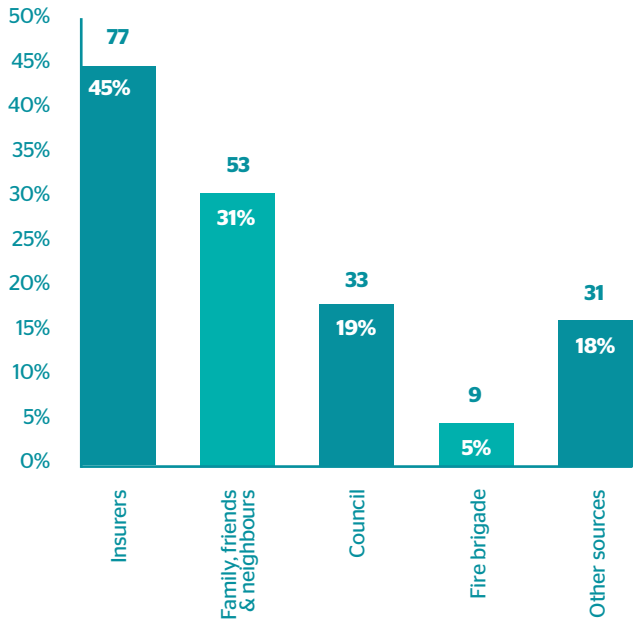
- Five respondents referred to having little or no help during the floods or in the recovery phase: *'Our house was damaged and it took a long time to recover from this, receiving little to no help caused more frustration'.*
- Six respondents described health and wellbeing impacts including: *'Psychological impact. It took 10 years before I was able to hear the rain on my roof and not be scared. I instantly thought there would be another flood'; 'Probably the mental health effects of what happened'.*
- Five people specifically described feeling it could have been prevented and being let down by flood risk-management agencies (the council, Yorkshire Water and the Environment Agency): *'Poor maintenance caused the floods'; 'On reflection, the fact that it could have been prevented. I worked for the Hull City Council at the time. It was all down to the drains and they were neglected for years and years'; 'Having the knowledge the flooding was mainly due to lack of maintenance of drains etc, the tragic loss of life and the difficulty in now obtaining flood cover insurance for property'.*
- 24 respondents described overwhelming disruption including trying to manage multiple tasks such as dealing with flooding, repairing the house, looking after children, impacts on work, getting to and from the house in the flood waters impacting on work and essential travel and also damage to cars. Examples include: *'General disruption to life: Leaving house and organising building work; Organising care for pets; Dealing with insurers'; 'Trying to lead a normal life [and] continuing to work long shifts in the NHS'; 'My grandmas funeral took place on the day after the flood but couldn't get to Willerby initially as road was flooded but a kind policeman took us up on the wrong side of the carriageway so I could get to the funeral as I was distraught.'*
- Impacts on others including neighbours, the local community and the death of the young man from west Hull in nearby Hessle – 6 responses: *'The nights. The streetlights. It was like a horror film. The sewer. The lad who lost his leg and life'; 'Seeing the devastation left behind and neighbours' distress'; 'Split our community up'.*
- There were 25 'other' responses which included everything about the flooding, the smell of the dirty water, not being able to move house, not being able to get insurance, and fear flooding would happen again (which also links to health and wellbeing impacts): *'Everything was terrible'; 'The increase in insurance which has never abated'; 'The fear that I might never be able to move as people would not want to move to the area anymore'.*

1.1.5 Flood warnings

Only 7% of people affected by flooding said that they received a flood warning before the floods and this was through different sources including from weather forecasts on TV or family and friends. However, only three respondents said that this flood warning was useful, with one moving items upstairs. No flood warnings were issued by the EA in 2007.

1.2
Help received for people flooded or whose houses were damaged by flooding

59% of people who were flooded or whose houses were damaged received help, compared to 11% of people who suffered other effects. This indicates that in general help was targeted. The sources of help for people flooded or whose houses were damaged by flooding are shown in Figure 6 below. The main source of help was from insurers and 45% of people who were flooded or houses were damaged by flooding received help from insurers. However, given the problems some people had in recovery, obtaining payments from insurance may not be considered help by all respondents. 'Other sources of help' combines answers for the Police, NHS, Ambulance, EA and/or YW or more localised help including sheltered housing wardens.



Analysis by ward and population groups. Council wards. 62% of respondents from Derringham who were flooded or whose houses were damaged by flooding received help compared to 48% of residents in Beverley and Newland and 43% of residents from North Carr.

Population groups. 75% of council tenants, 66% of people aged 65 and over and 65% of people aged 80 and over received help. This is compared to only 48% of private tenants who were flooded or whose houses were damaged by flooding.

Analysis of each of the main sources of help for those flooded or whose houses were damaged by flooding:

- Help from insurers. 58% of respondents aged 65 and over received help from their insurers, 52% of respondents in Derringham and 51% of owner-occupiers. A below-average proportion of disabled respondents, residents from Beverley and Newland and North Carr, council and private tenants, and no respondents from ethnic minority backgrounds received help from insurers.
- Family, Friend and Neighbours. 38% of female respondents, people aged 65 and over and council tenants received help from family, friends and neighbours, compared to only 10% of residents of Beverley and Newland and no one from ethnic minority backgrounds.
- The council. Owner-occupiers, respondents aged 65 and over, and residents in Derringham had the lowest percentage of people helped by the council. Respondents from ethnic minority backgrounds, council tenants, private tenants and respondents from Beverley & Newland had higher levels of help from the council.
- Fire Brigade (Humberside Fire and Rescue). Five people in Derringham said they received help from the Fire Brigade, in contrast to no respondents from Beverley and Newland or North Carr. This suggests targeting of Derringham which suffered extensive flooding.

1.2.1
The most effective help you received

100 respondents described the most effective help they received:

- 41 said that their insurance company provided them with the most effective help and this was the most frequent answer. This contrasts with the number of people who said dealing with insurers was the worst part of the flood, indicating very mixed experiences. Responses included: *'The insurance company could not have done more to compensate.... Even re-assessed their first offer which was inadequate.'; 'They paid for the building work and temporary accommodation. About £50,000'; 'Insurers were brilliant and tried to deal with things as quickly as possible. Although we had a total of three different contractors before as the first two contractors were not reliable/efficient'*. However, there were also negative comments about insurance companies in two answers: *'Insurance came through but not easy dealing with inexperienced assessors'* whilst another also mentioned that since the flooding their insurance *'Premiums went up by 40%'* and they are not now insured.

- 19 respondents answered that Family, Friends or Neighbours provided the most effective help. Some did not elaborate, but those that did mainly explained that relatives (typically parents or children) had helped by providing general 'support' and 'assistance'. Some respondents were more specific and described that family members provided essential help in terms of accommodation, childcare and repairs: *'Just through our home insurance. They started repairing the house as soon as they could. So we stayed with family'; 'My sons coming to help us pull up the carpets'; 'Family checking up on works – [builders] were not doing a great job'.* Eight described support from friends, with a focus on helping with living arrangements after the flood and in some cases providing accommodation: '*Being able to move in with friends, as the only other option we were offered, was a caravan on the field behind my house'; 'My children staying with friends'; 'During repairs to our property after secondary flooding I was able to work from a friend's home'.* The three who listed neighbours in their response referred to them 'helping': *'Neighbours helped to move stuff upstairs'.*
- 10 respondents said that the council provided the most effective help, including financial help, helping remove damaged goods, or providing sandbags: *'Council helped financially, providing me a payment as I didn't have insurance'; 'From the council, the skip they offered and asked how they could help'; 'the council removed all the damaged goods'.*
- Assistance from Humberside Fire and Rescue (the Fire Brigade) was reported by seven respondents: *'Fire Brigade helping to evacuate our elderly mother-in-law'.* Faith-based organisations, and a local vicar, were mentioned by two respondents for providing help and advice and accommodating people in their own home.

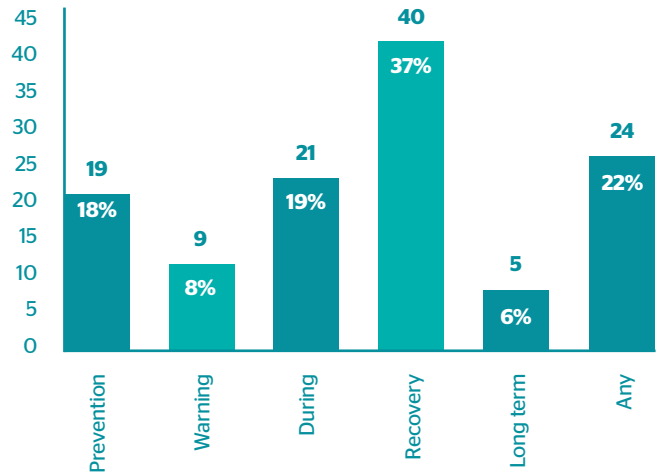
1.2.2 Did flood affected residents feel they should have had more help

189 people answered this open question. 81 (43%) felt that there was nothing more that organisations could have done for them, with many answering that there were others that needed more help: *'No as there were others in worse situations'.*

108 (57%) that felt there should have been more help. This includes 49% of people who were flooded or whose houses were damaged by flooding and 24% of people who suffered other effects.

The need for more help was described in the following categories: prevention (such as maintain drainage systems), providing flood warnings, providing help during the floods (such as sandbags or closing roads to 4x4 vehicles), providing help during the recovery process (such as help to deal with insurers and builders), and long-term help including to protect properties and to reduce insurance costs. The number of responses per category is shown in Figure 7 below. Needing more help during recovery was the most common answer, followed by any help and then help during the flooding to reduce the impacts.

Figure 7 – Areas where respondents felt more help was required



Box 1 - Helping people with recovery

The high number of people describing different aspects of recovery as the worst aspect and wanting more help with recovery resonates with the findings of the Hull Flood Project which highlighted a 'recovery gap'. The recovery gap is described as the period after official agency flood responses were finished and residents had to deal with issues on their own (Whittle et al 2010, Medd et al 2015). Analysis of the survey also identifies that 51% of respondents who identified different aspects of recovery as the worst aspect also reported having health and wellbeing impacts from the floods.

Living with Water should consider supporting people who are flooded through the recovery phase. This support could include advice to help people deal with insurers and builders; healthcare options such as counselling services; support with children and childcare; and help securing appropriate accommodation.

The long-term health and wellbeing impacts of flooding emphasise the importance of access to appropriate healthcare during recovery. Public Health England (2017) published 'The English National Study for Flooding and Health: First year report - Briefing for policy makers and practitioners' based on research into the health and wellbeing effects of the 2013/14 floods. The briefing contains a series of recommendations for health providers on pages 7 and 8.

LWW will need to work with health agencies in Hull to assess whether they are able to provide healthcare in the event of a flood in line with this guidance, and this can be coordinated with the council's Public Health Team. For example, during the Covid-19 outbreak, Hull established an Outbreak Management Group which includes the Director of Public Health and involves health providers from the NHS and the Charity and Voluntary Sector. Stakeholders involved in the Outbreak Management Group have suggested this would be a good model to follow to provide health support in the event of a flood.

Responsibility for providing more help:

43 answered that the council should have provided more help including maintaining drainage before the floods, helping vulnerable people during the floods, and helping people to recover:

'Dad is older and lucky he had family. Felt more people from the council could have checked on older people. There used to be more wardens'.

A number of respondents brought a combination of agencies and actions into their response. For instance, one respondent focused on prevention and replied that *'Yes we should have received more help such as the drains being cleared on a regular basis whether this be the council or the water company or the drains be upgraded to handle the quantity of water from the floods. Also the flood plains that were to be used in this scenario are no longer available as they have had homes built on them'.* Another respondent also focused on prevention and wanted *'Yorkshire Water to maintain water pumps at Bransholme and also Hull City Council to clean drains more frequently'.* 11 people specifically answered that they felt Yorkshire Water should have managed the sewer system better.

16 respondents identified that they needed more help from insurance companies such as dealing fairly and efficiently with claims, including where respondents suffered secondary flooding. For example:

'Insurance company should have provided more timely assistance. The response from the insurance company affected the rate at which we could purchase material and return to our property'.

Of the nine respondents that felt that should have been flood warnings before the 2007 floods, only one identified that the Environment Agency was responsible (the other eight did not identify responsibility). There were also a wide range of 'other' answers including that: charities and churches should have checked on and helped vulnerable and older people; non-essential vehicles should have been prevented from driving on flood affected roads; help finding accommodation; and more advice on good quality builders.

1.3 Helping others during the 2007 floods

32% of respondents (147) helped other people during the 2007 floods. Examples include helping people as part of their role at work, helping family such as by providing accommodation or child-care, helping neighbours such as shopping for people with limited mobility.

1.4
Positive effects of the floods

This was an uncomfortable question to ask but was included to understand whether people had been able to use the flooding in a positive way such as to make improvements to their home. 32 respondents felt that the floods helped bring their community or neighbours closer together; 31 respondents said they used the opportunity and insurance payments to improve their house (e.g. new furniture, kitchen, flooring, up-to-date electrics). Seven respondents referred to city-wide flood measures including flood alleviation schemes and better clearing of drains, and six said they had better flood planning and awareness including one who had checked the flood risk of a new property. Two respondents mentioned that insurance payments allowed them to leave Hull for short holidays, one mentioned increased business opportunities, and one mentioned better political awareness of the needs of Hull.

1.5
Plans or preparations in place before 2007 floods

All respondents were asked if they had any plans in place before the 2007 floods. Only 15 (3% of respondents) answered they had some kind of plans in place before the 2007 floods. Seven were residents in Derringham, five in Beverley and Newland, one North Carr and two in other wards. Responses included six longer term projects including a damp course, raising shelves and furniture, improved drainage in the garden and gardening projects. For instance, one respondent reported that: *'Because water was slow to drain away in the ten-foot following heavy rainfall, we raised shelves and cupboards'.* One respondent indicated they had made sure insurance was in place. Five had made more last-minute preparations such as using or making sandbags: *'We used all our spare bedding to make sandbags from a tonne of sand I bought to do some building work'.* Three of the 15 respondents did not describe what they had done.

The results therefore suggest that many of the 15 respondents made plans because they felt vulnerable to flooding: 12 of these respondents were affected by flooding including seven who were flooded or whose houses were damaged. Respondents did not identify if they thought the plans or preparations reduced the impacts of flooding (although this was part of the question).

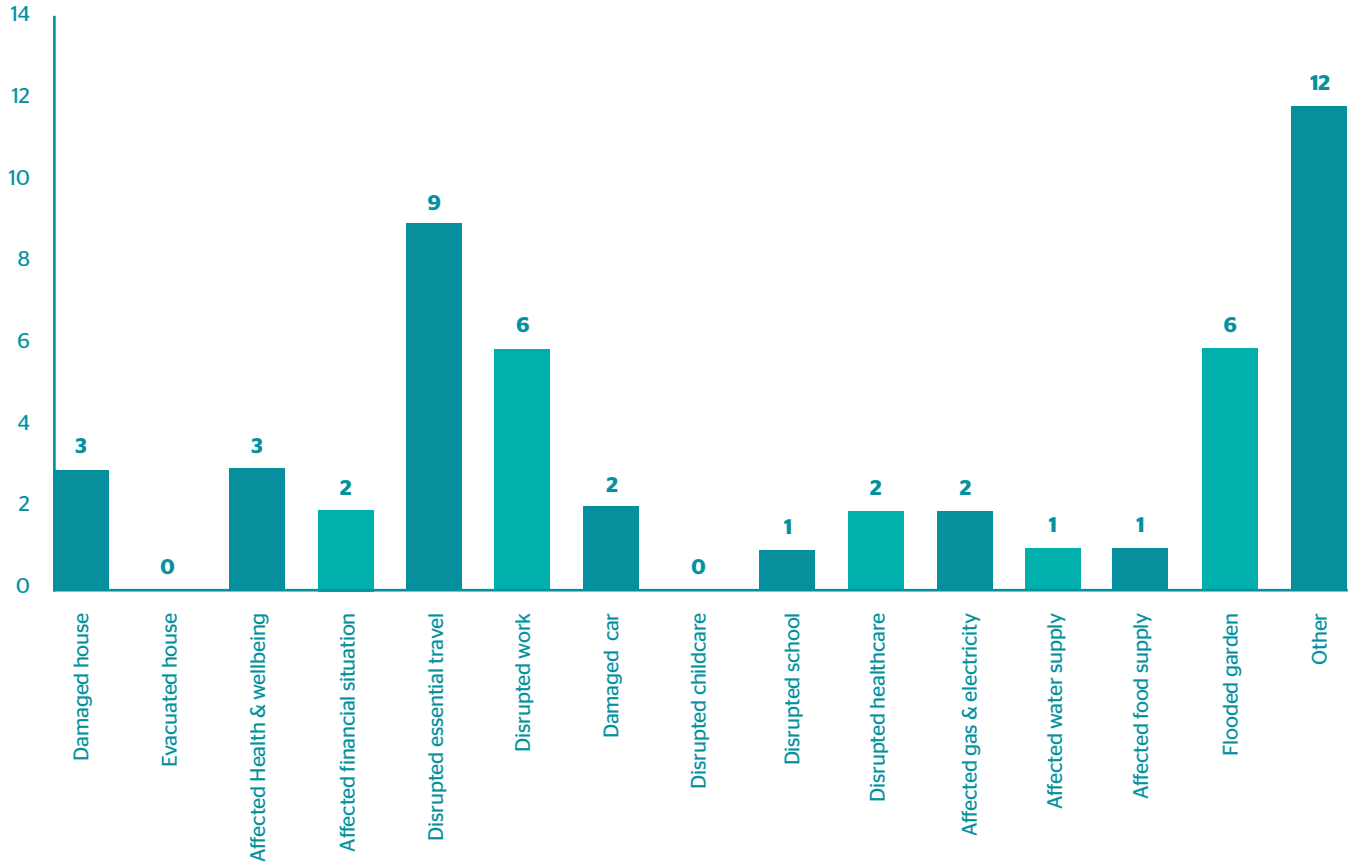
2. Analysis: The 2013 floods

Few people questioned (34 or 8% of all respondents) were affected by the floods in the winter of 2013 – the target wards chosen were largely unaffected as they are not adjacent to the Humber estuary.

Of the 34 respondents affected by flooding in 2013, 27 were also affected by 2007 floods with 13 suffering flooding or their houses were damaged by flooding in 2007.

Figure 8 shows the different types of impacts for the 34 respondents. Disrupted essential travel, disrupted work and flooded gardens were the most common impacts. 'Other' effects included being scared and ready to evacuate, helping relatives, or witnessing flooding.

Figure 8 – Effects of 2013 floods on respondents



2.1.1 Serious impacts of the 2013 floods

Three respondents' houses were damaged by flooding, but no one evacuated their house. One other respondent reported being flooded in 2013, and although their house was not damaged, they suffered from a range of other impacts including flooded garage, damaged car, disruption and health and wellbeing consequences.

All four of these respondents were also flooded or their houses were damaged in 2007. Comparing the impacts of flooding, two respondents said the effects were worse in 2013 than in 2007, with the other two respondents describing smaller effects.

Impact of the 2013 floods on health and wellbeing

Three of the 34 affected respondents described suffering health and wellbeing consequences, with two of these being flooded or their houses were damaged by flooding. All three respondents described mental health issues including stress and anxiety. The two respondents who were flooded or their houses were damaged by flooding both describe consequences of stress with one describing impacts on their family and the other also describing physical health consequences

'There were more falls and they were more severe. Caused trauma and incredible stress'

'The entire family suffered mentally, anxiety and stress. Stress is a silent killer as everyone knows'.

What was the worst part of the 2013 floods?

22 people described the worst part of the 2013 floods from their perspective. There were a wide range of different answers relating to being disrupted by flooding, being unsure what will happen, bringing back memories, and seeing the effects on others.

As expected, the most severe effects were described by people who were flooded or whose houses were damaged: *'The speed that the property flooded – it went from being OK to being totally not OK within 4 hours'; 'The inconvenience, doing it all again. Not being insured this time around'.* The latter quote indicates how the respondent had been insured in 2007 but was not insured in 2013.

2.1.2 Flood warnings and help in the 2013 floods

Flood warnings: 12 (35%) of the 34 respondents affected by flooding in 2013 said that they received a flood warning. It is reported that the EA issued a flood warning in 2013 as the flooding was caused by a tidal surge in contrast to the surface water flooding in 2007. Eight respondents felt the flood warning was useful.

Two of the four people who were flooded or whose house was damaged by flooding said that they received a flood warning. However, one warning was from a weather forecast and it is not clear whether the other flood warning was from the Environment Agency or from work. The EA flood warning was issued at approximately 19:00 - at the time the tidal surge hit the city. However, this respondent described receiving the warning: *'Yes, 2 a.m. in the morning I received a flood warning on my phone. I was able to get to work and I was the key holder for that day'.* This respondent also described how the flood warning was useful, although the answer was focused on being able to help at work rather than reducing impacts at home.

Help received: Only one respondent said they received any help during the 2013 floods and that was from the Fire and Rescue Service. However, none of the four respondents who were flooded or houses were damaged received any help. Five people felt there should have been more help including clearing drains and providing sandbags. Another respondent raised the need to help provide transport to flood affected areas (e.g. to supply food, check on people), otherwise people had to use their own vehicles which can add to problems. One of the people whose house was damaged by flooding felt they should receive more help, although this was focused on help to obtain essential supplies: *'Yes as transport failed us meaning we had to hire a 4x4 to complete food runs for neighbours'.*

Helping others: Five respondents said they helped other people: four people helped friends, family or neighbours, and one respondent helped others through work. Help included providing transport for essential travel, shopping, and providing accommodation.

2.1.3 Positive effects of the 2013 floods

Three respondents described positive benefits: one respondent described improved city-wide flood protection measures, one described a stronger community, and one described a financial gain through insurance.

3. Analysis: Concerns and Knowledge about flooding

All respondents were asked about what they think about flooding now[5].

3.1 How concerned are you about floods?

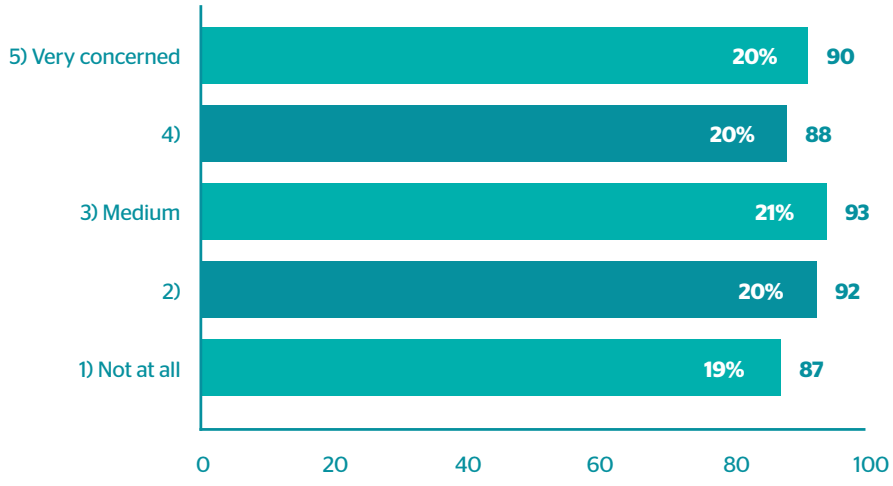
Respondents rated their concern about flooding on a scale of one to five: one is not at all concerned and five is very concerned. There was a very even spread of answers as shown in Figure 9 below. However, 40% of people answered that they were in the two most concerned categories, with 20% saying they were very concerned.

Analysis by council ward and population groups

People who were flooded or whose houses were damaged by flooding in 2007 had high levels of concern, particularly owner-occupiers; followed by people vulnerable to groundwater flooding. In contrast, 38% of respondents aged 80 and over were not at all concerned. In terms of council wards residents in Derringham had the most concern and residents of North Carr the least.

Figure 9 – Concern about flooding

Residents were asked to assess their concern on a scale from Not at all (1) to Very concerned (5)



Respondents were then asked to explain their answer in more detail. For instance, one respondent described how:

'Now some time has passed I don't feel so worried every time there is heavy rain fall. It does help to know that there have been flood alleviation schemes in the area but it still bothers me that it could happen again but family reassure me that it is a once in a lifetime thing as it has never happened before'.

[5] *The analysis of population groups in this section has also been expanded to include: respondents not affected in 2007; owner-occupiers flooded or damaged house in 2007 and people who feel vulnerable to groundwater flooding.*

Analysis of responses

Not concerned (Category 1) - 87 respondents. The main response was living in low-risk areas and not previously being flooded. Other responses included that flood alleviation projects had made people feel safer, that flooding would not happen again on the same scale – 2007 was considered a freak event, and also being able to get through it if it happened again.

- 26 respondents described how they lived in low-risk areas such as on higher ground or based on checking their flood risk: *'Did flood check before buying house. House was said to have a low risk'; 'Received information from insurance company that the chance of it flooding are once in 200 years'.* A further 15 mentioned having not been previously flooded.
- 13 referred to flood alleviation projects that they felt made future flooding less likely: *'There is a lot of work being done. I am confident in the work being done'; 'Yorkshire Water has improved pumping stations'; 'Don't think it will happen again. Have done drains and dyke since then'; 'I think like there are measures against it. So I don't think it will happen again'.* In addition, one respondent described how local actions had reduced risk: *'There have been attempts to build out on the back fields but outrage as a flood plain. 2017 new farmer took over and is regularly clearing and dredging drain now and is planting to reduce ground water'.*
- Seven referred to not being able to personally prevent future flooding as a reason not to worry: *'If it happens, it happens - one of those things'; 'I am not concerned because I can't do anything about the floods'; 'Because there is nothing you can do about it'.* Two mentioned being able to cope as a reason not to be overly concerned, with one having previously been flooded: *'Been there and can do it'.*
- Three felt that flooding on this scale would not happen again and the 2007 floods was a freak event: *'Think it's less likely for the 2007 floods to happen to same extent again'; 'No point in being concerned was a freak event'.*

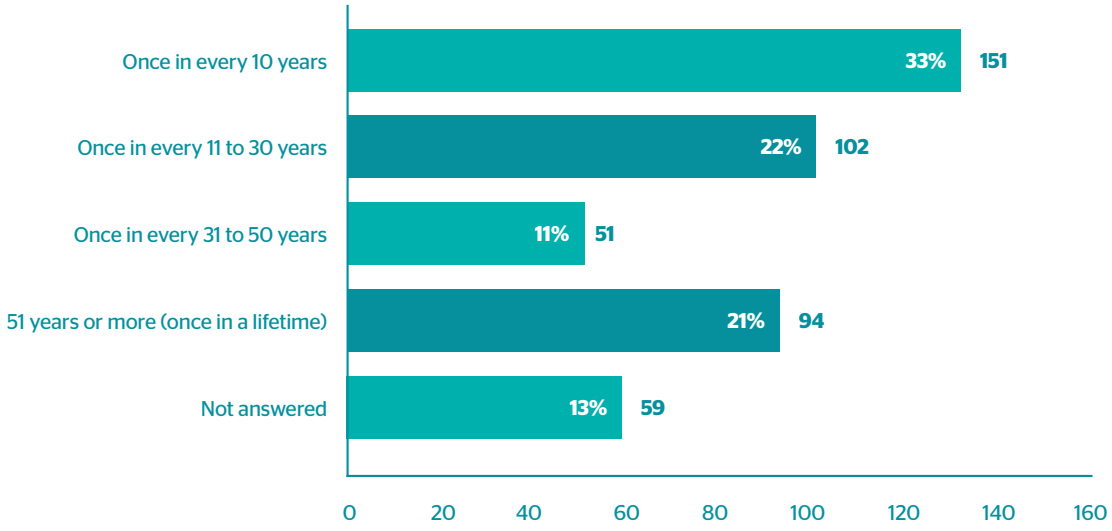
Very Concerned (Category 5) - 90 (20%) respondents. There was crossover between answers especially around being flooded in 2007 and not wanting to experience flooding again, fear of heavy rains, whether the drainage system would cope with a similar deluge, and questions over the effectiveness of the flood alleviation projects.

- 53 respondents said that they are scared or panic about the prospect of the floods returning. Some doubted if they could they cope again. There is a fear of repeat floods every time it rains heavily and feeling helpless: *'Every time this happens I get worried. I don't think sandbags would help. Good drainage would help. I called at least 5 times and emailed before they [City Council] came'; 'It causes such devastation with your home, family, finances and mental health wellbeing. It messes you up'; 'Knowing the area flooded, and would hate to experience it again'; 'Panic every time it rains'.*
- 11 respondents expressed concerns about flood risk in their specific location e.g. if it was in a previously flooded area or if it was located near water such as a river or drain: *'I live in an area susceptible and at high risk of severe and repeated flooding'; 'I live by the river and is an area of concern for the insurers'; 'Living so close to the drain which runs right behind the house and seeing the water rise during 2007'.*
- Insufficient flood protection measures: 15 respondents believed that the measures taken by different agencies were not sufficient or had not been suitably maintained to protect them properly. Within these comments, there is cynicism and distrust of agencies: *'Not convinced measures in place to prevent/cope'; 'Not sure if flood prevention measures being put in place will be effective'; 'The council ...don't bother maintaining the drains and keeping them clear'; 'Concerned that there would be a flood again and that the City Council wouldn't put measures in place'; 'When we rely on pumps to remove all grey and storm water we are playing Russian roulette'.*
- The other respondents had a variety of concerns, including fears about a general lack of awareness and fears of the impacts of new buildings impacting upon drainage, including building on existing green-spaces. Three respondents placed the problem globally, with reference to global warming as a cause.

3.2
How often do you think there could be flooding that could damage your house?

The highest proportion of respondents (33%) felt there could be flooding once in every 10 years, with 22% feeling there could be flooding every 11 to 30 years. This means that over half respondents (55%) felt that flooding could occur once or more every 30 years.

Figure 10 – How often respondents felt there could be flooding that could damage your house



Analysis by council ward and population groups

67% of respondents in Beverley and Newland think that flooding could happen again in the next 30 years in comparison to 51% of respondents in Derringham and 46% of respondents in North Carr.

64% of people vulnerable to groundwater flooding think flooding could happen again in the next 30 years. In contrast, many older people aged 80 and over did not think flooding would happen again in their life-time (44%) or did not answer the question (32%)[6]. A comparatively low percentage (26%) of people who were previously flooded or whose houses were damaged by flooding felt that flooding could happen again in the next 10 years, compared to 39% of people who suffered other effects or 36% of people not affected in 2007.

Box 2 – Why do people most affected by flooding feel that flooding won't happen again for a number of years?

Despite having higher levels of concern about flooding, a comparatively low proportion of people most affected by flooding (including residents of Derringham) feel that flooding could happen again in the next 10 years – compared with other groups such as residents of Beverley and Newland and private tenants. We did not ask for reasons for answers to this question, but explanations could include having a personal historical perspective of flooding and considering it to be a 'one-off' event'. Later questions reveal that respondents most affected by flooding also have higher levels of implementing household flood resilience measures and higher knowledge of city-wide flood alleviation projects e.g. respondents in Derringham live closer to flood alleviation projects (WADFAS) compared to residents of Beverley and Newland.

[6] There was an issue with this question – the survey did not include a 'never again' or a 'don't know' option. Therefore, all responses including blank responses are included in this analysis.

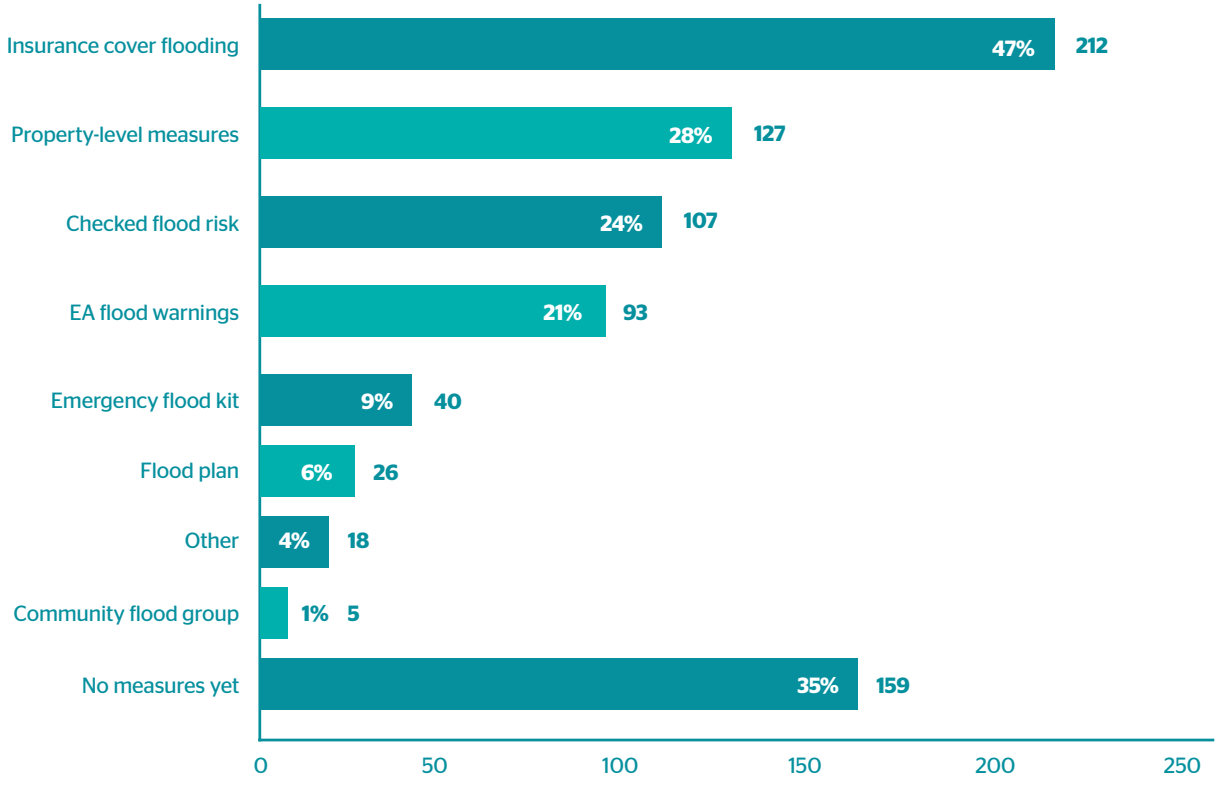
3.3
Householder measures to improve flood preparedness

65% of respondents have taken a measure to improve their flood preparedness, 42% had taken one or two measures and 23% three or more measures. These results also mean that 35% of respondents had taken no measures.

47% had made sure their insurance covered flooding; 28% had implemented property-level flood protection measures; 24% had checked their flood risk (including when moving to a new house); and 21% said they had signed up to EA flood warnings. This question did not ask how people checked their flood risk so responses include both formal and informal mechanisms: formal mechanisms could include checking on the EA website and informal mechanisms would include checking with friends and neighbours.

Only 9% had put together an emergency flood kit and only 6% had prepared a flood plan – potentially reflecting lack of knowledge on what a flood kit or flood plan should include. 'Other' measures included: six respondents had helped in the community including clearing drains, raising awareness or protecting community greenspace; three people had moved to a new house after being flooded and one respondent describing changing behaviour and reducing waste disposal in drains.

Figure 11 – Measures taken to increase flood preparedness



Analysis by council ward and population groups

73% of respondents in Derringham had taken some measures in contrast to 55% of respondents in Beverley and Newland and 53% of respondents in North Carr. A higher percentage of respondents in Derringham had adopted every measure with the exception of checking flood risk – a higher percentage of residents in Beverley & Newland had checked their flood risk.

People who had previously been flooded or whose houses were damaged by flooding had implemented the most measures, with the exception that only 11% had an emergency flood kit. 18% of this group had not implemented any measures compared with 34% of people who suffered other effects in 2007 and 51% of people not affected in 2007. Only 13% of owner-occupiers who were flooded or whose houses were damaged in 2007 had not adopted any measures. In contrast, 56% of private tenants, 51% of people not affected in 2007 and 46% of council tenants had not taken any measures. Older people aged 80 and over had adopted relatively few measures with the exception of making sure insurance covers flooding.

3.3.1
Improved property-level flood protection

28% of respondents had implemented property-level flood protection measures[7]. 62% of these had implemented one or two measures, and 38% three or more. Figure 12 below shows the different measures taken. Moving valuables to a safe place was the most popular measure, implemented by 11% of respondents. The second most adopted measure was planting and gardening which included people identifying that they had not hard-landscaped their gardens, followed by improving flooring and improving drainage (each 7% of respondents). Seven people had raised electrical sockets and seven people owned water pumps. Other responses included raising the kitchen, building a wall around the property to act as a barrier, raising the entrance into the house; and installing a water level detector.

Box 3 – Property-level flood protection: low levels of implementation and other key issues

Some key issues emerged from the survey: the number of people who had implemented property-level protection was small, many people felt measures they had implemented were very small in scale, may not be effective and some people worried whether they had done things correctly.

There is a need for clear support and advice for householders. For instance, some respondents wanted to cover airbricks but were not sure how to do this without causing other problems such as damp. In addition, 19 respondents identified they had stored sandbags, with others wanting to obtain sandbags, to protect them against future flooding. However, sandbags are not as effective as temporary flood barriers and only 6 respondents had temporary flood barriers. Seven respondents have water pumps but some flooding stakeholders do not view water pumps as desirable as they can displace water to other people's homes, whereas other stakeholders view water pumps as an essential household measure. One respondent identified that advice and support should have been made available when residents were rebuilding homes after the floods in 2007 or 2013.

MDA Flood Resilience Consultants have prepared a one-page infographic (Appendix 1) on property-level flood resistance and resilience measures, although this does not include raising the front door-step and water storage. LWW should review this infographic and make it relevant for Hull, prioritising actions for householders by effectiveness, ease and cost.

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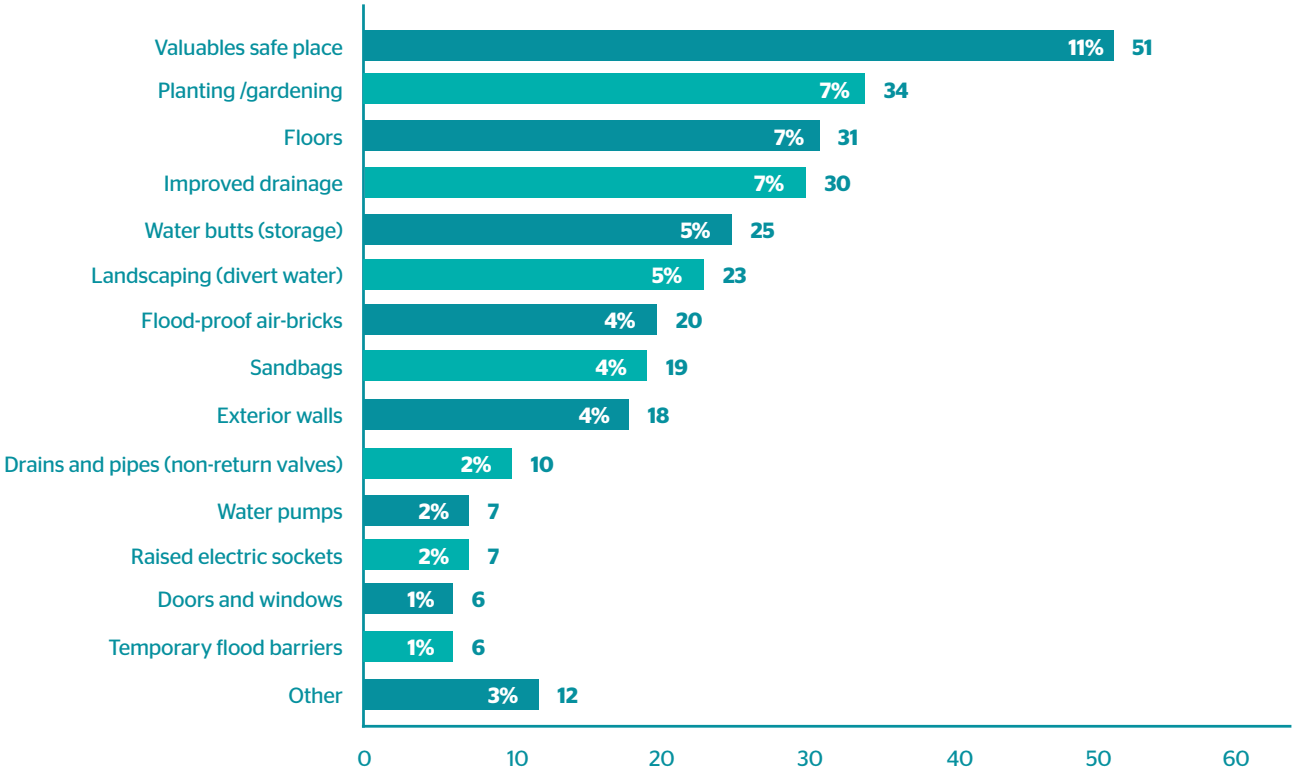
[7] This analysis takes takes account of all measures implemented by householders, although some were very small in scale. In follow-up work by MDA consultants to identify case studies of people in Hull with property-level protection, it was very difficult to find respondents who had done significant amounts of work.

Figure 12 – Improved property-level flood protection measures



Analysis by council ward and population group

The percentage of respondents who had implemented property-level protection was 33% in Derringham, 24% in Beverley and Newland and 19% in North Carr.

45% of owner-occupiers who were flooded or whose houses were damaged and 37% of people who feel they are vulnerable to groundwater flooding had implemented measures compared to 19% of private tenants (although it is unclear whether all private tenants would know of measures taken by landlords) and 15% of people unaffected by flooding in 2007.

3.3.2 Environment Agency Flood Warnings

While the survey results are not generalisable, the 21% of respondents who answered that they had signed up to EA flood warnings is not consistent with EA information for December 2018 which indicates much lower sign-up rates of 3% in Derringham, 2.2% in North Carr and 1.6% in Beverley and Newland.

However, there is a wide variation in sign-up rates for the different population groups ranging from 29% of people who were flooded or whose houses were damaged to a very low percentage of people from ethnic minority backgrounds, council tenants and older people aged 80 and over. While the relevance of EA flood warnings in the survey areas is questioned in Box 4 below, this indicates that harder to reach groups are not accessing this service.

Box 4 - Are Environment Agency flood warnings relevant in the target wards?

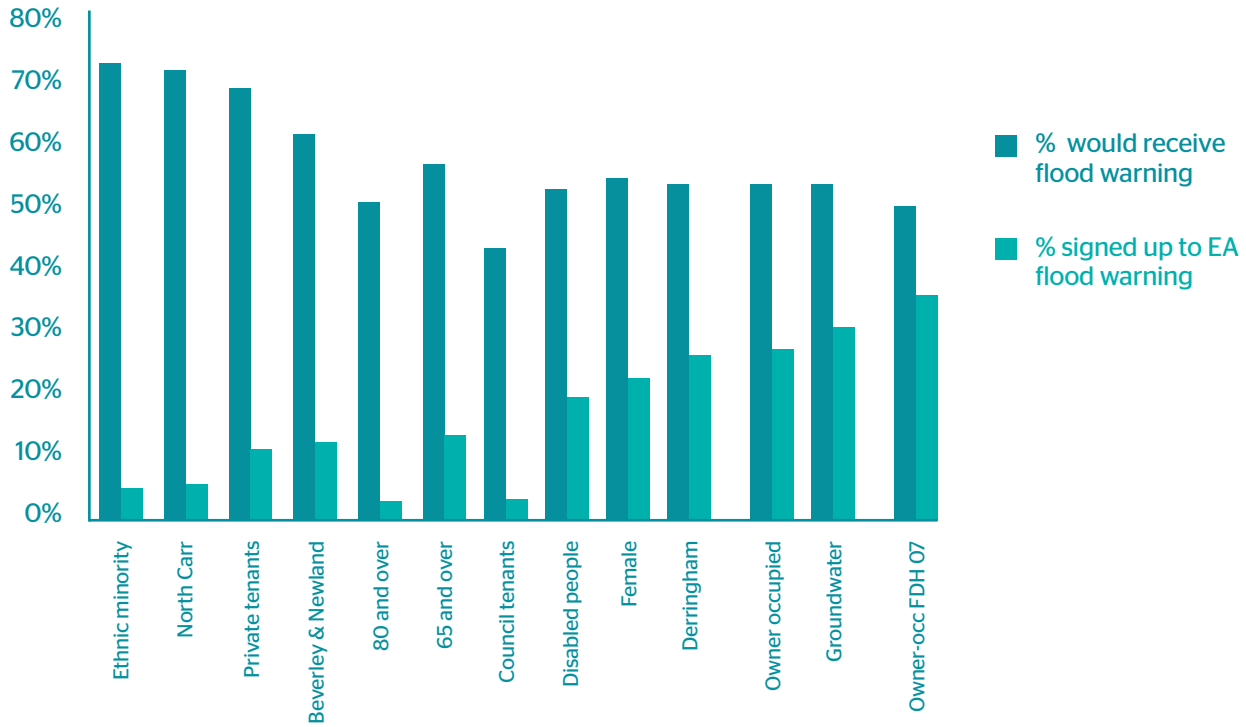
A key issue is that EA flood warnings do not currently cover surface water flooding so residents may feel a false sense of security if they sign up to EA flood warnings. This would help explain the low take-up of EA flood warnings by residents in Hull.

- In the short term, Living with Water needs to give clear advice on the best source of warning information for surface water flooding.
- In the long term, LWW partners should consider making Hull a pilot project to develop a surface water flood warning system.

The survey also asked whether respondents thought they would receive a flood warning if there was another flood. 57% of respondents said they will receive flood warnings in good time which is far higher than the 21% of respondents who answered that they had have signed up to EA flood warnings. Figure 13 below compares this information for each demographic group and reveals the gap is particularly large for ethnic minority respondents, and small for owner-occupiers who were flooded or whose houses were damaged in 2007.

Figure 13 – Comparison EA flood warnings and receiving flood warnings in the future

The groups with the highest differences between expecting a flood warning and signing up to EA flood warnings are to the left of the chart.

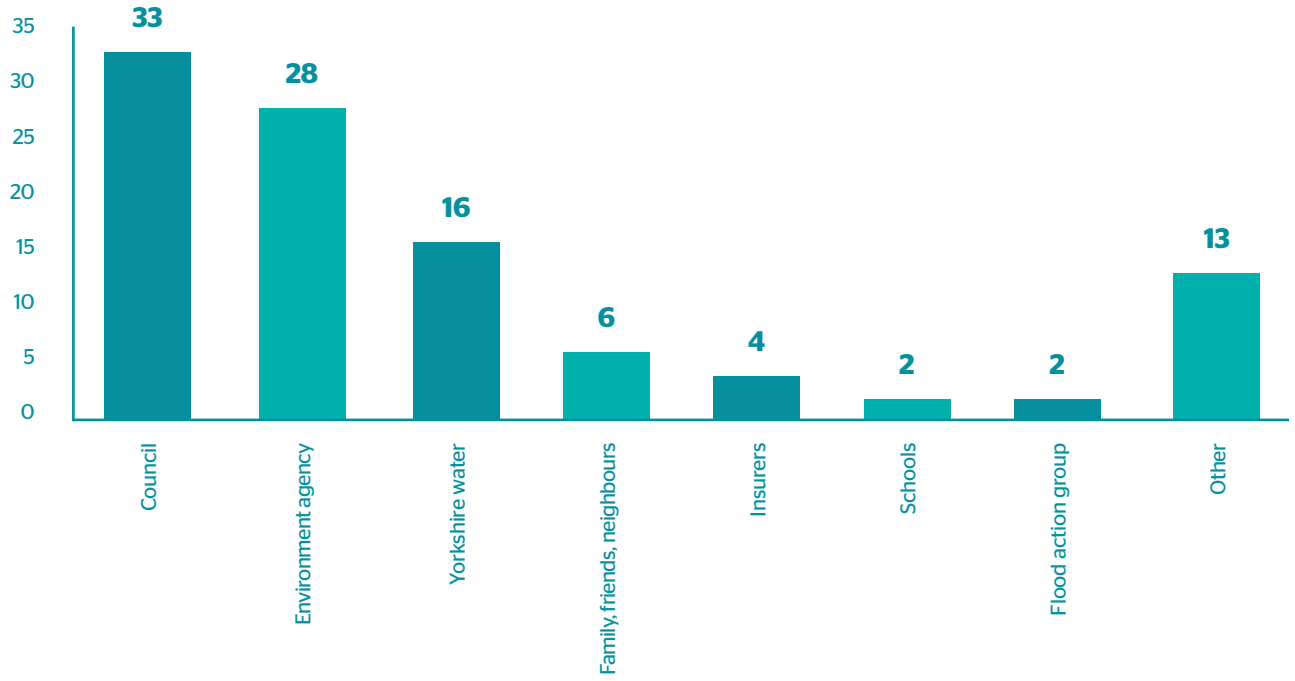


3.4 Information received about preparing for floods

Only 15% (69) of respondents said they had received information about preparing for floods whereas 69% of residents had not received any information (16% were not sure). In terms of target wards, 15% of respondents from Derringham, 14% of respondents from Beverley & Newland, and 8% of respondents from North Carr said they had received information. A higher percentage (20%) of respondents from other wards (who mainly answered online) recalled receiving information about preparing for floods.

48% of respondents who had received information said they had received information from the council, 41% from the Environment Agency and 23% from Yorkshire Water. Only 6% had received information from insurers, two through schools and no one had received information through work or a local charity or church. The other 13 responses indicated that they received information from internet searches, from builders and flood engineers, from local councillors, TV or the local press.

Figure 14 – Sources of information about preparing for floods



56% (39 respondents) of those who received information said this information was useful. Of these, 10 respondents mentioned they had received information about signing up to flood warnings and alerts and a further three mentioned receiving an EA flood action guide. Three described receiving information to help them improve household flood plans and identifying flood risk and four reported general awareness information. Six had received information on city-wide flood risk management schemes, and six on improving household flood protection.

3.4.1 Attendance of community flood awareness activities, events or meetings

10% (45) of respondents had attended flood awareness activities, meetings or events. 13% of people affected by flooding in 2007 had attended a meeting compared to 6% of people not affected in 2007. 11% of respondents from Derringham had attended a meeting compared to 5% of people from Beverley and Newland and 3% in North Carr (compared to 18% from other wards).

Of those respondents who had attended a meeting or event, 32 respondents (71%) had attended meetings organised by the LWW Partners (Hull City Council, Yorkshire Water or the Environment Agency) including events organised by the Hull City Council at the Guildhall and in the community. The council has also organised a number of visits to flood affected communities, including using a community bus where residents can talk to staff and councillors. One respondent described that they had attended a LWW meeting for City of Culture Volunteers.

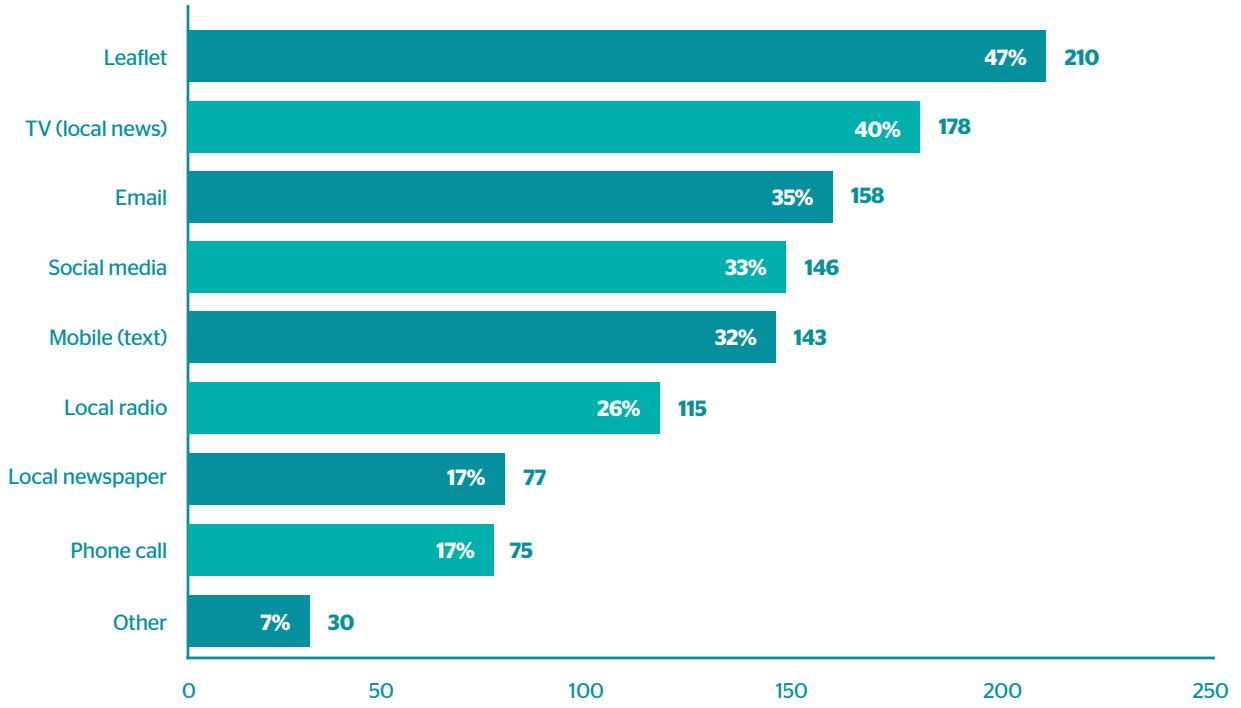
The results also indicate that few other organisations are providing information or organising meetings. Other meetings had been organised by Residents' Associations (four respondents), Flood Action Group (three respondents), only two respondents attended a meeting organised by a community group, charity or church, and one respondent attended a meeting organised by work. No respondents attending meetings organised by schools.

3.4.2 Most effective way to receive information

Leaflets[8] were identified as the most popular way to receive information (47%), followed by through TV local news (40%), and then email (35%). Providing information in leaflets reinforces a recommendation made in the Final Report into the 2007 Hull Floods by Coulthard et al (2007a). The survey work identified digital exclusion was an issue affecting a number of respondents, including many older people.

[8]Answer options did not include more eye-catching communication including fridge magnets, window stickers & flyers - however these examples would contain limited information and were not raised by respondents.

Figure 15 – What would be the most effective way of giving you information?



Other responses: eight respondents described that personal contact with organisational representatives would be the most effective method (e.g. EA or council staff, councillors, sheltered housing wardens) and four answered that the most effective form of communication would be through friends, family or neighbours (e.g. older people through children). Five answered information through the post would be most effective (which could also include leaflets), three through work emails/ information and three through social media or apps.

Analysis by council ward and population group
Leaflets are in the top two most effective form of communication across all groups of respondents. TV is the second most popular method ranging from 54% of council tenants to 33% of respondents from Beverley and Newland. Email was the second most popular way to reach people from ethnic minority backgrounds and residents of Beverley and Newland, but not a good method to reach council tenants and people aged 80 and over. Local Radio, Local Newspapers, SMS/ Texts or Phone Calls are not the most effective methods to reach any group. People aged 80 and over also had the highest category of being reached by 'other' methods: mainly personal contact with staff (e.g. sheltered housing staff), councillors or through family, friends and neighbours. Responses from people aged 18 to 34 were also analysed to see the most effective method of communication to reach younger people: 54% answered social media and 53% answered leaflets.

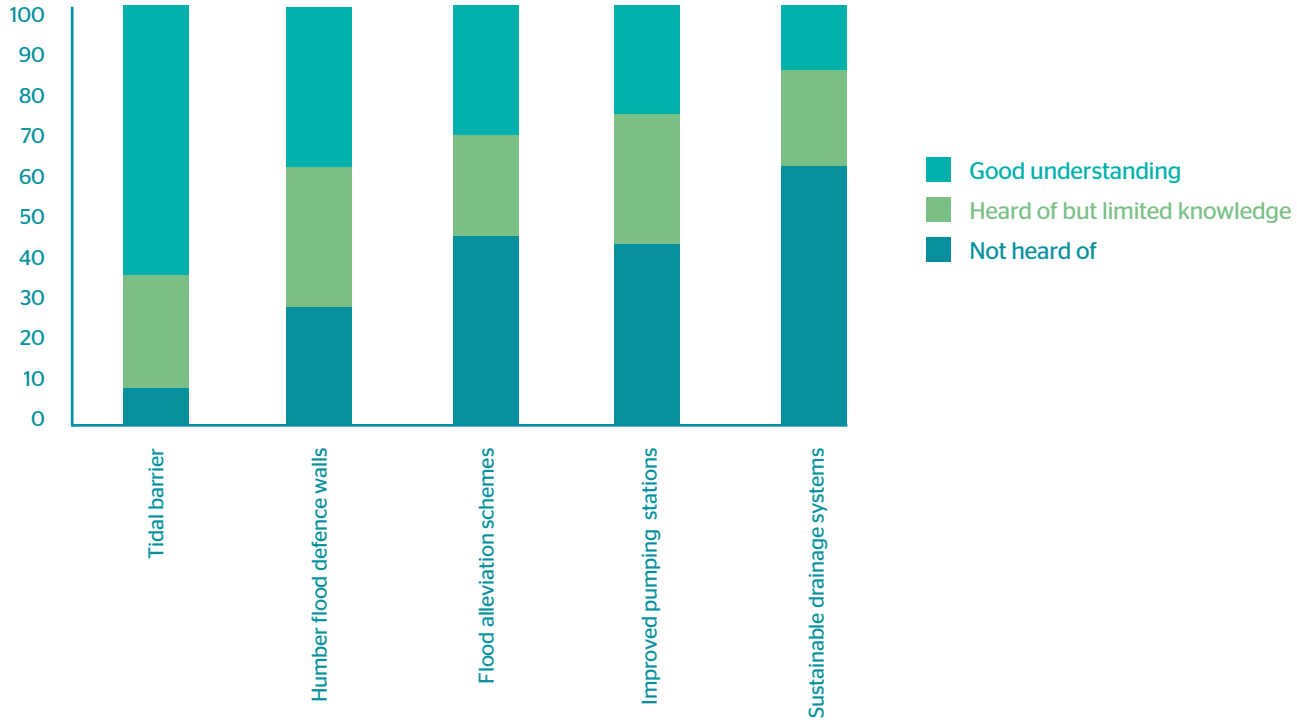
Language: 98% of respondents answered that English was the best way to communicate with all members of the household. There were no other common languages to communicate with respondents. Other main spoken languages identified were Romanian (3), Chinese (2), and one each for French, Hungarian, Kurdish, Polish, Urdu and Russian.

3.5 Awareness of city-wide flood risk management schemes in Hull

The survey asked about knowledge of the different infrastructural projects being implemented to reduce flooding in Hull. Respondents could select 1) 'good understanding', 2) 'heard of but limited knowledge' or 3) 'not heard of'. The answers are shown in Figure 16 below.

The Tidal Barrier is the most well-known flood defence with 64% of respondents stating they had a 'good understanding'. There was a good understanding of other projects in the following order: Flood Defence Walls (38%), Flood Alleviation Schemes (29%), Improvements to Pumping Stations (26%) and Sustainable Drainage Systems[9] (SUDS) (15%). The results indicate a wider understanding of the more visible projects. There is a need to increase knowledge of pumping stations given their essential role in the city's drainage system (and the number of people who are focused on issues with street drains as a cause of the 2007 floods). In relation to SUDS, during the survey it was difficult to refer to real-life examples in Hull that were known by respondents, in contrast to the other measures.

Figure 16 – Understanding of flood risk management schemes



Analysis by council ward and population group

Awareness varied between population groups. A relatively high percentage of respondents aged 65 and over had high levels of knowledge. In contrast, a relatively high proportion of respondents from ethnic minority backgrounds, private tenants, and people not-affected in 2007 were in the 'low knowledge'[10] category. A relatively low percentage of female respondents (7%) felt they had good knowledge, although female respondents' overall knowledge is above average.

Analysis of the differences between wards is shown in Box 5 on the next page.

[9]Susdrain describes that SuDS 'mimic nature and typically manage rainfall close to where it falls. SuDS can be designed to transport surface water, slow runoff down before it enters watercourses, they provide areas to store water in natural contours and can be used to allow water to soak into the ground or evaporated from surface water and lost or transpired from vegetation'. The Flood Alleviations Schemes are examples of large-scale SUDS, although many SuDS are much smaller and SuDS are increasingly required in new build developments to manage drainage. www.susdrain.org/delivering-suds/using-suds/background/sustainable-drainage.html

[10]An index was created by allocating a score for each answer (0 = no knowledge, 1 = heard of but limited knowledge, 2 = good understanding) and then ranking the scores into 4 groups: Low knowledge; Some knowledge; Mixed knowledge; and Good knowledge.

3.5.1
Views on whether projects are helping communities

37% of respondents felt measures were helping their local community, 45% were not sure and 18% said that measures had not helped. 41% of people who were flooded or whose houses were damaged in 2007 felt that measures were helping their local community.

Box 5: Visibility and proximity of flood risk management schemes

Respondents in Derringham have above average overall knowledge of the different schemes. For example, 53% of respondents from Derringham had a 'good understanding' of Flood Alleviation Schemes compared to 29% of all respondents, with part of the Willerby and Derringham Flood Alleviation scheme (WADFAS) located in the ward. 42% of residents in Beverley and Newland had low knowledge of the different flood protection schemes compared to 28% in Derringham.

A higher percentage of respondents from Beverley and Newland (30%) also felt that measures were not helping their local community in comparison to 23% of respondents in North Carr and 9% of respondents in Derringham. The higher levels of knowledge and confidence in flood risk management schemes in Derringham could reflect closer proximity to visible and complete flood protection measures. In contrast, visible and complete schemes are located further away from Beverley & Newland and there is a need for more information on how they help the ward. At the time of the survey SUDS were planned for Beverley & Newland, but they were not complete or visible.

Concerns about projects. Very few people had concerns but some raised broader issues such as whether the measures would work in the event of heavy rains similar to those experienced in 2007. Concern was also expressed over building new housing on flood plains, green spaces, and over historic drainage systems, as well as a continued emphasis on the need to maintain street drains. There was a small amount of very localised concern regarding the Aquagreen at Bristol Road in Derringham: respondents reported confusion about: 1) whether it was complete (local residents backing onto the Aquagreen reported that water still collects in their gardens and there are continued drainage problems in the 10-foot between the greenspace and houses); 2) whether it was meant to have a football pitch (there is no football pitch in contrast to plans); and 3) one respondent said it looked like waste-land which was vulnerable to fly-tipping.

Grants for vulnerable properties

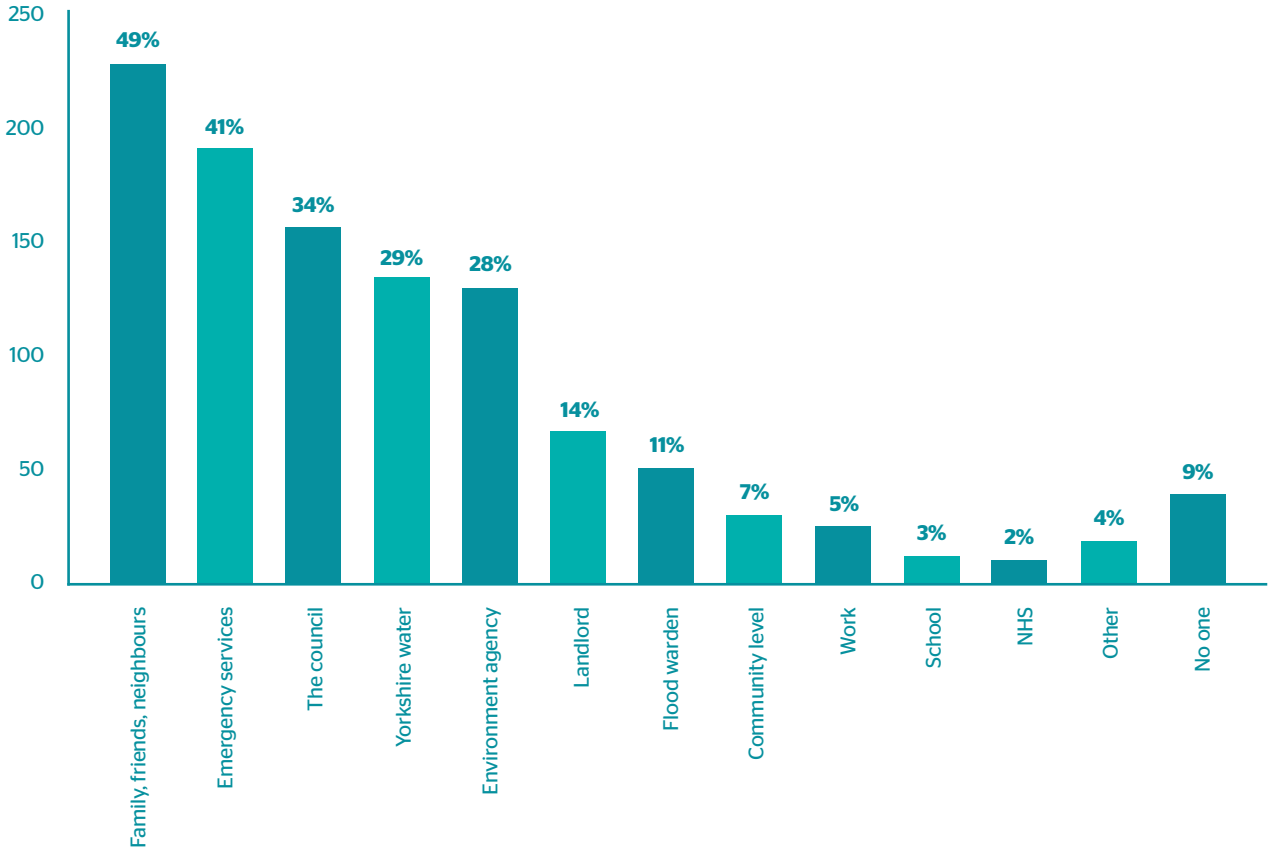
The survey also asked about whether residents had knowledge of availability of grants for properties vulnerable to flooding as some that some householders may have accessed grants after the 2007 or 2013 floods. However, there was very low knowledge of any financial support suggesting that LWW partners need to investigate grant availability and communicate this clearly to residents.

3.6
Requesting help in the event of future flooding

If there was another flood, 49% of respondents (225) would ask for help from family, friends and neighbours (the main source of help), followed by calling 999 – Emergency Services (41%)[11], help from the council (34%); Yorkshire Water (29%) and the Environment Agency (28%). 7% would contact community-level groups including charities, church, or residents' associations. The small number of 'Other' responses included: sheltered housing wardens and housing associations. 9% of respondents would not call anyone for help.

[11]Emergency services: respondents would call 999 to access Humber Fire and Rescue, the Police or Ambulance.

Figure 17 – Who would you ask for help if there was a flood?



Box 6 – Responding to future floods without Community Wardens

11% of respondents answered they would seek help from Flood Wardens, but at the time of the survey in 2018, Hull City Council only supported volunteer Flood Wardens in the council ward of Sutton. Respondents could have confused Flood Wardens with Community Wardens.

At the time of the 2007 floods, Hull had an active Community Warden service and Coulthard et al (2007a) reported that the Community Wardens provided essential help during the floods including: evacuation of schools and homes; identifying hazards; distributing protective equipment and emergency rations; providing health and safety information and equipment; completing questionnaires to determine whether houses were flooded; distributing sandbags; operating emergency centres; supervising closed roads; staffing the emergency phone number for flood advice; and the removal of flood damaged belongings.

However, due to financial restrictions there is no Community Warden service in Hull and LWW needs to consider whether it could provide the same levels of help that was provided in 2007 without Community Wardens.

The Hull City Council Flood Risk Team has identified they would involve the Council's Housing and Neighbourhood teams to respond to any future flooding.

Analysis by council ward and population group.
Family, friends and neighbours are the highest source of potential help for each demographic group, ranging from 58% for people from ethnic minority backgrounds and 57% for female respondents to 43% for people aged 65 and over. The table overleaf summarises different sources of help and which demographic group would request the most or least help from each source.

Source of help and potential requests from demographic groups

Source of help	Highest	Lowest
Family, Friends and Neighbours	58% from ethnic minority backgrounds	43% for people aged 65 and over
Council	49% for council tenants	21% for older people aged 80 and over
Emergency services	65% from ethnic minority backgrounds	31% for respondents from Derringham
Yorkshire Water	37% North Carr (could reflect proximity of Pumping Station)	21% older people aged 80 and over
Environment Agency	31% female respondents and North Carr	6% older people aged 80 and over
Other	61% private tenants: 'other' help includes landlords	15% older people aged 80 and over
No help	0% from ethnic minority backgrounds	15% owner-occupiers flooded/ damaged house in 2007

Key issues include that a relatively low percentage of older people aged 80 and over would contact any organisation for help (but would contact family, friends and neighbours) whereas people from ethnic minority backgrounds answered that they will contact a wide range of agencies for help. As expected, a large proportion of private tenants would contact their landlords for help but it is not clear what help would be provided. The groups with the lowest numbers who would Call 999/ contact emergency services are residents of Derringham, owner-occupiers who were flooded or whose houses were damaged in 2007 and older people aged 80 and over. Owner-occupiers who were flooded or whose houses were damaged in 2007, people aged 65 and over and residents from Derringham had the highest number of respondents who wouldn't contact anyone for help, in contrast to people from ethnic minority backgrounds and female respondents.

There is a wide variation in answers and LWW partners need to ensure residents know which agencies can provide help in what circumstances.

Box 7 – Targeting the most vulnerable

Hull City Council aims to target the most vulnerable for help but being able to identify the most vulnerable is a key issue. Hull is a relatively deprived city and many people could be classified as vulnerable based on socio-economic indicators including ill-health and income.

In terms of vulnerability, this survey also identified a need to consider: people who have been flooded and suffered health and wellbeing impacts; people who feel they have very low protection and feel they would make a slow recovery; people without insurance; and people who are not able to ask friends, family and neighbours for help.

For example 59% of respondents aged 80 and over were flooded or sustained flood damage to their house, all of these respondents have remained in their homes and a relatively low percentage had taken measures to improve flood resilience except for making sure insurance covers flooding (many respondents identified how dealing with insurance companies could be very stressful). In addition, a comparatively low percentage of people aged 80 and over would contact official agencies for help, including the council, and many people within this group feel like they would take a long time to recover if they were flooded again.

3.7 Reporting flooding

Respondents would report flooding to a range of organisations. The most popular response was the Council with 38% of respondents, followed by Yorkshire Water and the Environment Agency with approximately 30% of answers. 19% of respondents said that they would report it to their landlord. 9% of respondents answered they would report it to a Flood Warden. However, as stated earlier only one ward in Hull, Sutton, was covered by flood wardens in 2018.

Box 8 – Contacting Flood Risk Staff directly

A cross-cutting issue described by respondents is that it is difficult to talk to staff members from Living with Water partners directly:

- to help prepare for flooding such as to obtain advice on improving household measures
- to discuss or report ongoing issues such as a blocked drain or ditch or asking for specific help such as an older person asking for help to drain water from their property
- in case there is a flood.

Many respondents would want to contact the Council first and then be directed to the most appropriate agency if necessary. However, respondents described particular difficulties trying to contact staff in the Council through the standard switchboard.

Hull City Council and Living with Water should try to increase the ability of residents to contact the council in the first instance before being directed to other agencies if required.

3.8 Insurance against flooding

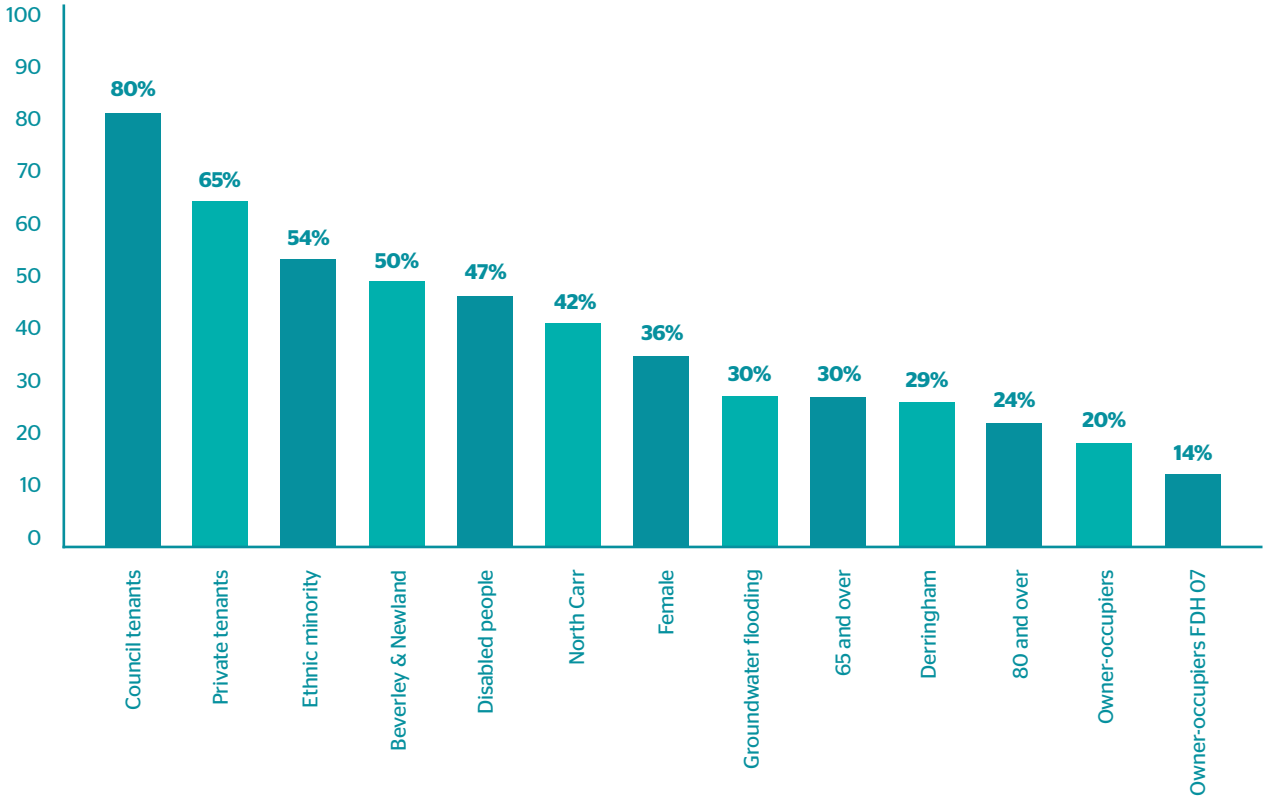
Results from different questions in the survey have been combined to build a picture of who has insurance: 1) respondents who said they had made sure their insurance covered flooding and 2) respondents who would contact insurers in the event of a flood. It was decided not to ask respondents if they have insurance that covers flooding directly, as stakeholders felt this could be a barrier to participation for residents who would worry that information would be shared with insurance companies.

47% of respondents identified that they had made sure their insurance covers flooding. A further 16% of respondents answered they would contact their insurers in the event of a flood, but this group may not have insurance that covers flooding. This also leaves 169 respondents (37%) who did not answer they have insurance that covers flooding or would contact insurers in the event of a flood and we have termed this group 'no insurance'.

During the survey, a number of respondents described that they could no longer afford insurance and the Insurance Times (2019) identified that Hull is one of the 10 most expensive places in the UK for home insurance outside London, using the average household home insurance premium. Respondents also questioned: whether insurance premiums would reduce as flood defences in the city proved effective; whether insurance companies were using accurate and up-to-date information to assess flood risk; and whether Flood Re was helping to reduce costs (Flood Re is a national scheme which aims to make the flood cover costs of home insurance more affordable). For example, the following respondent criticised Flood RE directly: *'Flood RE hasn't worked, we now pay through the nose for insurance as we can't move provider'*. Some older respondents described that they obtained insurance through Age UK. However, it is very difficult to find independent advice and support on accessing affordable insurance that covers flooding.

Analysis by council ward and population group.
Figure 18 shows the percentage of respondents with 'no insurance' by demographic group. A relatively high percentage of owner-occupiers who were flooded or whose houses were damaged in 2007 have insurance although 14% could be uninsured. In contrast, council tenants and private tenants have a comparatively high percentage of people who could be uninsured. Levels of insurance also correspond to experience of flooding: a lower percentage of respondents who were flooded or whose houses were damaged by flooding in 2007 (25%) may not have insurance, compared to 39% of people otherwise affected in 2007, and 47% of people not affected in 2007. In terms of council wards: 50% of respondents in Beverley & Newland could be without insurance, compared to 42% of respondents in North Carr and 29% of respondents in Derringham.

Figure 18 – 'No insurance' by council ward and population group

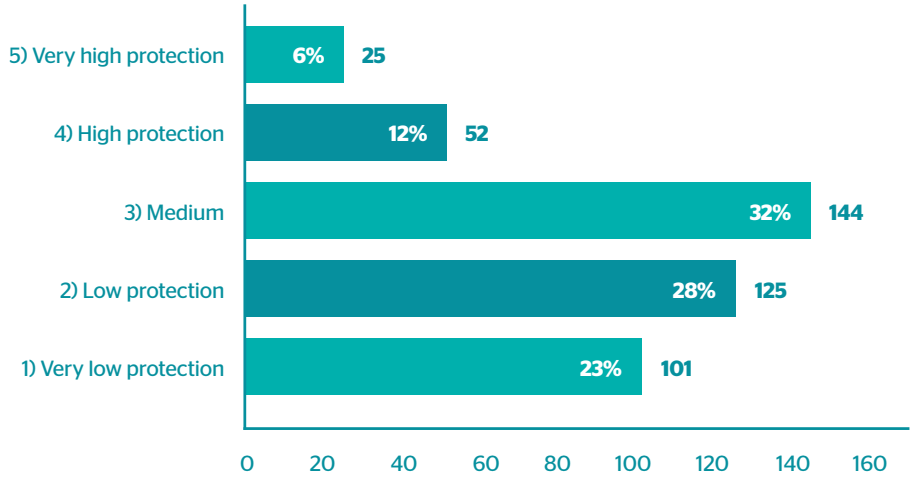


3.9
Resilience: Protection and Recovery

We asked respondents how well they feel protected against flooding and how quickly they would be able to recover from flooding as indicators of resilience – the results are shown in Figures 19 and 20 below.

Figure 19 – How well is your house protected against flooding?

Just over 50% of respondents answered in the two categories with lowest protection, with 18% answering in the two categories with highest protection.



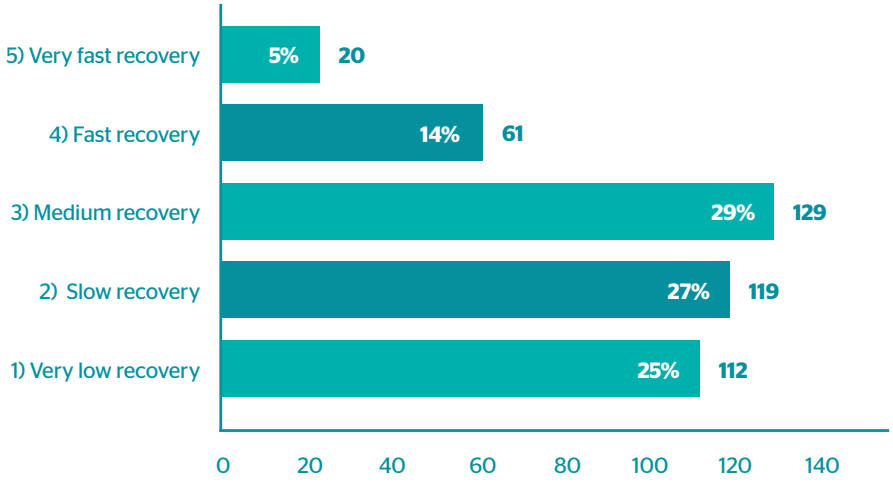
Analysis by council ward and population group

47% of people who were flooded or whose houses were damaged in 2007 assessed themselves in the lowest two protection categories, compared to 56% of people who suffered other effects, and 51% who were not affected. As stated earlier, respondents most affected by flooding also have higher levels of implementing household flood resilience measures and higher knowledge of city-wide flood alleviation projects. However, people not affected in 2007 had the highest mean score[12], indicating they feel relatively well protected.

Comparing wards, 59% of residents from Beverley and Newland felt they were in the lowest two protection categories and feel less protected against flooding than residents of Derringham. People in North Carr felt the most protected against flooding. People aged 65 and over also feel relatively well protected whereas people who feel vulnerable to groundwater flooding feel they have relatively low protection.

Figure 20 – How quickly respondents think they would recover from flooding

Over 50% of respondents answered in the lower 2 categories with slowest recovery, with 19% answering in the two categories with fastest recovery.



Analysis by council ward and population group

While feeling relatively well protected, respondents who were flooded or whose houses were damaged in 2007 felt they would make a comparatively slow recovery if they were flooded again: 60% answered they were in the slowest two recovery categories, and this group has the second lowest mean score. In comparison, 53% of people otherwise affected by flooding, and 46% of people not affected put themselves in the two slowest recovery categories.

Owner-occupiers who were flooded or whose houses were damaged in 2007 had the lowest mean score for recovery, followed by older people aged 80 and over, disabled people, female respondents and people vulnerable to groundwater flooding. Therefore, these groups felt they would take a long time to recover if flooding happened again. Council tenants had the highest percentage of respondents in the two fastest recovery categories – potentially indicating they felt they would receive support from the council. Respondents from ethnic minority backgrounds also had a relatively high mean score indicating fast recovery. Respondents aged 65 and over would also make a relatively fast recovery, except for the people aged 80 and over within this group.

For council wards, the mean recovery scores are similar although Beverley and Newland had the highest percentage in the two slowest recovery categories combined (54%), Derringham had the highest percent in the two fastest recovery categories (21%) and North Carr the highest in the middle recovery category (39%).

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[12]The mean score represents an 'average' response for a particular council ward or population group on a scale of one to five. The mean score is calculated by finding the total score of responses and dividing by the number of respondents.

Box 9 – Relationships between concern about flooding, protection and recovery

There are links between being concerned about flooding, low protection and slow recovery: 38% of people who were very concerned about flooding felt they had very low protection; 43% of people who were very concerned felt they would make a very slow recovery; and 50% of people who felt they had very low protection felt they would make very slow recovery.

19 respondents answered that they were very concerned about flooding, have very low protection and would make a very slow recovery. These respondents could be considered as a vulnerable group with low levels of resilience to future flooding. (68 respondents answered that they are in the lowest two categories for concern, protection and recovery).

From the 19 respondents:

- Eight lived in Derringham, three lived in Beverley & Newland and eight in other wards of Hull.
- Nine were flooded in 2007 and eight of these had their houses damaged by flooding. Four evacuated due to flooding and eight experienced health and wellbeing consequences.
- 13 felt vulnerable to groundwater flooding.
- Seven had a disability, five were aged 65 and over (one was 80 and over) and 11 were female. None of these respondents were from ethnic minority backgrounds.

3.10 What more should be done to reduce the risk of flooding?

49% of respondents felt more should be done to reduce their risk of flooding, 18% felt that no more should be done and 33% were unsure.

Analysis by ward and population group

56% of residents in Derringham felt more should be done to reduce their risk of flooding, compared to 52% of residents in North Carr and 51% of residents in Beverley and Newland (only 35% from respondents who lived in other wards felt more should be done). 57% of people flooded or whose houses were damaged in 2007 felt more should be done. Among different demographic groups 61% of respondents from ethnic minority backgrounds felt more should be done compared to 45% of people aged 65 and over.

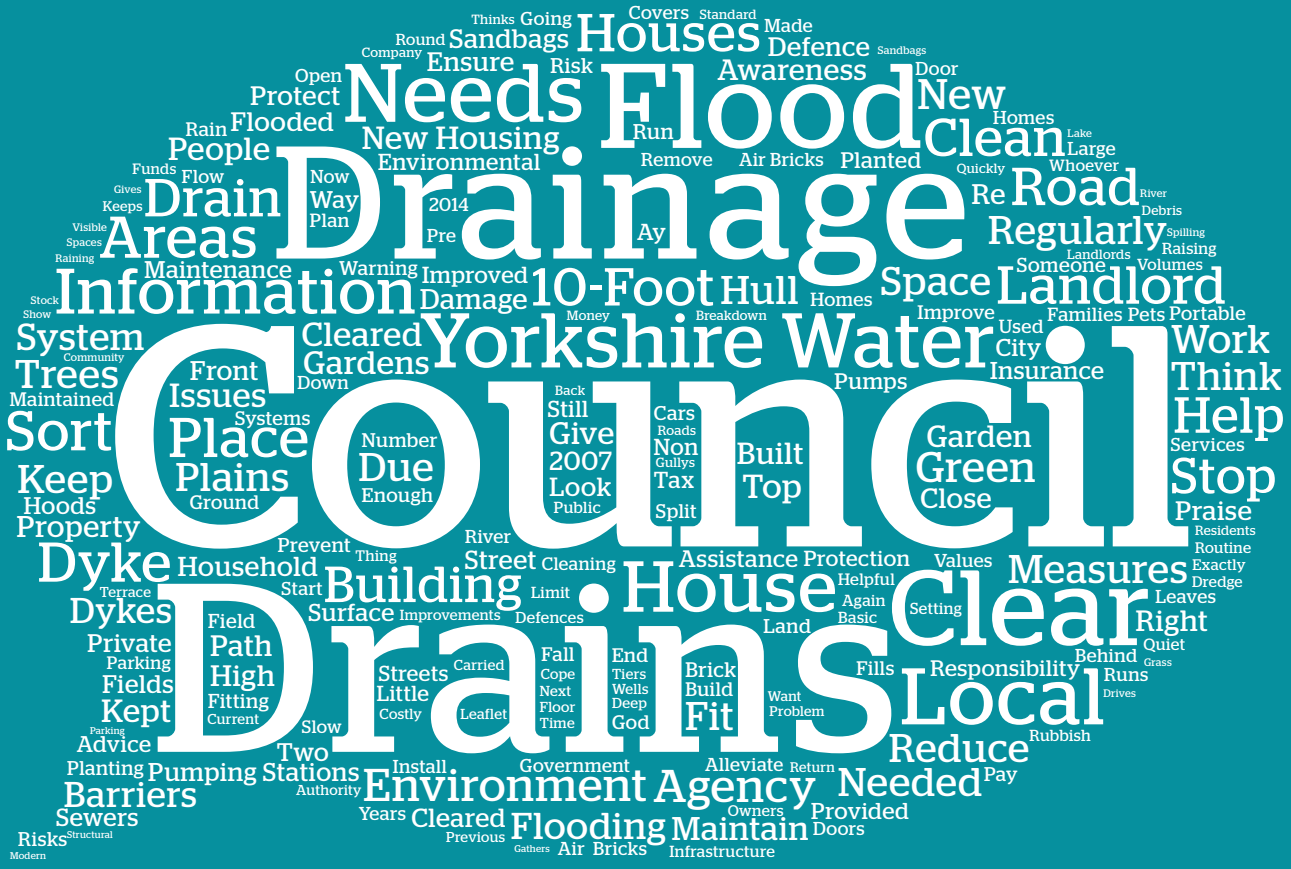
3.10.1
What should be done and by who?

204 people answered this question in more detail: 170 described specific actions and 126 described some form of responsibility. There was often a combination of categories in an answer, for instance one respondent described that:

" The council should make sure drains are kept clear. Houses should be fitted with water-tight air-brick covers."

The key words used by respondents in describing what more needs to be done to protect them against flooding are shown in Figure 21 below. There is a strong focus on cleaning, maintaining or improving the drainage system with the council viewed as the main organisation responsible for this.

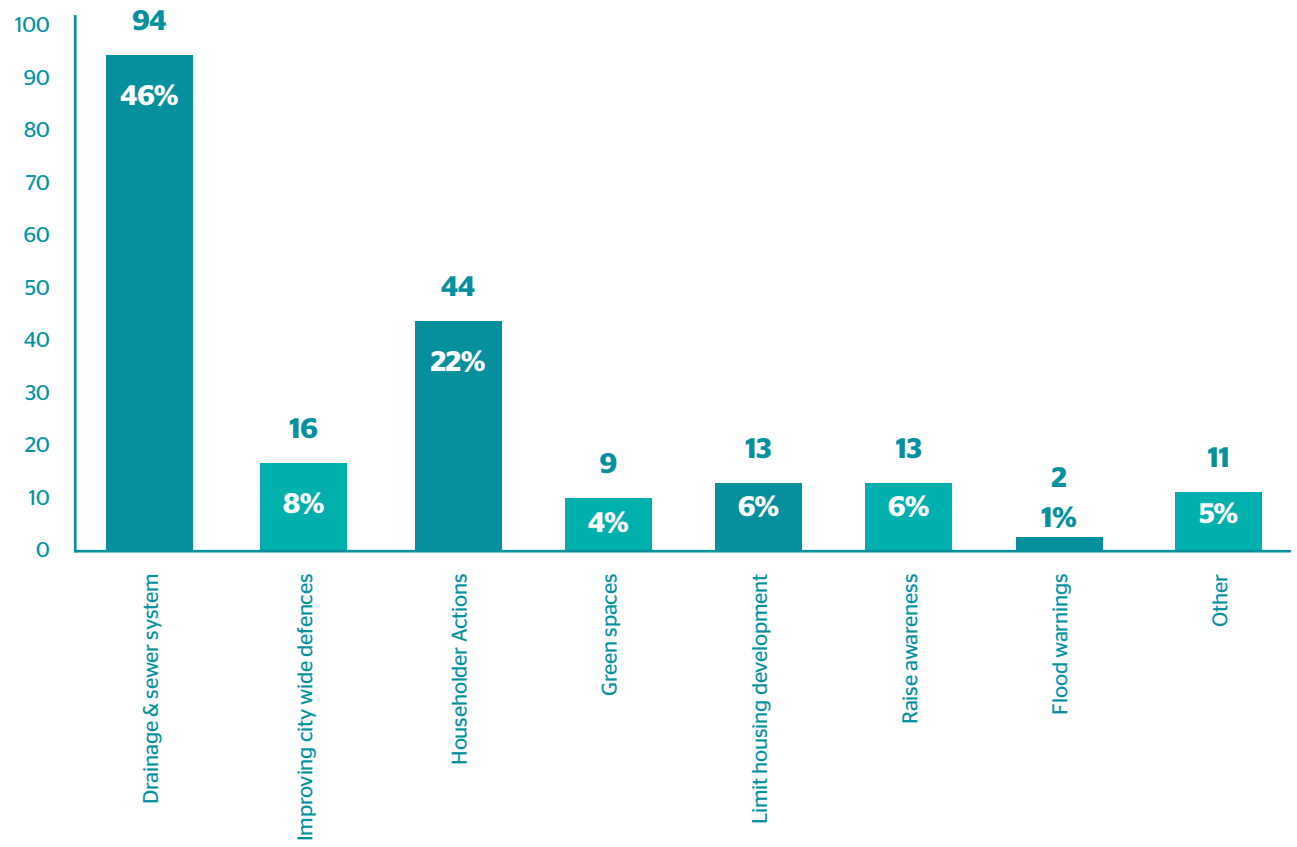
Figure 21: Word Cloud - What more needs to be done to increase protection against flooding



Responsibility for the different actions was allocated to the council (86), Yorkshire Water (23), the Environment Agency (14), Central Government (4), and all agencies (3). 11 answered that they were responsible as householders and 16 described landlords including private landlords and housing associations. Two people described actions by insurance companies that were necessary.

Specific actions have been grouped into eight main categories as shown in Figure 22 and explained in more detail below. The highest number of answers related to managing and maintaining street drains and other forms of drainage (94), followed by increasing preparedness by householders with access to advice and support.

Figure 22 – Main actions required to reduce the risk of flooding



a) Managing street drains and other forms of drainage including sewers and pumping stations

94 people answered that the drainage and sewer system should be better managed, including street drains, dykes, ditches and drainage in 10-foots (communal alleyways running behind many houses). The most popular view was that the Council was responsible for drainage: *'Council - Drains used to be cleared regularly, and they put a blue cross on to show they were cleaned. There is a [drain in the] private parking area and I'm not sure if the council does it anymore'*. One respondent described the council should improve the sewer system even though Yorkshire Water is mainly responsible: *'The council need to sort out Hull's crappy sewers!'*.

Other agencies were also identified as being responsible for action including Yorkshire Water. Nine people specifically mentioned the need to improve capacity and efficiency of pumping stations: *'More efficient pumping stations'; 'Make sure Pumping Stations are flowing properly plus keep drains free and well pumped - Yorkshire Water and LA'*. Some described that responsibility was not clear, or agencies were not taking responsibility: *'Whoever is responsible for the control of surface water should up their game. Nobody would accept responsibility for this. Every department contacted denied it was theirs'*. More specifically, some people describe how agencies will not take responsibility for drainage where land ownership is communal or private: *'I live in a terrace down a path, so not on main road, the path which services the terraces has two drains and these regularly flood when it rains heavily. Yorkshire Water dispute having to do anything about them. As do the council. Private companies will not come out to them due to liability risks'*.

b) Limiting new building and maintaining green spaces

Nine people identified how green spaces should be maintained and 13 described how new housing developments should be limited (including building on greenspace). Concerns were raised that continuous building works were contributing to flooding, combined with the number of concrete drives and gardens which were preventing water from draining away: *'Much more landscaping and green space is needed. My nearest two areas of green space are currently being built on for new housing, when they could have been kept as public green space to reduce flooding'.* One respondent brought in a combination of answers: *'Increased planting of trees and bushes, more investment in flood defences (pumping stations), greater control on housing developments in flood plains and high-risk areas'.*

c) City-wide flood risk management schemes

16 respondents mentioned that improvements and maintenance to flood defences were important actions, including improvements to the pumping stations highlighted above and also more general requests: *'Flood defence mechanisms need to be built.... by City Council'.*

d) Household Protection, including support and advice

44 respondents suggested there should be more advice and support for householders to develop their resilience:

'A leaflet round on what residents think could alleviate. Knowing what could be helpful to be done. Information on what can alleviate flooding in their homes. Why and what you can do and who can help you do these things'.

Responsibility was often allocated to the Council and to the Environment Agency: *'Environment Agency - More Awareness and to suggest what can be done for individual houses'.* One respondent felt they should have had more advice when repairing their house after the 2007 floods: *'We should have been made aware of all what was available to us when the house was repaired in 2007. We could only have the repairs that the insurance company agreed to at the time, also based on cost of repairs'.* One respondent mentioned that grants should be available to support householders to finance measures.

Some respondents described specific actions that should be taken and identified that they themselves should be responsible for any improvements: *'We could get on with blocking our airbricks'; 'Me, raise a damp floor membrane'; 'Households to have airbrick covers and impermeable surface off road parking areas where they occur at the front and rear of house to encourage lawns and landscaping'.* Other respondents indicated a reliance on sandbags to protect properties from flooding: *'I think I've done all I can do but the council should probably deliver a dozen or so sandbags ahead of flood'; 'Not sure but at least each household should be provided with sandbags to try to stop water entering at doorways'.*

A small number of respondents identified that landlords and housing associations should take action: *'Housing Association should place shutter on the doors which would keep water from entering the house'; 'Landlord is good but should put seals on doors and provide sandbags'.*

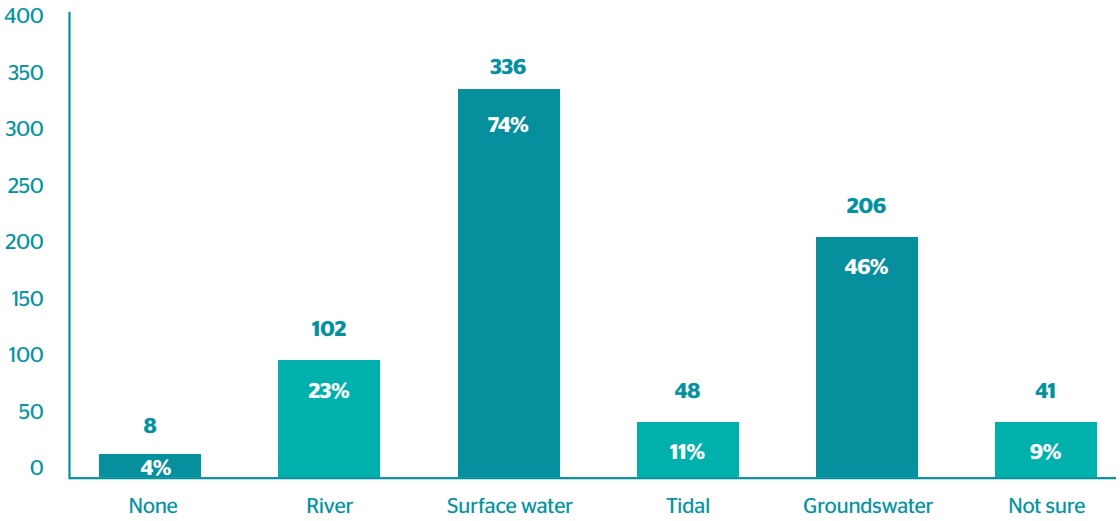
e) Other responses

Only two people mentioned better flood warning availability. 13 respondents described how there should be more information about flooding and measures to reduce risk at household and city levels. Other responses included work to reduce insurance premiums, volunteers to help vulnerable people in the community, and more individual actions such as moving to a new house.

3.11 Vulnerability to different types of flooding

As the target locations were flooded in 2007 and are not adjacent to the Humber, as expected respondents mainly identified they were vulnerable to surface water flooding (74%) in contrast to tidal flooding (11%). 46% of respondents felt vulnerable to groundwater flooding. For those who were flooded or whose houses were damaged in 2007, these percentages rise to 82% (surface water flooding) and 54% (groundwater). 4% of people felt they were not vulnerable to any flooding, and 9% of respondents were not sure.

Figure 23 – What type(s) of flooding is your house vulnerable to?



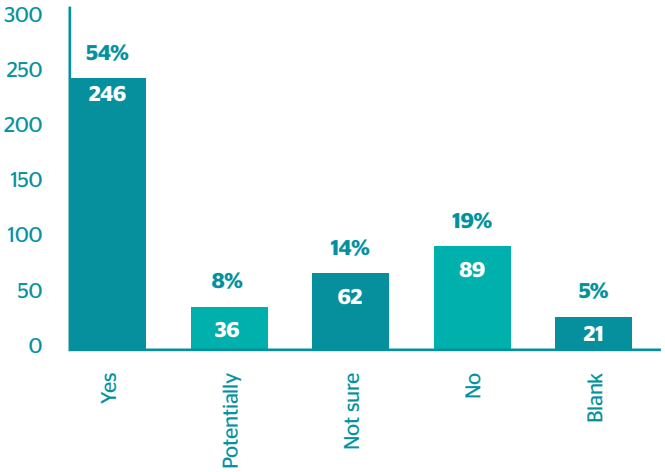
Analysis by council ward (location). Derringham residents reported the highest levels of vulnerability to surface water (85%) and groundwater flooding (54%). Respondents from Beverley and Newland reported the highest level of vulnerability to river flooding (38%). North Carr had the highest number of respondents who said they were not vulnerable to flooding (15%).

3.12 Impacts of climate change on flood risk

54% of respondents answered that climate change had increased their risk of flooding and another 8% felt it has potentially increased the risk of flooding[13]. 19% felt climate change had no impact. The number of people who feel climate change has increased the risk of flooding could be considered low but the survey was not focused on areas immediately affected by sea-level rises and tidal surges and also reached many people who were flooded in 2007 and who don't think the risk of flooding has increased since then. For example, a higher percentage of respondents not affected by flooding in 2007 (59%) felt that climate change had increased their risk of flooding compared to 46% of people who were flooded or whose houses were damaged by flooding.

Analysis by ward and population group. The group with the highest percentage of people who felt climate change had increased risk were from ethnic minority backgrounds (67%). People aged 65 and over having the highest percentage who felt it did not have an impact (29%). Among the wards, residents of Derringham were the least convinced that climate change had increased their risk of flooding.

Figure 24 – Has climate change increased the risk of flooding in your area of Hull?



[13] *This was asked as an open question and 'Potentially' includes answers such as 'Probably', 'Possibly' and 'Maybe'*

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