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Scrutiny Review of Flood Risk Preparation and Response

Chair's Introduction

This report will inform Cabinet of the outcome of the scrutiny review into the flooding incidents that occurred in Wolverhampton on 26 and 27 May 2018.

The flash flooding which affected parts of Wolverhampton on 26 and 27 May 2018 provided a real-life test of the effectiveness of plans and procedures designed to manage flash flooding. The members of the review group welcome the decision of Scrutiny Board to look at what lessons can be learnt from the events in May and if there are any actions that can be taken to further reduce the risk to homes and businesses in the future.

No area can be completely exempt from the impact of flooding and as was seen in the events on 26 and 27 May 2018 in Wolverhampton, it can be extremely difficult to forecast the exact timing, location or impact of a flash flood.

This unpredictability can present a challenge to the Council and other partners and as such must be addressed in flood planning and business continuity planning along with a strong focus on coordinated local and national partnership working.

I would like to thank the members of the Review Group for their contributions and to all witnesses for sharing their experiences, which have informed the findings and recommendations in this report.

The work of the review group has also been supported by Dr Chris Bradley, Senior Lecturer in the School of Geography, Earth and Environmental Sciences, Birmingham University, who has provided specialist advice on the factors that contribute to the pattern of flooding in urban settings and the impact of climate changes on future weather patterns.

Members of the public were also invited to share their experiences of the flooding on my Facebook page a link to which can be found [here](#).

I commend the recommendations in this report to Cabinet and partner organisations.

Councillor Phillip Bateman MBE,
Chair of Scrutiny Review

2. Executive Summary

- 2.1 Having considered the events that took place over the bank holiday weekend in May 2018 it could be seen that there were some areas where immediate improvements were required and indeed these improvements such as changes to the out of hours telephone system and updating contact sheets for Duty Directors were made with immediate effect. The Group is therefore largely satisfied that the City of Wolverhampton Council in its role as Lead Local Flood Authority has a robust plan in place for dealing with flash flooding incidents in partnership with organizations such as Seven Trent Water, the Highways Agency and the Environment Agency. There is however, agreement of the need to fully test the logistics, communications and capabilities of the emergency resilience plans and systems and ensure clarity about the escalation policy.
- 2.2 The report includes recommendations to help ensure that changes to operating procedures following reviews of processes are implemented and are fit for purpose.
- 2.3 Recommendations have also been made to consider a review of operating procedure regarding public engagement, specifically around encouraging members of the public to register for flood alerts and severe weather warnings and to take precautions to protect their homes from flooding.
- 2.4 The review group welcomed the continued focus by the City of Wolverhampton Council and Seven Trent Water to invest in measures to improve land drainage and sewage systems to support progress towards achieving the vision for flood risk management.
- 2.5 The review group are reassured that there is a clear commitment from all the key organisations to meet their respective responsibilities for flood risk management.

3. Background

- 3.1 The City of Wolverhampton Council is responsible for leading efforts and preparing plans for local flood risk management across Wolverhampton. Following the flooding that occurred on 26 and 27 May 2018 the Scrutiny Board, at its meeting on 5 June 2018 resolved that:

A Scrutiny Review be carried out in regard to the Council and other partner organisations responses to the recent flooding in the City and that Cllr Bateman chair the Review Group.

3.2 The overall aims of the review were:

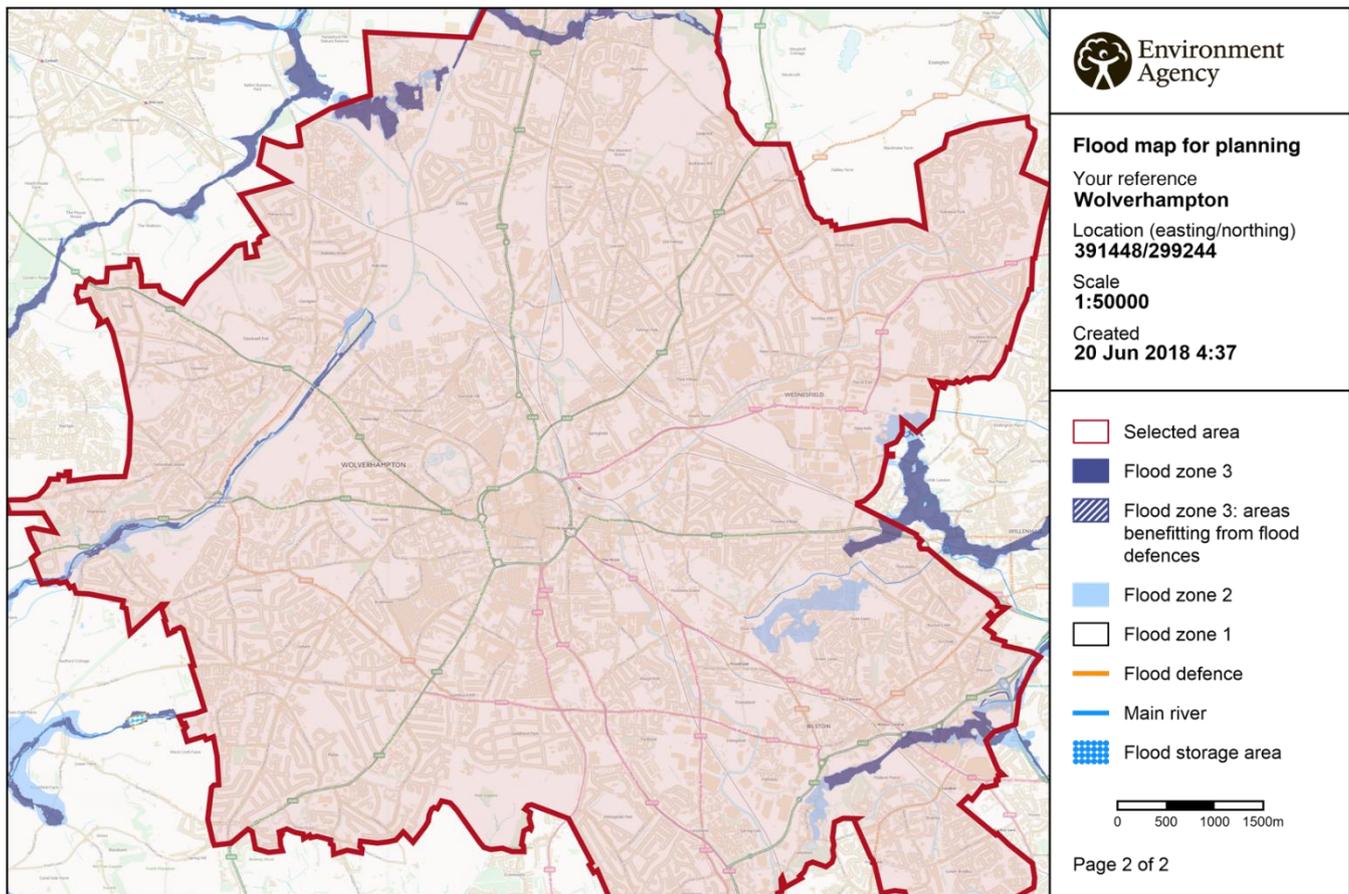
- To scrutinise the effectiveness of current policies and procedures in mitigating the effects of surface flooding.
- To review the effectiveness of emergency planning arrangements and the use of intelligence and data.
- To consider where lessons could be learned to help minimise the risk to homes and businesses in the future.

3.3 The approach to the review was to invite witnesses to submit evidence in advance and to make recommendations to the review group. All witnesses were sent a list of questions to complete (Appendix 3). In addition, witnesses were given the opportunity to meet with Cllr Bateman to discuss any issues about the purpose of the review.

3.4 The panel held two evidence sessions on 9 July 2018 and 13 July 2018 (Appendix 4).

3.5 The Full Terms of Reference for the Group are attached at Appendix 5.

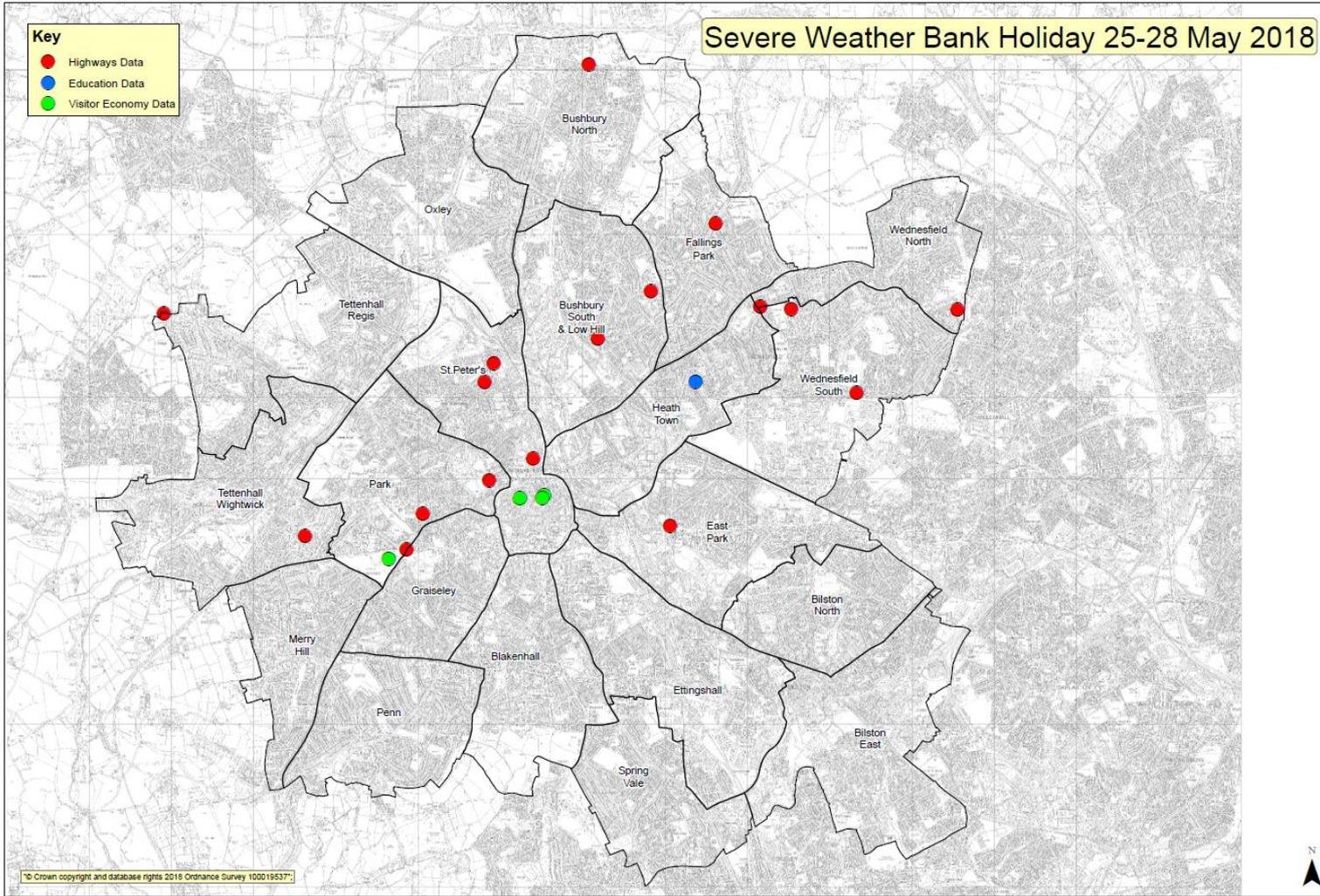
3.6 The Flood Map for Planning shown below (Figure 1) highlights the areas at high risk of flooding in Wolverhampton in dark blue (Flood Zone 3):



(Figure 1)

- 3.7 The map at Figure 2 (below) shows the incidents of flooding reported to the Resilience Team by Highways, Education and Visitor Economy over the May bank holiday weekend 2018. It is important to note that there may have been other incidents of flooding that were not reported as members of the public will deal with a flooding incident in a variety of different ways.
- 3.8 The type of flooding that this review focused on is surface water flooding (also known as flash flooding). Flash flooding occurs as a result of intense rainfall and is unique in that it can happen before the water enters the river or the water course or even where none exists. This makes predicting flash flooding extremely difficult as it happens when the rainfall is more than the drains can handle and can occur very quickly. All of the highway drainage including gullies and channel drains are connected to a Severn Trent Water Sewer. This would normally be large enough to handle a regular storm event but on the weekend under review a month's worth of rain fell in an hour which far exceeded the capacity of the drains.

(Figure 2)



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Figure 3 (below) shows the number of calls received by the Fire Service over the May bank holiday weekend (areas highlighted in red were attended by the Fire Service).

Date	Postcode	Number of Calls	Number of Attended Calls	Incident Type
27/05/2018	WV3	2	0	Flooding
27/05/2018	WV6	1	1	Special Service Call
27/05/2018	WV10	1	0	Water Rescue Incident
27/05/2018	WV10	7	1	Flooding
27/05/2018	WV10	1	1	Flooding affecting electrics
27/05/2018	WV11	7	1	Flooding
28/05/2018	WV1	3	0	Flooding
28/05/2018	WV3	3	0	Flooding
28/05/2018	WV6	1	0	Flooding
28/05/2018	WV10	3	0	Flooding
28/05/2018	WV10	1	0	Special Service Call
28/05/2018	WV11	5	0	Flooding
28/05/2018	WV12	2	0	Flooding
28/05/2018	WV14	1	0	Flooding

(Figure 3)

4 Time Line of Events

4.1 During the May bank holiday weekend, it was reported that the West Midlands region experienced the equivalent of a month's worth of rain in an hour, with over 10,000 recorded lightning strikes leading to several flash floods and power outages.

Friday 25 May	
11:55	Met Office issue a yellow warning for rain.
15:30	Resilience Team issue email forwarding Met Office warning, this email failed to send and remained in the outbox due to connectivity problems as the Team were off site. Upon receipt of the weather warnings, Highways had doubled the number of gully tankers on stand-by, and cleaned debris from culverts.
Saturday 26 May	
	Environment Agency sent an invite to the Resilience Team on 26 May. The email was sent to the emergency planning inbox inviting them to teleconference to discuss the weather warnings. However, the request was not actioned as the inbox is not monitored over the weekend.

Sunday 27 May	
10:11	Update from the Met Office – yellow warning still in place with low likelihood of medium impact but states some thundery rain with torrential downpours and frequent lightening and increasing the likelihood of flooding impact affecting areas including the West Midlands Conurbation and areas of South Staffordshire - valid until 0600 on Monday (sent to Emergency Planning inbox so not picked up at the time).
18:51	Met Office issue an amber warning – area of organised thunderstorms across parts of the West Midlands. Scope for 30mm of rain in an hour and perhaps up to 70mm of rain during a 3 hour period. Scope for significant flooding impacts due to heavy rain overwhelming drainage channels - valid until 2100 that evening. (As above, this was sent to the Emergency Planning inbox so not picked up at the time).
	Bantock House outbuilding fire, struck by lightning on roof of café. Fire Service attended and put out fire.
	Art Gallery, severe flooding Sunday evening mostly in Lichfield entrance. Water damage to some paintings on the stairs.
	Makers Dozen Studios, severe flooding to several studios Sunday evening, ceiling collapsed in one studio.
Monday 28 May	
	No Flooding Related Events Recorded
Tuesday 29 May	
09:00	Resilience Team made aware of events and issues that had occurred over the bank holiday weekend.
09:40	Resilience Team contacted all on-duty officers to ascertain if any communications had gone through and been missed – none had been received over the weekend.
09:40	Resilience Team contact Wolverhampton Homes Duty Supervisor to ascertain if any issues. Limited information available but confirmed that there was an issue and that Openreach was on site to rectify. Confirmed that many of the antenna masts received storm damage, likely from a lightning strike.
12:38	Confirmation that floods are result of flash flooding and capacity of drains being reached so surface water couldn't be drained away.
13:31	Confirmation that Heath Park School had suffered extensive water damage throughout the school. As a precaution education contacted all secondary schools by phone to make sure they were thoroughly checking their sites. Blanket email sent to all schools to check their sites and contact their relevant FM service provider if necessary.
13:56	West Midlands Pensions at the Mander Centre down with power issues. Resilience plan in operation.
13:56	Confirmed that there was an increase in out of hours emergency repairs calls for Wolverhampton Homes properties. Emergency repairs team dealt with 57 calls on the 27 th May and 5 follow on calls. Mainly queries around overflowing guttering and some roof leaks.

	An extra emergency team was working to make sure every tenant was visited. Throughout these repair calls, no pumping out/fire service attendance was required and no tenants were displaced. No approaches for emergency housing due to the weather/flooding in terms of homelessness services.
14:07	Confirmed that all Jontek calls were ok over the weekend (The Jontek system, is an emergency telecare line run by the Wolverhampton Homes control room. This line is used by individuals in need of additional support to continue living at home. It will allow the user to make an emergency call for help 24/7, by pressing a button which then immediately calls the control room. Operators must prioritise this line over any other, due to the potential life or death nature of the situation).
14:53	Data produced to show that 2 out of 356 incoming calls were not answered on the emergency out of hours 2999 number.

5 Identified Concerns and Areas for Improvement

5.1 Met Office Weather Warnings

5.2 The Resilience Team has access to Met Office live weather tracking data, and it must make a risk-based judgement on the most appropriate response to an incident. The review group were advised that the emergency resilience plan includes details of action to be taken in specific circumstances in response to warnings from either the Met Office or Environment Agency. It was agreed following evidence submitted by the Flood Risk Manager that there was a need for a proportionate response to a weather warning based on published criteria and guidance.

5.3 Problems appear to have arisen in this case because the Met Officer weather warnings were sent to a generic email address that is not monitored out of hours and due to connectivity issues with an email remaining in the outbox due to the Team being offsite (the Team were not aware that the email had not been sent).

5.4 Duty Manager and Duty Director on-call process

5.5 A Duty Director and Duty Manager are on-call at all times over a Bank Holiday. Personal telephone numbers are used at times (pre-planned) in order to accommodate the volunteer system that is used on Bank Holidays. The full list of numbers to be used is distributed to officers on-call as well as to the 24-Hour Contact Centre. The response process is as follows:

Public/Responding Organisation > 24 Hour Contact Centre > Duty Manager > Duty Director > Managing Director > Council Leader

5.6 On the weekend in question the Duty Director and Duty Managers reported that they received no calls over the weekend to their personal numbers. The Group did however note that a councillor had confirmed that he had phoned the Duty Director but received no answer.

5.7 In response to the issues surrounding the bank holiday on-call procedure, a review was taking place in the Resilience Team to ensure that the issue does not happen again.

5.8 The Contact Centre

5.9 The Review Group had been made aware of issues regarding members of the public not getting through to the 24-hour contact centre provided by Wolverhampton Homes.

It was confirmed that the 2999 out of hours line was operating and taking calls as usual, but much higher volume of calls were received on the weekend under consideration than normal.

- Saturday 26 May – 193 calls
- Sunday 27 May – 957 calls
- Monday 28 May – 440 calls

This was a total of 1590 compared to an average weekend (Sat-Sun) call volume of 270.

There were 2 call operators on shift over the weekend and an average of 17 calls were answered every hour.

5.10 Further investigation identified that some members of the public were unable to reach an operator and that these callers received an automated message explaining their call could not be answered at the time. This was due to a capacity issue, with the maximum number of calls that could be queued set at 32 which would normally be sufficient for the out of hours service.

5.11 Seven Trent Water – Actions Taken before and during the flooding incident

In evidence from Tim Smith, Flooding Analyst, Strategy and Regulation, Severn Trent Water (STW), the review group were advised that their wet weather contingency plans were triggered on Sunday 27 May in response to the Met Office forecasts. STW contract partner AMEY made extra resources available on Sunday 27 May and on the following days to deal with the incidents.

5.12 Between Sunday 27 May and Tuesday 29 May there were 226 incidents reported to STW. On Sunday 27 May, STW experienced a 400% increase in the number of calls that would normally be received on a Sunday. All planned work was cancelled to focus resources on the incident response.

5.13 STW in evidence to the review advised that in total 31 crews responded to reports of flooding incidents and communications were sent to customers via their website and social media to warn them of the need to prepare for the risk of potential flooding.

6 Findings and Outcomes

6.1 Improvements and Mitigation already actioned.

- 6.2 City of Wolverhampton Council ICT have made changes to the 2999 emergency call system to ensure that calls are now held in a queue when there is a surge in demand; a high-volume test has been completed successfully.
- 6.3 Three extra phone lines were also installed on Tuesday 29 May during the night and 2 additional operators who do not normally take the emergency calls were on duty to take calls (although they are not specifically trained to handle emergency calls), plus an on-call supervisor (4 call handlers in total plus a supervisor).
- 6.4 All 17 rest centre volunteers were alerted to the upcoming forecast and the possibility of being requested overnight.
- 6.5 Councillor phone numbers were added to the Apprise logging system for the Duty Director and Duty Manager to contact in the event of a significant incident in their ward.
- 6.6 A new webpage is now live with information for residents about what to do if they have flash flooding in their street. Residents would immediately see this link from the home page if required - www.wolverhampton.gov.uk/severeweather.
- 6.7 Emails were sent to councillors throughout the week to keep them updated.
- 6.8 Social media updates were put out throughout the week to inform the public.
- 6.9 There is also a recognised need to help people develop the skills and confidence in managing emergency incidents; whilst recognising that an incident may be outside their area of expertise. There was a suggestion that training should be carried out in the dedicated emergency room to help support the duty manager and duty director. It has now been confirmed that weekly training sessions are offered to Duty Managers and Duty Directors and that additional training sessions for councillors were in the process of being arranged.

7 Partnership Working

- 7.1 The City of Wolverhampton Council (CWC) has a strategic role in managing the risk of flooding from local sources and must work with key partner organisations such as the Environment Agency, Severn Trent Water (STW) and representatives of neighbouring authorities to ensure that all legislative responsibilities are met and that the risk of flooding to homes and properties in Wolverhampton is mitigated.
- 7.2 The review group welcomed the speedy response from witnesses representing CWC and partner organisations with responsibility for flood risk management or resilience planning

to look critically at where changes are needed to improve their respective plans and policies in managing similar incidents in the future.

- 7.3 The appointment of Jamie Cooper, Flood Risk Manager, who works for Staffordshire County Council as part of a service level agreement with Wolverhampton, Walsall and Sandwell Council was also welcomed by the Review Group.

8 Ongoing and Future Improvements

- 8.1 The review group suggest that work is needed to map areas and buildings affected by flooding and the costs of repairing any reported damage and any necessary preventative work to reduce the risk in the future.
- 8.2 There is also an acceptance by the review group of the need to work with the local community to support efforts to mitigate the effects of flooding and manage the level of risk and provide information and advice. The idea of working with local people to develop community flood response teams was suggested and it is something that should be explored, which will hopefully raise awareness in those areas considered to be at high risk of flooding.
- 8.3 The Service Director Strategy & Change confirmed that to prevent a repeat of emails being sent to a generic inbox that is not monitored out of hours, that the Duty Manager and Duty Director could be added to the inbox to receive alerts. Further work will be done to decide the best way forward regarding this.
There were issues with the phone used by the on-call Duty Director not having a signal and the review group were advised that due to this calls were not able to be escalated to the appropriate level. There are ongoing discussions about replacing the emergency Duty Director phone with a duty pager.
- 8.4 In evidence to the review it was commented that promotional campaigns desired to raise awareness of flooding risk have not been as successful as expected. The review group supports efforts to look at alternative ways to encourage the public to use the resources available which could help those affected by flooding to recover to the new normality.
- 8.5 The review group support the view of Dr Chris Bradley of the need to look at more sustainable drainage systems and the use of targeted maintenance to clean gullies more frequently in high-risk flood areas.

- 8.6 There are concerns about plans for reducing the current gulley cleaning programme which will result in some locations not been included in the annual programme and it was suggested that a report be compiled in relation to the implications that this may have.
- 8.7 The Flood Risk Manager at the time of drafting was preparing a bid to fund a survey of watercourses and analysing the associated flood risk with a view to better informing and directing any future bids for capital works.
- 8.8 Appendix 6 details the roles and responsibilities for emergency resilience or flood prevention/mitigation within CWC.

9 Emergency Planning/Resilience

- 9.1 The City of Wolverhampton Council has obligations in relation to the Civil Contingencies Act 2004. The work of the Resilience Team meets the aims and objectives of the Resilience Board through a three-year work programme.
- 9.2 The CWC Resilience Team will support the Council in response to and recovery from (major) incidents or Business Continuity incidents. At the time of an incident the Resilience Team may be called on as subject matter experts to advise and represent the Council at multi-agency meetings during office hours.

10 Planning and Flood Risk

- 10.1 The review group expressed concern about the level of consideration and challenge given by CWC to the concerns of the Planning Committee regarding the issue of flood risk management when developments are proposed for sites on a flood plain.
- 10.2 The review group were assured by the Flood Risk Manager, that the issue of flood risk management is carefully consider for major developments (all major developments are reviewed in terms of flood risk by CWC as Lead Local Flood Authority) and detailed in the Black Country Core Strategy. Further, the stated aim is that the design of future major developments will reduce the level of surface water run-off significantly and the burden on the STW drainage network.

11 Seven Trent Water and Storm Water Drainage

- 11.1 In evidence to the review group it was reported that both CWC and Severn Trent Water Authority (STW) had made significant investment into improving land drainage and sewerage system to cope with flooding from water courses and surface flooding.

- 11.2 STW has a five-year business plan agreed with OFWAT which includes investment in new drainage infrastructure but there is an acknowledgement that some areas will remain at risk of flooding from sewers and surface water.
- 11.3 The review group were advised by Dr Bradley that the impact of summer flooding events depends on the effectiveness of the storm water drainage network and how quickly water can move through the system, the importance of reducing pressure on the drainage network was highlighted during the review as key part of the flood risk management strategy.
- 11.4 Dr Bradley also commented the extent of any flooding will depend on the effectiveness of Sustainable Drainage Systems (SUDS) for example, permeable drives, which are designed to either allow excessive rainfall to be absorbed before entering the drainage network or to slow the flow of surface water runoff with the aim of reducing the risk of flooding to properties.
- 11.5 Regarding, the road network, developments such as reduction in grassed areas in urban areas, the expansion of concreted areas and building on flood plains are all factors which contribute to the efficient transport of flood water during a storm; when the water hits a hard surface, it can quickly overwhelm the sewage and drainage system.
- 11.6 Dr Bradley explained that Severn Trent Water manage and charge for surface water drainage for individual properties while the Council manages the road drainage. In most cases drainage water passes into the treatment works through the combined sewer and storm water drainage system. During a period of heavy rainfall when the capacity of the system is exceeded, the sewer inspection covers can be lifted off by the high pressure and sewage or storm water can be discharged to the local water course.
- 11.7 The Council as Lead Local Flood Authority are also working with STW to look at individual factors that have contributed to the flooding in a specific area. The review group discussed the issue of blockages in STW pipes and there was concern about the current policy of removing obstructions in drainage pipes that they maintain.

12 City of Wolverhampton Council Communications.

- 12.1 The Head of Corporate Communications advised the review group that the communications team is a council-wide resource which is available to senior officers and councillors to help them deal with a specific emergency or incident.

- 12.2 It was stated that on the weekend of 27 May there was an on-call communications officer on duty and there was no information that there was a problem with the emergency duty system or the extent of flooding affecting areas of Wolverhampton. The media protocol and emergency communications detail the roles and responsibilities of individuals across the Council to respond to an incident.
- 12.3 The Head of Corporate Communications further advised that existing command and control systems would have been able to respond to the flooding incident. However, as the Duty Communications Officer was not aware of the problems referred to earlier, the necessary resources were not deployed by the Duty Manager or Duty Director.
- 12.4 The Group noted that the issues that led to the review were not related to the command and control structure but linked to the telephony issues and if the right people were contacted at the time of the flooding then the response may have been different.
- 12.5 The Head of Corporate Communications commented on the need to have a single list of emergency numbers for Councillors with accurate information and alternative numbers provided to the 24-hour contact centre in case the Duty Officer or Duty Director could not be contacted.

13 Financial cost to the City of the flooding

- 13.1 The review group were keen to understand the financial costs to the City because of the flooding. The review group were advised that a number of council buildings were damaged either because of lightning strikes and or flooding.
- 13.2 The following CWC buildings were damaged during the storm:
- Bantock House
 - Wolverhampton Art Gallery
 - Makers Dozen Studios
 - Central Baths
- 13.3 In evidence to the review the Corporate Assurance Manager (CWC) reported that the total cost of damage caused was an estimated £26,000. It was also reported that a number of exhibits were damaged in the Art Gallery requiring restoration or estimates for restoration. An investigation by the Loss Adjuster reported a deficiency/weakness in the current guttering system on the roof of the gallery as being the cause of the flooding. The Loss Adjuster recommended the installation of a pump on the roof to remove the water

and prevent the troughs from overflowing – the area is also monitored by CCTV. The review group were advised that all the necessary work has been completed.

14 Prevention

- 14.1 The Flood Risk Manager advised the panel that there were various grant aided Government funded flood defence schemes that provided resources following a flooding incident.
- 14.2 Wolverhampton is in receipt of some grant funding for a scheme on the Waterhead Drive that is currently in development. The work is overseen by the Trent Regional Flood and Coastal Committee. The members of the board meet quarterly and CWC is represented by Cllr John Reynolds.
- 14.3 The panel were advised by the Flood Risk Manager that a funding bid had been submitted for the Black Country to meet the cost of undertaking a CCTV survey of key watercourses and a report on the size and condition of them together with an analysis of flooding.
- 14.4 The review group noted the challenge facing the region in trying to secure capital funding and revenue to update and improve drainage systems to better cope with periods of heavy rainfall leading to significant flood damage within a cost beneficial framework.
- 14.5 There was a strong view expressed by the review group of the need to ensure that CWC leads efforts to ensure that there is a recognition that different approaches to mitigating the effects of flooding will be needed in different locations.

15 Informing the public about the risk of flooding and providing advice

- 15.1 Seven Trent Water sent out communications to customers via their website and social media in preparation for potential flooding including how to deal with flooding and reporting an incident.
- 15.2 The Environment Agency (EA) have published a useful range of information to help homeowners find out if their property is in a flood risk area and also guides on how to protect their home from flooding, this [link](#) gives more details. Homeowners and businesses can enter their postcode to find out about the level of risk from flooding in a specific area and get advice about what to do in event of a flood.

- 15.3 In many flood risk areas, homeowners and businesses can sign up for flood warnings. These warn of the risk of flooding from rivers, the sea and groundwater. The public who register will get an alert by phone, email or text when flooding is expected.
- 15.4 However, the review group expressed concern about the level of public interest in finding out more information about the level of flood risk; particularly those properties which are known to be in high flood risk areas. The review group recognise the importance of giving property owners timely information and advice about what action they can take before, during and after a flood to mitigate the risk of flood damage.
- 15.5 However, evidence from other areas that have been flooded suggest more radical thinking is needed to encourage residents living in risk areas to plan how they can protect their property in the event of a flash flood.
- 15.6 The review group accept that giving timely flood advice is a challenge as the fast-moving nature of summer storms will only give short time for first responders to give advice. Therefore, there is a need for CWC representatives to have discussions with the local community groups in high risk flood areas to plan how to develop a strategy to manage the risk.
- 15.7 There is a recognition of the need to both identify and support vulnerable community members who may find it difficult to manage during a flooding incident and how to best to make them aware of rapidly changing weather conditions and to make necessary preparation.