

Local Members' Interest
NA

Prosperous Staffordshire Select Committee – 24th May 2016

Flood Risk Management

Recommendations

The Committee is asked to:

1. Scrutinise the update on the preparedness of the County Council for a severe flood event
2. Approve the next steps the County Council are taking to further improve preparedness for a severe flood event
3. Approve plans to host a Staffordshire Flood Summit

Report of Cllr Mark Winnington, Cabinet Member for Economy, Environment and Transport

Summary

4. In light of the recent severe flooding in Cumbria, Lancashire and Yorkshire in December 2015, this paper explores how prepared Staffordshire County Council (SCC) is for a similar severe flood event. It explores our role as Lead Local Flood Authority, Highways Authority and Category 1 Emergency Responder and how likely the County Council would be to cope in such severe circumstances, highlighting the issues likely to occur.
5. This paper provides an update for Members and seeks approval for further work to be undertaken by the County Council to improve preparedness for a severe flood event.

Report

Background

6. Storms Desmond, Eva and Frank brought record-breaking levels of rainfall to many parts of the country in December 2015. Cumbria, Northumberland, Lancashire and Yorkshire were particularly badly affected.
7. The flooding was devastating. 16,000 homes and over 4,000 businesses were flooded. Many of these properties were behind flood defences in Cumbria that had been built following major flooding in 2009 or in locations like York, where the Foss Barrier was overwhelmed for the first time in its 30 year working history.

8. Flood defences protected 20,000 properties from flooding, but the unprecedented levels of rainfall pushed many beyond the resulting river levels they had been designed for and they were overwhelmed or breached.
9. There were major impacts to the local economy and infrastructure. The West Coast Mainline was closed for 2 months and multiple bridges were washed away or damaged and closed, such as Pooley Bridge in Ullswater, Cumbria and the historic bridge over the River Wharfe in Tadcaster, North Yorkshire. Electricity, gas and water supplies were also badly affected.
10. The worst hit Council was Cumbria, which had around £175m of damage to infrastructure. Calderdale had costs of around £33m, Northumberland £24m and Lancashire £5m.
11. The overall economic impact of the 2015-16 winter floods has been estimated at over £5bn. Flooding can both directly and indirectly affect local communities, when those outside of flood risk areas are affected due to infrastructure damage, temporary loss of facilities such as schools and health centres and businesses and local employers close, relocate or temporarily shut down.
12. It is not 100% possible to prevent everyone from flooding but effective flood risk management before, during and after a flood event can support local communities and businesses to plan for, respond to and recover from the serious effects of flooding.
13. Planning ahead for severe flooding and learning lessons from other parts of the Country will make the County Council well placed should Staffordshire be affected by such flooding. It is important for maintaining a strong and growing economy and ensuring we have great places to live that are safe for local communities, all of which are essential parts of the County Councils Business Plan.

Current Position

14. Major floods have affected Staffordshire in the recent past in 1946, 1977, 1981, 1994, 1999, 2000 and 2007. These caused property flooding and major impacts to local infrastructure and the economy at the time.
15. Flood defences have been built after such events to reduce the chance of a repeat flood event. Table 1 shows that many of our larger towns are afforded flood protection. Millions of pounds of public money have been invested in flood defences and recent flood events have demonstrated that in the large part, these defences continue to protect us from flooding.

Table 1 Largest defended areas in Staffordshire

Settlement	Impacts of flooding	Last flooded
Burton-on-Trent	7,300 properties, town centre affected, closure of key bridges with 20-40 mile diversion, railway line closed	In 2000, the defences were close to overtopping. 40 properties flooded. Since then the defences have been improved.
Tamworth, Elford and	3,000 properties, Ventura Retail park flooded and A51	Flood events in June and July 2007 caused widespread flooding at Fazeley

Fazeley	closed	and Elford in particular. Since then defences have been improved.
Stafford	150 properties	1946,1977,1981, 2000
Cannock	100 properties, A5 and A34 closed	September 1994, July 1999, November 2000

Table 1 shows the larger defended areas. There are often localised issues behind flood defences caused by surface water and small, often culverted, watercourses.

16. Flood defences are designed to offer protection against a certain size storm known as the design event. This is typically the type of event we might expect on average once in every 100 years and is sometimes referred to as the 100 year flood. However, this is misleading as this is a probability and such events could occur in close succession rather than only once every 100 years.
17. In December, areas in the north saw unprecedented levels of rainfall that exceeded the design standard of many of the flood defences. Should we receive record-breaking levels of rainfall in Staffordshire, our flood defences would also be overwhelmed.
18. In addition, a flood defence is also only as strong as its weakest point. When defences are under great pressure during severe flood events, there is the potential for them to breach, as was seen at St Michaels in Lancashire in December.

What is our role as the County Council in preparing for, responding to and recovering from flooding?

19. SCC has three key roles: as an emergency responder, as a Highways Authority and as a Lead Local Flood Authority.
20. **Emergency Responder:** SCC is a Category 1 Emergency Responder (Civil Contingencies Act 2004) and has responsibility to assess the risk of, and plan for, emergencies. SCC commissions emergency planning and business continuity services from the Staffordshire Civil Contingencies Unit (CCU). The CCU is a multi-agency emergency planning hub based at Stafford Fire Station. The CCU supports the work of the Staffordshire Local Resilience Forum, which brings together responders such as the police, fire, ambulance, Environment Agency, local authorities and utility providers to plan for, respond to and support recovery from emergencies.
21. Within SCC, a number of officers are identified to form part of the Incident Management Team (IMT) in response to an incident. These officers have a training and exercising programme available to them, via the CCU, to ensure they are suitably prepared for their role.
22. **Highways:** The Infrastructure Plus Partnership is set up to address highway related flooding such as blocked gullies and the like. When a large flooding event occurs the Partnership has six gully emptying machines which could be diverted onto reactive type works. In addition, through call on contracts, SCC has access to pumps and tankers; however, in times of flood these may be in high demand outside of the county and unavailable. In a flood event highways could deploy resources to close roads etc.
23. **Lead Local Flood Authority:** As a Lead Local Flood Authority (LLFA) we have an overview of the management of flood risk from small non main watercourses, surface water and groundwater. We prepare a Local Flood Risk Management Strategy

(published in December 2015) that sets out how we will do this. This includes working closely with the CCU and Highways to improve our preparedness and response to flooding and also a duty to investigate flooding incidents after they have occurred.

24. The key partners we work with include:

- a. The Environment Agency, who carry out flood forecasting and warning, manage flood risk from Main Rivers (generally the larger rivers) and have an operational role on these watercourses (such as shutting flood gates and operating pumps)
- b. District and Borough Councils are also Category 1 Responders with a key role in emergency preparedness, response and recovery at a district and borough level. They have a specific role in evacuation and should have plans in place to provide temporary accommodation (such as rest centres).
- c. The Water Companies, who respond to and seek to alleviate flooding from the sewer network. It is not possible to design sewers to be large enough to accept significant amounts of rainfall and so following severe rainfall, the sewer network would be overwhelmed.

Key Considerations

25. To put this into local context, this paper explores what might happen at Burton-on-Trent in East Staffordshire and Leekbrook in Staffordshire Moorlands, should we experience severe flooding and considers our preparedness before, during and after.
26. Burton-on-Trent is on relatively flat land in the Trent Valley and extensive areas of the town are within the floodplain. The defences in the town were last upgraded in 2007, following a near miss in the November 2000 floods, when the water was inches from the top of the defences.
27. Due to the extensive floodplain of the Trent at Burton, the river can take 1-2 days to respond here to rainfall near the source of the Trent at Stoke-on-Trent. On the 5th and 6th of November 2000, nearly a month's rainfall fell in 24 hours, causing the River Trent to rise by nearly 2 metres in 50 hours and giving a record level of 3.79m.
28. In contrast, Leekbrook has a relatively steep Pennine catchment that responds rapidly to intense rainfall. There is the potential for flash flooding that could be life threatening, such as that seen in Boscastle in Cornwall in 2004 or Lynton and Lynmouth in Devon in 1952.
29. In both of these scenarios, it is unlikely that they would be the only communities affected. Pockets of flooding spread around the county would provide challenges to an effective response.

Before a flood

30. Rainfall and river levels are constantly monitored and forecasted up to five days ahead. The Environment Agency (and Met Office – Flood Forecasting Centre) use this information alongside local knowledge to issue flood alerts (flooding is possible) and

more serious Flood Warnings (flooding is expected) and Severe Flood Warnings (severe flooding expected, with a danger to life).

31. Should Staffordshire be shown to be at risk of flooding, procedures to establish multi agency coordination would be triggered. Should a severe flood be forecast, this would be co-ordinated at both a Strategic and Tactical level. Initial considerations would include the scale, impact and duration of flooding. Subsequent actions may include evacuation, the opening of rest centres and deployment of strategic resources such as high volume pumps and flood barriers.
32. To test these procedures, the multi-agency flood plan is exercised at least every three years, through a multi-agency flood exercise. This was last exercised in March 2016.
33. Alongside the multi-agency response, SCC would set up its Incident Management Team to consider relevant issues including the continued provision of critical services. Each service identified as critical is required to have a Business Continuity Plan to allow them to maintain services during an incident (whatever the cause e.g. fire/ flood) and these include responding to the loss of a building and loss of ICT.
34. ICT have two central data centres, to which the risk of flooding is relatively low. Both of these contain water detection systems to alert staff of any flooding. This would allow equipment and services to be moved between data centres as necessary to maintain the ICT system. All servers are hosted out of the data centres in Stafford.
35. An important role for both SCC and all Local Resilience Forum partners at this stage would be to communicate information about the risk to the public. This should include information on areas at risk, how residents can protect their property and consider how they would evacuate if required to do so. This is vital as it can reduce the demand on emergency responders during the incident.
36. The River Trent at Burton-on-Trent responds to prolonged rainfall and localised thunderstorms often make little difference to the levels in the Trent, although they can cause localised surface water flooding. Once prolonged seasonal rain had started to fall and the response in the river network could be monitored, the Environment Agency would have at least a day to predict that the defences in Burton would be likely to be overwhelmed. This would give some time for measures such as evacuation and rest centres to be set up, although recent flood evacuation studies in Lincolnshire have shown that it might take several days to completely evacuate a large area. There may also be an element of apathy from the local community to evacuate, since there has not been widespread flooding of the town for some time.
37. In contrast, thunderstorms that occur over steep and small Pennine catchments, like Leekbrook, are both difficult to forecast and can have significant impacts. In July 2013, a band of thunderstorms affected central Nottinghamshire and caused around 1,000 properties to flood from surface water and small watercourses, some within 30 minutes of the rain starting. On this day, the heaviest rainfall was forecast further north, around the Humber Estuary. No Flood Alerts were issued in advance and there were limited actions organisations could take with the low level of confidence in the location of the rainfall. The flooding happened so quickly that by the time many of the emergency responders had reached the flooded areas (which was challenging due to flooded roads), in many places the flood waters had been and gone.

38. Therefore responders and communities need to be prepared for both long term and sudden flood events.

During a flood

39. On receipt of information from the Flood Forecasting Centre that flooding was likely, a Strategic Assessment Meeting would be held and a multi-agency response stood up. This would initially be chaired by SCC. At the point where flooding was occurring and life was in danger, the emergency services would lead the multi-agency response. This would continue throughout the incident and into the recovery phase. The Strategic Coordinating Group could request military assistance if deemed necessary.

40. In respect of SCC services, the response would be co-ordinated by the Incident Management Team. Ensuring the continued delivery of council services would be a priority for the Incident Management Team to consider. SCC is likely to experience greater demand from residents impacted by flooding, the general public and the media.

41. This is likely to place increased burden on Adult Social Care, Children's Services, Highways, Customer Services, Schools and Communications which would need to be managed alongside ensuring business continuity and managing a potentially prolonged emergency response and recovery effort.

42. Our highways response is generally set up for very localised highways issues and during a severe event at Burton-on-Trent, our main focus would be closing roads to keep the public safe and assisting evacuation. We do not issue sandbags to the public and these are rarely effective.

43. As the LLFA, the SCC Flood Risk Management Team would support the Incident Management Team as flood risk specialists with decision making and would also be collating information on what flooding has occurred to inform the response and later flood investigations.

44. The County Council would put in place the above measures to respond to a major flood event, but is not resourced to totally cope with a severe event like this and would rely on mutual aid from other areas. In a widescale incident this may have to be sourced from further afield as neighbouring authorities may also be affected. SCC would use its Business Continuity Plans to prioritise service delivery while resources are diverted to flood response and/ or staff were directly affected by the flooding or unable to travel to work.

45. In contrast to widespread flooding of the Trent Valley, flash flooding at locations such as Leekbrook would be much shorter in duration, although the effects could be locally very severe to those affected and in terms of impacts on SCC services. The multi agency response would switch much faster to post event recovery in such locations.

Recovering from a flood

46. Experience from previous floods shows that it can take years for a community to fully recover from a major flooding incident, with many people out of their homes for over 12 months. Initial recovery considerations would begin during the response phase with a dedicated SCC team leading this.

47. Once the flood water has begun to drop and there is no further risk to life, the response would transition into recovery. SCC would have a key role chairing a multi-agency recovery group. At the same time, day to day services would need to return to business as usual as soon as possible. Work might involve:
- a. Establishing routes for obtaining financial aid. The Bellwin Scheme may assist Local Authorities to recoup some of the costs involved. However this is only for expenses incurred during the response phase and would not cover recovery work.
 - b. Supporting the recovery of local businesses,
 - c. Restoring roads and other infrastructure. Once the flooding has receded it is difficult to estimate how long it may take to reopen the highway as it would depend on the level of damage. When considering recent incidents around the country this could range from a few hours to many months,
 - d. Ensuring access to a full range of health advice (including long term psycho-social care),
 - e. Clean-up of areas contaminated by floodwater. This would include the disposal of contaminated waste, including white goods and household belongings,
 - f. Administering central government flood resilience grants to affected residents and businesses, should these be made available.
 - g. Ensuring delivery of County Council services to residents who may have been displaced by the flood.
 - h. Supporting other agencies involved in recovery (such as district/borough councils)
48. As LLFA, we would investigate the flooding. This would seek to establish what happened, where and why, the role of the different flood risk organisations involved and what measures it might be possible to put in place to reduce the chance or impact of a repeat event.

Comments and Next Steps

49. SCC are working with the CCU and Environment Agency to improve preparedness for severe flood events. This work includes:
- a. A County Council-wide flood exercise based on the scenario of the Burton-on-Trent flood defences overtopping later in 2016/17 to test preparedness,
 - b. Supporting the Environment Agency to produce Incident Response Plans for key defended areas that make clear the roles and responsibilities of the different organisations,
 - c. Identifying the critical road network to ensure it is as resilient as practical to extreme weather conditions,
 - d. Taking forward a new gulley emptying cycle that takes a risk based approach,
 - e. Working with the Environment Agency, District and Borough Councils and Water Companies on a rolling six year programme of new or improved flood alleviation schemes,
 - f. Working with the National Flood Forum, an Independent Charity, to work with communities and local businesses to raise awareness of the risk of flooding and increase community resilience,
 - g. Implementing the recommendations locally of the National Flood Resilience Review that is due to report in November 2016.

50. In addition, it would be beneficial to host a Staffordshire Flood Summit. Warwickshire County Council (WCC) held a similar event in 2014 and 2015. This involved County Councillors, District Councillors and officers, Parish Councillors and officers from other organisations such as the Environment Agency and consultants. Presentations were given on matters such as planning and community flood resilience, with time given for networking. Organisations had stands, including WCC as LLFA, Emergency Planning, the Environment Agency and the National Flood Forum.

Conclusion

51. Recent flood events in the north of the Country have shown the devastating impact that severe flooding can have on local communities. Should we experience similar flooding in Staffordshire, this would have a significant and long term impact on local residents and businesses.

52. SCC are working with others to try to continue to improve our flood defences and improve preparedness for a severe flood event. However, the scale of the flooding that would occur would be such that we would need to rely on mutual aid from other areas and at least in the short term, SCC services would be overwhelmed by requests for help. However, multi-agency and County Council plans are in place and exercised to manage a large scale flood event which challenges the capability of all responders.

53. There are no legal implications of the recommendations as essentially the report describes how we are fulfilling our legal requirements to plan for and respond to flooding under various different pieces of legislation (The Highways Act 1980; The Civil Contingencies Act 2004 and the Flood and Water Management Act 2010).

Link to Strategic Plan

The people of Staffordshire will:

- Be able to access more good jobs and feel the benefits of economic growth, and
- Feel safer, happier and more supported in and by their community.

Flood Risk Management supports this by developing strategies and actions at a County and community level to reduce the risk of flooding for Staffordshire residents.

Link to Other Overview and Scrutiny Activity

Cabinet, 21st October 2015, Sign off of the Local Flood Risk Management Strategy
Prosperous Staffordshire Select Committee, 18th December 2014, Flood Risk Management update

Community Impact – A Community Impact Assessment is not relevant to this paper. One was completed for the Cabinet sign off of the Local Flood Risk Management Strategy in October 2015.

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Appendices:

Appendix A - Roles and Responsibilities for Flood Risk Management