

**Democratic Services**

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Date: 24<sup>th</sup> August 2015

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**To: All Members of the Planning, Housing and Economic Development Policy  
Development and Scrutiny Panel**

Councillor Rob Appleyard  
Councillor Liz Richardson  
Councillor Colin Blackburn  
Councillor Barry Macrae  
Councillor Lisa O'Brien  
Councillor Fiona Darey  
Councillor Cherry Beath

**Cabinet Member for Economic Development:** Councillor Patrick Anketell-Jones

**Cabinet Member for Homes & Planning:** Councillor Marie Longstaff

**Cabinet Member for Community Services:** Councillor Martin Veal

Chief Executive and other appropriate officers  
Press and Public

Dear Member

**Planning, Housing and Economic Development Policy Development and Scrutiny Panel:  
Tuesday, 1st September, 2015**

You are invited to attend a meeting of the **Planning, Housing and Economic Development  
Policy Development and Scrutiny Panel**, to be held on **Tuesday, 1st September, 2015** at  
**2.00 pm** in the **Council Chamber - Guildhall, Bath.**

The agenda is set out overleaf.

Yours sincerely

Mark Durnford  
for Chief Executive

**If you need to access this agenda or any of the supporting reports in an alternative  
accessible format please contact Democratic Services or the relevant report author  
whose details are listed at the end of each report.**

*This Agenda and all accompanying reports are printed on recycled paper*

## NOTES:

- 1. Inspection of Papers:** Any person wishing to inspect minutes, reports, or a list of the background papers relating to any item on this Agenda should contact Mark Durnford who is available by telephoning Bath 01225 394458 or by calling at the Guildhall Bath (during normal office hours).
- 2. Public Speaking at Meetings:** The Council has a scheme to encourage the public to make their views known at meetings. They may make a statement relevant to what the meeting has power to do. They may also present a petition or a deputation on behalf of a group. Advance notice is required not less than two full working days before the meeting (this means that for meetings held on Wednesdays notice must be received in Democratic Services by 4.30pm the previous Friday)

The public may also ask a question to which a written answer will be given. Questions must be submitted in writing to Democratic Services at least two full working days in advance of the meeting (this means that for meetings held on Wednesdays, notice must be received in Democratic Services by 4.30pm the previous Friday). If an answer cannot be prepared in time for the meeting it will be sent out within five days afterwards. Further details of the scheme can be obtained by contacting Mark Durnford as above.

- 3. Details of Decisions taken at this meeting** can be found in the minutes which will be published as soon as possible after the meeting, and also circulated with the agenda for the next meeting. In the meantime details can be obtained by contacting Mark Durnford as above.

Appendices to reports are available for inspection as follows:-

**Public Access points** - Reception: Civic Centre - Keynsham, Guildhall - Bath, The Hollies - Midsomer Norton. Bath Central and Midsomer Norton public libraries.

**For Councillors and Officers** papers may be inspected via Political Group Research Assistants and Group Rooms/Members' Rooms.

## 4. Recording at Meetings:-

The Openness of Local Government Bodies Regulations 2014 now allows filming and recording by anyone attending a meeting. This is not within the Council's control.

Some of our meetings are webcast. At the start of the meeting, the Chair will confirm if all or part of the meeting is to be filmed. If you would prefer not to be filmed for the webcast, please make yourself known to the camera operators.

To comply with the Data Protection Act 1998, we require the consent of parents or guardians before filming children or young people. For more information, please speak to the camera operator

The Council will broadcast the images and sound live via the internet [www.bathnes.gov.uk/webcast](http://www.bathnes.gov.uk/webcast) An archived recording of the proceedings will also be available for viewing after the meeting. The Council may also use the images/sound recordings on its social media site or share with other organisations, such as broadcasters.

- 5. Attendance Register:** Members should sign the Register which will be circulated at the meeting.

6. THE APPENDED SUPPORTING DOCUMENTS ARE IDENTIFIED BY AGENDA ITEM NUMBER.

**7. Emergency Evacuation Procedure**

When the continuous alarm sounds, you must evacuate the building by one of the designated exits and proceed to the named assembly point. The designated exits are sign-posted.

Arrangements are in place for the safe evacuation of disabled people.

**Planning, Housing and Economic Development Policy Development and Scrutiny Panel -  
Tuesday, 1st September, 2015**

**at 2.00 pm in the Council Chamber - Guildhall, Bath**

**A G E N D A**

1. WELCOME AND INTRODUCTIONS

2. EMERGENCY EVACUATION PROCEDURE

The Chair will draw attention to the emergency evacuation procedure as set out under Note 6.

3. APOLOGIES FOR ABSENCE AND SUBSTITUTIONS

4. DECLARATIONS OF INTEREST

At this point in the meeting declarations of interest are received from Members in any of the agenda items under consideration at the meeting. Members are asked to indicate:

(a) The agenda item number in which they have an interest to declare.

(b) The nature of their interest.

(c) Whether their interest is **a disclosable pecuniary interest** *or* **an other interest**,  
(as defined in Part 2, A and B of the Code of Conduct and Rules for Registration of Interests)

Any Member who needs to clarify any matters relating to the declaration of interests is recommended to seek advice from the Council's Monitoring Officer or a member of his staff before the meeting to expedite dealing with the item during the meeting.

5. TO ANNOUNCE ANY URGENT BUSINESS AGREED BY THE CHAIRMAN

6. ITEMS FROM THE PUBLIC OR COUNCILLORS - TO RECEIVE DEPUTATIONS, STATEMENTS, PETITIONS OR QUESTIONS RELATING TO THE BUSINESS OF THIS MEETING

7. MINUTES - 20TH JULY 2015 (Pages 7 - 18)

8. CABINET MEMBER UPDATE

The Cabinet Member(s) will update the Panel on any relevant issues. Panel members may ask questions.

9. COMMUNITY INFRASTRUCTURE LEVY (Pages 19 - 30)

The B&NES CIL Charging Schedule was adopted by the Council on 17th February 2015 and came into effect on 6th April 2015. Following the adoption, the CIL Strategic Spend Protocol was agreed by the Cabinet on 7th July. The Protocol sets out the process for allocating and releasing strategic funds raised through CIL.

10. BATH AND NORTH EAST SOMERSET PLACEMAKING PLAN (Pages 31 - 34)

The B&NES Placemaking Plan is due to be considered by Cabinet in November 2015 for public consultation and submission for independent examination. This report sets out the key issues to be included in the plan.

11. DRAFT LOCAL FLOOD RISK MANAGEMENT STRATEGY (Pages 35 - 266)

This Strategy will be publicly consulted on during September and October 2015, with a view to publishing a final draft by the end of the year. The Planning, Housing and Economic Development Panel are asked to consider and comment upon the Local Flood Risk Management Strategy.

12. PANEL WORKPLAN (Pages 267 - 272)

This report presents the latest workplan for the Panel. Any suggestions for further items or amendments to the current programme will be logged and scheduled in consultation with the Panel's Chair and supporting officers.

The Committee Administrator for this meeting is Mark Durnford who can be contacted on 01225 394458.

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**PLANNING, HOUSING AND ECONOMIC DEVELOPMENT POLICY DEVELOPMENT  
AND SCRUTINY PANEL**

**Minutes of the Meeting held**

Monday, 20th July, 2015, 2.00 pm

**Bath and North East Somerset Councillors:** Rob Appleyard (Chair), Barry Macrae, Lisa O'Brien, Fiona Darey, Cherry Beath, June Player (In place of Colin Blackburn) and Les Kew (In place of Liz Richardson)

**Officers :** Kelvin Packer (Group Manager: Highways and Traffic), Simon Martin (Infrastructure and Development Manager), Jim McEwen (Senior Technical Officer, Drainage & Flooding) and Jim Collings (Lead Local Flood Authority Manager)

**Environment Agency:** Nigel Smith, Flood & Coastal Risk Management Advisor

**Cabinet Members in attendance:** Councillor Patrick Anketell-Jones

**1 WELCOME AND INTRODUCTIONS**

The Chairman welcomed everyone to the meeting.

**2 EMERGENCY EVACUATION PROCEDURE**

The Chairman drew attention to the emergency evacuation procedure.

**3 APOLOGIES FOR ABSENCE AND SUBSTITUTIONS**

Councillor Colin Blackburn and Councillor Liz Richardson had sent their apologies to the Panel. Councillor June Player and Councillor Les Kew were their respective substitutes for the duration of the meeting.

The Cabinet Member for Homes & Planning, Councillor Marie Longstaff had sent her apologies to the Panel.

**4 DECLARATIONS OF INTEREST**

The Chairman, Councillor Rob Appleyard declared a disclosable pecuniary interest as he is a Director of Curo.

**5 TO ANNOUNCE ANY URGENT BUSINESS AGREED BY THE CHAIRMAN**

There was none.

**6 ITEMS FROM THE PUBLIC OR COUNCILLORS - TO RECEIVE DEPUTATIONS,**

## **STATEMENTS, PETITIONS OR QUESTIONS RELATING TO THE BUSINESS OF THIS MEETING**

Linda Gamlin addressed the Panel. She informed them that she had become involved in the community response to two planning applications over the course of 2014 and attended two meetings of the Development Control Committee.

She stated that she believed that the Planning Department had a priority on saying 'yes' to applications that they receive. She said that the experience had changed her view of governance and that the public consultation was a sham. She added that she believed that others had also become cynical of the process.

She explained that she had already sent in a detailed complaint relating to one of the applications which had only received a bland dismissal from the department.

The Chairman commented that he understood how emotive the issues around planning applications can become, but stressed that the recommendations and decisions made were governed by policy and law. He wished to add that the department had recently been recognised with a national award and was aware of the work they do to try to improve.

### **7 CABINET MEMBER UPDATE**

The Chairman drew the Panel's attention to the updates that had been provided by the Cabinet Members for Homes & Planning and Economic Development.

Councillor Cherry Beath thanked the Head of Housing for his recent correspondence and said that the Panel should consider looking at Curo, the Housing Association, Right to Buy and budget matters as part of its future work areas.

The Chairman commented that he felt that the private rented sector also needs to be discussed.

Councillor Patrick Anketell-Jones, Cabinet Member for Economic Development addressed the Panel. He said that he felt his update gave a good example of current work. He stated that he strongly encouraged the Council to embrace a 'whole economy approach' to the delivery of economic growth in B&NES.

Councillor Barry Macrae commented that he was concerned and sought reassurance that fairness would be given towards youth employment opportunities of those living in the villages and the City.

The Cabinet Member for Economic Development replied that he was acutely aware of the Somer Valley needs and would seek to develop employment sites.

Councillor Cherry Beath commented that she would like some detail in future reports of how the budget will be spent.

The Cabinet Member for Economic Development replied that the Arts Development budget was £490,000 pounds and that he had asked officers to ensure that this was shared fairly across the Council.



Councillor Cherry Beath commented that she was pleased to see that worklessness was addressed within his report.

The Cabinet Member for Economic Development replied that he was confident that the current strategy will not leave anyone behind.

Councillor Cherry Beath stated the need for good office space to be maintained in Bath.

The Cabinet Member for Economic Development replied that he recognised this as a potential threat to economic growth and would look to push this issue in the future.

The Chairman thanked him for his update and attendance on behalf of the Panel.

## **8 BATH FLOOD ALLEVIATION SCHEME UPDATE**

Ian Herve addressed the Panel. A copy of his statement is available on the Panel's Minute Book and online as an attachment to these minutes, a summary is set out below.

This dramatic photograph was taken on the late afternoon Christmas Eve, 2013. It shows a building just downstream of Cleveland Bridge. It houses vulnerable and infirm residents. Thankfully the flood peaked later that night and only the basement was flooded.

It is a relatively low flow event, measured by the Environment Agency as less than the 1/20 year Annual Return Risk. That is, slightly less than the floods of the year 2000.

The Environment Agency estimate the flow at about 250 cubic meters per second. That is 250 tonnes of water is passing a given point in that photograph every second. Do the multiplication and it becomes about 900,000 tonnes every hour. The 1/100 year flood will bring flows about 60% greater, over 1.5 million tonnes an hour will pass over Pulteney Weir.

In June 2012, the Environment Agency stated that "The current level of flood risk in Bath is considered unacceptable". At that time the number of properties currently at risk within the 1:100 annual probability footprint was put at approximately 1,100, increasing to 1,800 with climate change taken into account. In their September 2014 update the numbers were put at 930 at the moment and increasing up to maybe 2000 with climate change.

We urge the Panel and this new administration to seriously address this problem before history is repeated and action becomes necessary after a disastrous flood.

Robin Kerr, Chairman of the Federation of Bath Residents' Associations (FoBRA) addressed the Panel. A copy of his statement is available on the Panel's Minute Book and online as an attachment to these minutes, a summary is set out below.

He asked that flood mitigation measures upstream of Pulteney Bridge be seriously investigated and adopted as policy by the Council. He said that it was his

understanding that significant effect could be obtained at about £6m, for part of which an Environment Agency contribution should be available.

He said that the approximate figure of £6m should not be confused with the £6.2m which has been pledged through the Rotating Infrastructure Fund for the Enterprise Zone.

Sarah Hardick addressed the Panel. A copy of her statement is available on the Panel's Minute Book and online as an attachment to these minutes, a summary is set out below.

1. A few years ago the sluice gate got stuck on the railings & couldn't rise. Although it seemed there hadn't been much rain the flooding upstream of Pulteney Weir was far worse than we would have expected. As soon as the gate was reopened the river dropped dramatically, please explain how flooding will not be worse with no gate to open?
2. Disruption to our business. I expect this work will be carried out in the summer to avoid high river levels. This will shut down our motor boat business & could affect the boat hire upstream if river levels are affected.  
How long will the works take? Will we be compensated & by whom?
3. Silt build up behind proposed weir. As we see from the boat dock presently at the weir, there is a lot of silt build up where there is no current. Perhaps there is no major build up around Pulteney Weir or upstream because of the speed of the river when the flood gate is opened?
4. Why is a gate that lowers to the river bed not an option at Pulteney Weir but is an option at Twerton?

The Group Manager for Highways and Traffic replied that the presentation would look to address these matters and if not covered a written response would be supplied.

Dr David Dunlop, London Road & Snow Hill Partnership addressed the Panel. A copy of his statement is available on the Panel's Minute Book and online as an attachment to these minutes, a summary is set out below.

Millions of pounds worth of properties – many of them Listed - lie within the River Avon Flood Plain upstream of the Pulteney Bridge and the Radial Sluice Gate.

I speak to report the increasing concerns of many of those who live along London Road who fear that tampering with the Radial Gate may increase flood risk upstream in addition to the predicted 25% increase in river flow due to climate change.

The man responsible for the Flood Alleviation Scheme completed in 1974 (Frank Greenhalph) claimed that the Radial Gate would have a lifespan of 80 years provided that the Flotation Tanks were properly maintained and dredged.

**Question 1** What is the annual cost of maintaining the Pulteney Radial Gate? Recently it was suggested it STILL has a ten year operating life.

**Question 2** How much would it cost to replace it with "like for like"?

The alternative, ie “the three proposals” all involve a fixed weir each of which will be unable to cope with a flow rate of 932,000 tonnes per hour, as experienced recently.

**Question 3** Where exactly will the money come from in these times of cut backs and austerity?

The Chief Executive recently referred to a figure of £6.5 million – but this is for work downstream of Churchill Bridge – not for work at Pulteney Weir. (The problems are at Twerton Lock).

Ceris Humphreys addressed the Panel. A copy of her statement is available on the Panel’s Minute Book and online as an attachment to these minutes, a summary is set out below.

The Options Study promised a “holistic” approach to flood risk in the city including upstream of Pulteney Bridge but this is completely absent. There are just proposals for piecemeal replacement of the Pulteney and Twerton gates.

Why is flood risk given such low priority in B&NES? There are two answers: (i) perceived cost and (ii) failure to understand the implications of flooding.

B&NES assert that it is not for them to address flood risk from main rivers. But money is found for flood defences where there are new developments, which are used to justify B&NES involvement.

The direct financial cost of damage to infrastructure and clearing up will be massive – in a 2010 report to B&NES cost in a large flood event suggests about £30 million. What would the cost be now?

The loss of tourism as a result of the Somerset Levels flooding affected the whole county, not just flooded areas, and has been estimated at £200 million. With 2 million visits annually to the top ten attractions in Bath, B&NES income from its attractions will take the largest hit when footage of Great Pulteney Street surrounded by water containing sewage is beamed around the world and bookings collapse.

There will be substantial human (as well as financial) cost in having to evacuate vulnerable people from retirement homes and schools along the river.

What doesn’t seem to be realised is that the whole city will come to a standstill because of the flooded main roads. Emergency services will be compromised because their staff can’t get to work. Many residents and businesses who are not actually flooded will be affected because of failure of water supplies and sewage and other utilities.

B&NES may think that they are not liable for much of the cost, but will those who suffer the losses agree when they discover that B&NES were aware of the risk (in many areas classed as “Significant” or “High” by the Environment Agency), were aware that the risk was increasing due to climate change, and yet chose not to act?

We are told the cost of work to improve flood protection for existing residents would be several million. This is trivial compared to the cost of a major flood. I urge the Panel to insist that improving flood protection for existing residents be given much higher priority and that a proper holistic approach **including consideration of flood risk upstream of Pulteney Bridge** be adopted to look at the options for reducing flood risk within Bath.

I do not suggest that Bath is the only part of B&NES at risk of flooding, but the impact of flooding in Bath as B&NES's economic powerhouse would be disastrous for B&NES's finances.

Dave Laming, Chairman of the River Regeneration Trust addressed the Panel. A copy of his statement is available on the Panel's Minute Book and online as an attachment to these minutes, a summary is set out below.

Getting on for three decades I have lived and worked on the River Avon and its waterways, through the good and the bad times and let me assure you the bad times are getting more frequent and worse.

I respectfully remind you of the previous Chairman of the Environment Agency, Baron Chris Smith of Finsbury's assessment of the Somerset Levels a couple of years ago. The rivers of the Levels will not require dredging he said. Yet on instructions from the government Land & Water Limited have thrown dozens of huge machines in there and have been frantically dredging for months.

Our River Avon has not been dredged for over 20 years and the powers that be will claim it will make no difference anyway. Over 15 years ago I dug back a small section of my riverbank looking for the land drain outlet. Five metres of bank silt later I found it.

On the 30th October 2000 Broadmead Lane Industrial Estate in Keynsham suffered a major flood incident. So rapid was the rise in the river flood level that no warning was possible.

The River actually diverted across the immediate southern fields to a depth exceeding two and half metres sweeping rapidly across the only escape route, Broadmead Lane, pushing over a large lorry trying desperately to escape. This happened again in January 2001 and more recently in September 2013 when we had to rescue a gentleman from his 4 by 4 after it had been washed off Broadmead Lane.

In conclusion, I warmly welcome the Kelvin Packer and Jim Collings highly professional Local Flood Risk Management Strategy Team and the inspiration of Louise Fradd with support from John Wilkinson in setting to work the Strategic River Group.

The Group Manager for Highways and Traffic introduced a presentation to the Panel. He asked that they see the presentation as an introduction to this work area and would expect then to bring back further reports in the future.

The Lead Local Flood Authority Manager then explained that Bath and North East Somerset Council is now the lead local flood authority and has a duty to co-ordinate local flood risk management following the report of Sir Michael Pitt in 2007.

He stated that the key B&NES responsibilities included;

- Develop and monitor the local Flood Risk Management Strategy
- Duty to Maintain Register of Assets / Features

- Recording and Investigation of all significant Flooding Incidents
- Local Surface Water Management Plans
- Statutory consultee for Sustainable Drainage Systems

He said that the Council were looking to appoint Local Flood Representatives and would welcome any help the Panel could give on this matter.

The Chair asked how officers felt with regard to emergency planning arrangements.

The Lead Local Flood Authority Manager replied that this is an area that they are looking to work closer with appropriate officers within the Council and the public.

The Group Manager for Highways and Traffic added that this is an area for the team to focus on and develop their response plans.

Councillor June Player commented that an area of the Lower Bristol Road close to the Belvoir Castle regular floods following heavy rain.

Councillor Lisa O'Brien asked how often roads or gulleys should be cleared.

The Group Manager for Highways and Traffic replied that it should at least be annually but that they were aware of some locations that require clearing quarterly.

The Chair asked for some further information on the role of the Local Flood Representatives.

The Lead Local Flood Authority Manager replied that around 20 had already been appointed and their role is to be local observers and to report any incidents to the Council.

The Infrastructure and Development Manager addressed the Panel regarding the Bath Quays Waterside: Flood Defence project. He explained that the Council and the Environment Agency were working in partnership on this project and that it would improve the defences of existing developments and along the Lower Bristol Road. He added that planning consent for the project has been given.

He said that in addition to the flood defence works the project was also looking to yield 5,700 jobs and 6,000 homes.

Nigel Smith, Flood & Coastal Risk Management Advisor, Environment Agency addressed the Panel regarding the Bath River Avon Options Appraisal Study.

He informed them that a FAQ document was in the process of being compiled and that he would pass that to the Panel when complete.

He gave the Panel some background information on the study. He said that Bath is at risk of fluvial flooding from the River Avon and that the 1960's Flood Alleviation Scheme reduces the risk to the city. He added that there are approximately 500 properties at risk from the 1 in 100 year flood event (1% chance of occurring in any one year).

He stated that Pulteney and Twerton sluice gates are important, but degrading assets as they have been in operation since the 1970's. If Twerton gates were to fail shut and coincide with a 1 in 100 year event this would increase flooding to approximately 246 properties. If Pulteney gate were to fail shut there is a minimal flood risk increase upstream, but if the gate were to fail open there would be impacts on navigation, building / river channel foundations and biodiversity.

He explained that the objectives of the study were;

- Investigate the current level of flood risk protection offered by Bath Flood Alleviation Scheme at a strategic level.
- Consider the long term flood defence options for protecting Bath now and in the future when considering climate change.
- Identify linkages with B&NES regeneration plans, which provides potential to deliver improvements that may not be possible through public funds.

### **Twerton Gate**

He said that the gate performs a vital role in alleviating flood risk in Bath and that any replacement scheme must focus on its flood risk function. He added that the improvement works offer potential to reduce flood risk.

### **Pulteney Gate**

He stated that hydraulic modelling has shown that the gate has minimal impact on flood risk in Bath and that siltation upstream of the gate occurs locally but does not impact on flood risk. He said that opportunities exist to improve amenity and aesthetics without compromising flood risk and that further investigation and public consultation will be carried out.

He explained that a decision on the final strategic option hasn't been made yet, this includes the Pulteney gate. He said that following completion of this appraisal we will seek approval to continue with more detailed investigation and consultation, including a condition assessment of both gates. He added that they were aiming to secure funding to progress this investigation next financial year.

Councillor Lisa O'Brien asked for confirmation that upstream siltation poses no flood risk as she was concerned having witnessed the damage from the flooding on the Somerset Levels.

Nigel Smith replied that unlike the Levels the Avon has a gradient and although siltation does exist upstream it is not a cause for concern.

Councillor Les Kew asked if there were any plans to dredge the River Avon.

Nigel Smith replied that there were no plans to dredge within B&NES.

Councillor Les Kew asked if he could clarify one of the speaker's points that there is a predicted 25% increase in river flow due to climate change.

Nigel Smith replied that due to climate change there will be more rain and that will lead to a higher volume of water within our rivers. He added that increase of that scale would be over 100 years.

Councillor Les Kew asked if he was aware of the increase of volume in the River Avon over the last 20 years.

Nigel Smith replied that he did not have that information to hand.

Councillor Les Kew asked when the project was likely to conclude.

The Infrastructure and Development Manager replied that it was likely to take ten years to reach a solution that is funded and implemented. He added that public consultation was likely to take place towards the end of 2015 / beginning of 2016.

Councillor Barry Macrae said that he welcomed the information that had been shared with the Panel as he wanted the community to feel more secure. He added that facts and not fear should rule this argument.

Councillor June Player asked if the potential for flood reduction took into account any proposed new developments.

Nigel Smith replied that the potential improvements in Twerton could see a reduction in risk across the city.

The Infrastructure and Development Manager added that each new site must demonstrate what they will do with regard to flood risk management.

Councillor Fiona Darey asked if there was a minimum water level required for the river.

Nigel Smith replied that a penned water level in Bath, created by Twerton Gate offers a suitable depth for navigation, biodiversity and retaining channel walls and building foundations. He added that in flood conditions the gates are operated by the EA to allow flood waters to be conveyed downstream.

Councillor Cherry Beath commented that she was pleased with the progress that had been made and asked if any thoughts had been given to work further upstream.

The Infrastructure and Development Manager replied that Wiltshire is undertaking a wider catchment study and working on a Water Space Strategy.

Councillor Lisa O'Brien urged officers not to forget the rest of B&NES, particularly after having been made aware of what occurred at Broadmead Lane, Keynsham.

The Senior Technical Officer for Drainage replied that a Section 19 Flood Investigation had been carried out following that incident and that one residential property would now receive additional measures. He added that with regard to the business units at that location, a Repair and Renew Grant application for £85,000 was submitted and approved, however the businesses were unable to deliver the works and apply for the actual Grant monies before the Repair and Renew Grant scheme window had expired. Therefore no mitigation works have been delivered. The Senior Technical Officer for Drainage stated that Broadmead Lane Industrial

Estate is regularly discussed at the Operational Flood Working Group and Strategic Flood Board meetings.

Councillor Les Kew asked if the proposed marina in this area would provide any reduction in risk.

Nigel Smith replied that it would not.

Councillor Fiona Darey asked what would happen if we were to do nothing on this matter.

Nigel Smith replied that it was not an option to do nothing and that the study was looking to reduce the risk of flooding.

The Senior Technical Officer for Drainage addressed the Panel regarding the Local Flood Risk Management Strategy. He explained that a Cabinet decision was planned for December 2015 on the strategy. He informed the Panel that the strategy was for ten years and would be reviewed after five.

He added that the strategy looked to promote community awareness and have a role in preventing inappropriate developments. He said that a stakeholder workshop had already been held and that public consultation on the strategy would take place in September 2015 alongside further debate at a future Policy Development & Scrutiny meeting.

The Chairman thanked the Council officers and Nigel Smith for their reports and attendance on behalf of the Panel. He stated that the Environment Agency has a robust scrutiny function of its own and looked forward to receiving answers to those questions that had been posed by the public. He asked that when the FAQ document that was mentioned is complete that it is posted centrally on the Council's website.

## **9 PANEL WORKPLAN**

The Chairman explained that he and the Vice-Chair had had meetings with officers to populate the current workplan. He said that where possible he would look to theme meetings.

Councillor Cherry Beath commented that the Panel should look to have further debate on Flood Risk Management over the coming year.

Councillor June Player said that the Panel should expect a considerable discussion when they have the matter of Student Accommodation on their agenda.

The meeting ended at 4.35 pm



Chair(person) .....

Date Confirmed and Signed .....

**Prepared by Democratic Services**

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<b>Bath &amp; North East Somerset Council</b>		
<b>MEETING/ DECISION MAKER:</b>	<b>Planning, Housing and Economic Development Policy Development and Scrutiny Panel</b>	
<b>MEETING/ DECISION DATE:</b>	<b>1<sup>st</sup> September 2015</b>	<b>EXECUTIVE FORWARD PLAN REFERENCE:</b>
<b>TITLE:</b>	<b>Community Infrastructure Levy Strategic Spend Protocol</b>	
<b>WARD:</b>	All	
<b>AN OPEN PUBLIC ITEM</b>		
<b>List of attachments to this report:</b>		
Attachment 1: The B&NES Community Infrastructure Levy (CIL) Strategic Spend Protocol (June 2015)		

## **1 THE ISSUE**

1.1 The B&NES CIL Charging Schedule was adopted by the Council on 17th February 2015 and came into effect on 6th April 2015. Following the adoption, the CIL Strategic Spend Protocol was agreed by the Cabinet on 7th July. The Protocol sets out the process for allocating and releasing strategic funds raised through CIL.

## **2 RECOMMENDATION**

2.1 Scrutiny Panel to note the arrangements for deciding on how CIL funds should be spent.

## **3 RESOURCE IMPLICATIONS (FINANCE, PROPERTY, PEOPLE)**

3.1 The CIL Regulations allow the Council to keep up to 5 % of CIL funds to cover the administration costs to provide a resource for managing and monitoring CIL Funds.

3.2 The preparation of the Protocol has been undertaken by officers in the Planning Policy Team and cost of this is within existing approved budgets.

3.3 The allocation of Community Infrastructure Levy (CIL) funds will be made through an annual programming process that aligns with the Council's annual capital programme and budget setting process, with a final decision on the release of funds being made by B&NES Council's Cabinet. Decisions on the release of these funds will not be made outside this process except in very exceptional circumstances.

## **4 STATUTORY CONSIDERATIONS AND BASIS FOR PROPOSAL**

- 4.1 The CIL Charging Schedule must comply with relevant legislation, and the National Planning Policy Framework (2012). The Planning Act 2008 (Part 11) made provision for the introduction of the CIL. Regulations governing the preparation and operation of CIL Charging Schedule were first introduced in April 2010, and have subsequently been amended in 2011, 2012, 2013 and 2015.
- 4.2 The Regulations state that a charging authority must apply CIL to funding the provision, improvement, replacement, operation or maintenance of infrastructure to support the development of its area. It also allows Charging Authorities to pass money to bodies outside their area to deliver infrastructure that will benefit the development of the area.
- 4.3 To ensure that the levy is open and transparent, charging authorities must publish a monitoring report on their website by 31 December each year, for the previous financial year. The Council also need to ensure that it is using funding from CIL in the most effective way to help ensure that new development is properly aligned with the necessary infrastructure.
- 4.4 Therefore it is important to set out a clear accountable framework to engage with all key service providers and to prioritise CIL spending.

## **5 THE REPORT**

- 5.1 The purpose of CIL is to contribute to the funding of the infrastructure needed to support the District's growth aspirations as set out in the Council's Core Strategy.
- 5.2 The use of income generated through CIL will need to be spent on infrastructure.
- **Local Funds:** A proportion of CIL will be passed on to local communities. 15% (capped) or 25% with adopted Neighbourhood Plans.
  - **Administration Costs:** up to 5% of CIL receipts will be used within Planning Services to provide a dedicated resource for the annual monitoring and management and costs associated with collection of CIL required by the CIL regulations.
  - **Strategic Funds:** The remaining CIL receipts will be allocated by the
- 5.3 Council in accordance with the CIL Strategic Spend Protocol. It is estimated that CIL could raise about £6.8 million in the next 5 years for infrastructure, essentially replacing that part of Section 106 funding which the council could no longer secure after April 2015. The projections based on the Strategic Housing Land Availability Assessment (SHLAA) are shown below. However this is based on anticipated housing development therefore it is just an indication only and must be treated with caution.

## CIL PROJECTION BASED ON THE SHLAA HOUSING MAY 2015

	<b>For Strategic Infrastructure</b>	<b>For Local Fund/ infrastructure</b>	<b>Administration</b>	<b>Total</b>
<b>2015/16</b>	£923,000	£173,000	£57,000	<b>£1,153,000</b>
<b>2016/17</b>	£1,500,000	£281,000	£93,000	<b>£1,874,000</b>
<b>2017/18</b>	£1,700,000	£320,000	£106,000	<b>£2,126,000</b>
<b>2018/19</b>	£786,000	£147,000	£49,000	<b>£982,000</b>
<b>2019/20</b>	£568,000	£106,000	£35,000	<b>£709,000</b>
<b>Total</b>	<b>£5,477,000</b>	<b>£1,027,000</b>	<b>£340,000</b>	<b>£6,844,000</b>

- 5.4 The types of infrastructure for CIL Strategic Fund are listed in the B&NES Regulations 123 list guided by the Infrastructure Delivery Programme (IDP) (see background papers). The IDP identifies the infrastructure required across a broad range of Service Providers and statutory undertakers to deliver the District's plans for growth as set out in the Core Strategy.
- 5.5 Under CIL regulations the Council, as the charging authority, will need to prioritise and agree allocations of available CIL funding towards these infrastructure needs. The IDP confirms that there is a funding gap to which CIL will need to make a contribution. However CIL will not be the sole funding source. It will supplement other potential funding streams such as Business Rate Growth, the Revolving Infrastructure Fund, HCA funding and site specific Section 106 developer contributions. Each of these will need to be considered by the Council as part of its medium term service and resource planning process and the Capital programme. The IDP lists all infrastructure requirements to support new growth, including provision to be provided by developers and other organisations such as utility companies and other public bodies.
- 5.6 The allocation of CIL will be made through an annual programming process that aligns with the Council's annual capital programme and budget setting process, with a final decision on the release of funds being made by B&NES Council's Cabinet. Decisions on the release of these funds will not be made outside this process except in very exceptional circumstances.
- 5.7 The aim of the CIL Strategic Spend Protocol is to ensure transparent decision making in the process leading the allocation of strategic funds. Through this protocol the Council will identify and agree priorities for the use of CIL funding.
- 5.8 The Protocol sets out;
- The decision making process and time table
  - Infrastructure Prioritisation Criteria
  - Local Funding for Town and Parish Councils.
- 5.9 However the timetable for updating the IDP and bidding process will run slightly later this year following Cabinet agreement to the Protocol in July.
- 5.10 The Advisory Note is currently being prepared to assist Town and Parish Councils with the use and administration of the CIL. In the unparished Bath area of the district, B&NES Council will hold the funds until an appropriate framework is developed.

## 6 RATIONALE

6.1 The CIL Strategic Spend Protocol ensures transparent decision making in the process leading the allocation of funding. Through the Protocol the Council will identify and agree priorities for the use of CIL funding.

## 7 OTHER OPTIONS CONSIDERED

7.1 The option not to implement a CIL Strategic Spend Protocol has been considered, however associated risks for this would be that funding decisions are made without strategic coordination resulting in a lack of appropriate infrastructure undermining the delivery of the District's growth aspirations as set out in the Core Strategy.

## 8 CONSULTATION

8.1 The CIL Strategic Spend Protocol was prepared in consultation with the s.151 Officer, Monitoring Officer and the CIL Officers Working Group (a cross service working group).

## 9 RISK MANAGEMENT

9.1 A risk assessment related to the issue and recommendations has been undertaken in compliance with the Council's decision making risk management guidance.

<b>Contact person</b>	<i>Lisa Bartlett – 01225 477281, Simon de Beer - 01225 477616, Kaoru Jacques 01225 477288</i>
<b>Background papers</b>	<p><a href="http://www.bathnes.gov.uk/cil">www.bathnes.gov.uk/cil</a></p> <p><i>CIL Charging Schedule</i> <a href="http://www.bathnes.gov.uk/sites/default/files/sitedocuments/Planningand-Building-Control/Apply-for-PlanningPermission/bnes_charging_schedule_25_feb_2015.pdf">http://www.bathnes.gov.uk/sites/default/files/sitedocuments/Planningand-Building-Control/Apply-for-PlanningPermission/bnes_charging_schedule_25_feb_2015.pdf</a></p> <p><i>CIL Regulation 123</i> <a href="http://www.bathnes.gov.uk/sites/default/files/sitedocuments/Planningand-Building-Control/Apply-for-Planning-Permission/bnes_reg_123.pdf">http://www.bathnes.gov.uk/sites/default/files/sitedocuments/Planningand-Building-Control/Apply-for-Planning-Permission/bnes_reg_123.pdf</a></p> <p><i>Infrastructure Delivery Programme</i> <a href="http://www.bathnes.gov.uk/sites/default/files/sitedocuments/Planningand-Building-Control/Planning-Policy/EvidenceBase/Infrastructure/draft_idp_2014.pdf">http://www.bathnes.gov.uk/sites/default/files/sitedocuments/Planningand-Building-Control/Planning-Policy/EvidenceBase/Infrastructure/draft_idp_2014.pdf</a></p> <p><i>CIL Developers' Guide</i> <a href="http://www.bathnes.gov.uk/sites/default/files/sitedocuments/Planningand-Building-Control/Apply-for-PlanningPermission/cil_guide_to_developers_v9june15.pdf">http://www.bathnes.gov.uk/sites/default/files/sitedocuments/Planningand-Building-Control/Apply-for-PlanningPermission/cil_guide_to_developers_v9june15.pdf</a></p>
<b>Please contact the report author if you need to access this report in an alternative format</b>	

## Community Infrastructure Levy (CIL) Strategic Spend Protocol (June 2015)

### 1. Introduction

- 1.1. The decision on how to spend the Community Infrastructure Levy (CIL) income will be made as part of an annual process that aligns with the Council's annual revenue budget and capital programme setting. B&NES Council's Cabinet will make the final decision on the release of CIL funds. No decision on the release of these funds will be made outside this process except in very exceptional circumstances.
- 1.2. The aim of this Protocol is to ensure transparency in the allocation of funding. As part of this Protocol the Council will identify and agree priorities for the use of CIL income.

### 2. Key Principles

- 2.1. **Allocation** - all the CIL collected will be used to support infrastructure for the communities within the District and will be allocated as follows:
  - i. **Local Funds:** 15% of CIL (up to a maximum of £100 per Council Tax dwelling in the area per annum) or 25% with adopted Neighbourhood Plans will be passed directly to local communities: or 25%. See section 5.
  - ii. **Administration Costs:** Up to 5% of CIL receipts will be used within Planning Services to cover costs associated with monitoring, managing and collecting CIL .
  - iii. **Strategic Funds:** The remaining CIL receipts will be allocated by B&NES Council in accordance with this Protocol.
- 2.2. **Other key principles:**
  - Funds will be targeted to address infrastructure priorities identified in the Infrastructure Delivery Programme/Core Strategy.
  - The procedures and timetable will run on annually and will be aligned with the budget decision making process, including a review of the Regulation 123 List if necessary.
  - The Regulation 123 List includes projects or types of infrastructure that the Council intends to fund, or may fund, through the levy.
  - The allocation decisions will be based on funds actually available and risk assessed projection of the future funding.

### 3. Summary of Process and Timetable for Strategic Fund allocation

- 3.1. The process begins with the update of the Infrastructure Delivery Programme (IDP) and the review of the projections of the likely amount of CIL available for infrastructure projects.

- 3.2. Whilst the key infrastructure is identified in the IDP, the various Service and Infrastructure providers will be invited each year to submit bids and programmes for the use of available CIL funds. Given the role of the Council as the statutory provider for key infrastructure, it is expected that B&NES services will be the main bidders. The bid applications will be assessed initially by Planning Services and reported to Divisional Directors Group (DDG), taking into account the infrastructure requirements and funding gap to provide infrastructure projects.
- 3.3. The DDG, supported by Planning Services, will prepare a Draft Spending Priority Programme that will be presented to Cabinet for their decision. Cabinet will be asked to agree the allocation of funding for the identified projects in year one, noting potential projects for funding in years two and three.

**Table 1: Timetable for agreeing CIL spend priorities**

<b>Date</b>	<b>Task</b>
By 30 <sup>th</sup> June *	Update and publish B&NES IDP.
From 1 <sup>st</sup> to 31 <sup>st</sup> July	Service / Infrastructure Providers to submit the CIL Bid forms
August	Planning Services to assess the CIL Bid forms and prepare a summary report.
Aug/Sep	Divisional Directors Group (DDG) to prepare a draft Spending Priority Programme
Oct/Nov	DDG to finalise the draft Spending Priority Programme and make an recommendation to the Cabinet
December	CIL Spending Priority Programme to be agreed by the Cabinet

\* Except the first year of the CIL operation in 2015.

#### **4. Prioritisation of CIL funds**

- 4.1. The Community Infrastructure Levy must be spent on the provision, improvement, replacement, operation or maintenance of infrastructure needed to support the development of the area. It is intended to focus on the provision of new infrastructure and should not be used to remedy pre-existing deficiencies, unless these are likely to be made more severe by new development.
- 4.2. It is important to recognise that CIL receipts can only be spent on capital projects, although capital spending to improve existing assets or to extend their life is also permissible. For example, it can be used to increase the capacity of existing infrastructure or to repair failing infrastructure if necessary to support development.



- 4.3. In addition to understanding the infrastructure needs informed by the IDP, it will be important to understand the phasing of development as well as the need for phased funding and delivery of infrastructure. The Council's housing development trajectory (B&NES Strategic Housing Land Availability Assessment) will, therefore, be key evidence to assist with prioritisation. The trajectory is updated at least annually in conjunction with the Council's Monitoring Report (AMR) so that the anticipated levels of growth can be fed into the CIL spending review process.
- 4.4. Bids for the funding of schemes and projects should be supported by robust evidence of the cost and practicality of delivering the scheme or project, including an exploration of alternative sources of funding.
- 4.5. Bids should include evidence of existing demands (including demands from permitted developments), additional demands likely to arise from the proposed development, the extent to which relevant existing infrastructure or services are capable, in terms of location, capacity and suitability, of meeting those additional demands and the estimated costs of providing new infrastructure or improving existing infrastructure to meet them. The bid (see Appendix 1) should set out the full costs of the scheme and the time scales for implementation.
- 4.6. To be given consideration schemes should meet a number of criteria, as follows:

**Table 2: Infrastructure Prioritisation Criteria**

<b>Criteria</b>
Be included in the Regulation 123 List
Be included in the Infrastructure Delivery Plan
Contribute to the delivery of key development sites in the district to realise the Core Strategy proposals
Enable other funds that would not otherwise be available or offer a financial return on investment, e.g. needed to match or draw grant funding
Address a specific impact of new development beyond that which has been secured through a S106 obligation or S278 agreement

- 4.7. The Regulation 123 List refers to the types of infrastructure but does not specify particular schemes or projects. For this information it will be necessary to refer to the Infrastructure Delivery Plan. The IDP identifies projects that are critical to development, and those that will mitigate the effects of development as well as those that are important to deliver place making benefits. The IDP also sets out the project time frames as short term (within five years by 2019), medium term (by 2024) and long term (by 2029).

- 4.8. The Bids will be initially assessed by Planning Services and reported to DDG.
- 4.9. Following the assessments, the DDG will make a recommendation to Cabinet. A detailed report will be brought to Cabinet outlining the process undertaken and presenting the rolling three year programme. Cabinet will be asked to:
  - agree the Spending Priority Programme for a three year period (subject to review annually);
  - agree release of funding for the identified projects in year one of the programme;
  - agree intent to release funding for projects in year two of the programmes, subject to sufficient funds being available, adherence to the programme and any other relevant factors;
  - note and have regard to projects listed in year three of the programme.

## **5. Local funds**

- 5.1. The Council is required to pass 15% of CIL funds raised from developments in their areas to the relevant Parish or Town Council (subject to an upper limit of £100 per Council Tax property). The percentage increases to 25% in areas which have an adopted Neighbourhood Development Plan.
- 5.2. The Regulations state that this local proportion of funds must be used 'to support the development of the local area by funding (a) the provision, improvement, replacement, operation or maintenance of infrastructure; or (b) anything else that is concerned with addressing the demands that development places on an area.'
- 5.3. This is a wider definition of how the local funds may be used than the one that applies to B&NES Council's use of CIL funds (which are restricted to funding infrastructure to support the development of the area).
- 5.4. B&NES and Parish/Town Councils may consider contributing funds to projects where there are shared priorities.
- 5.5. Local Funds will be passed from B&NES to the Parish/Town Councils twice a year on 28<sup>th</sup> April and 28<sup>th</sup> October. Parish/Town Councils are required to provide an audit / report to B&NES Council on amount of CIL received, spent and details of projects CIL funds have been spent on by 30<sup>th</sup> April.
- 5.6. Further guidance, please see the Advisory Note for Town and Parish Councils..
- 5.7. In the unparished Bath area of the district, B&NES Council will hold the funds until an appropriate framework is developed.

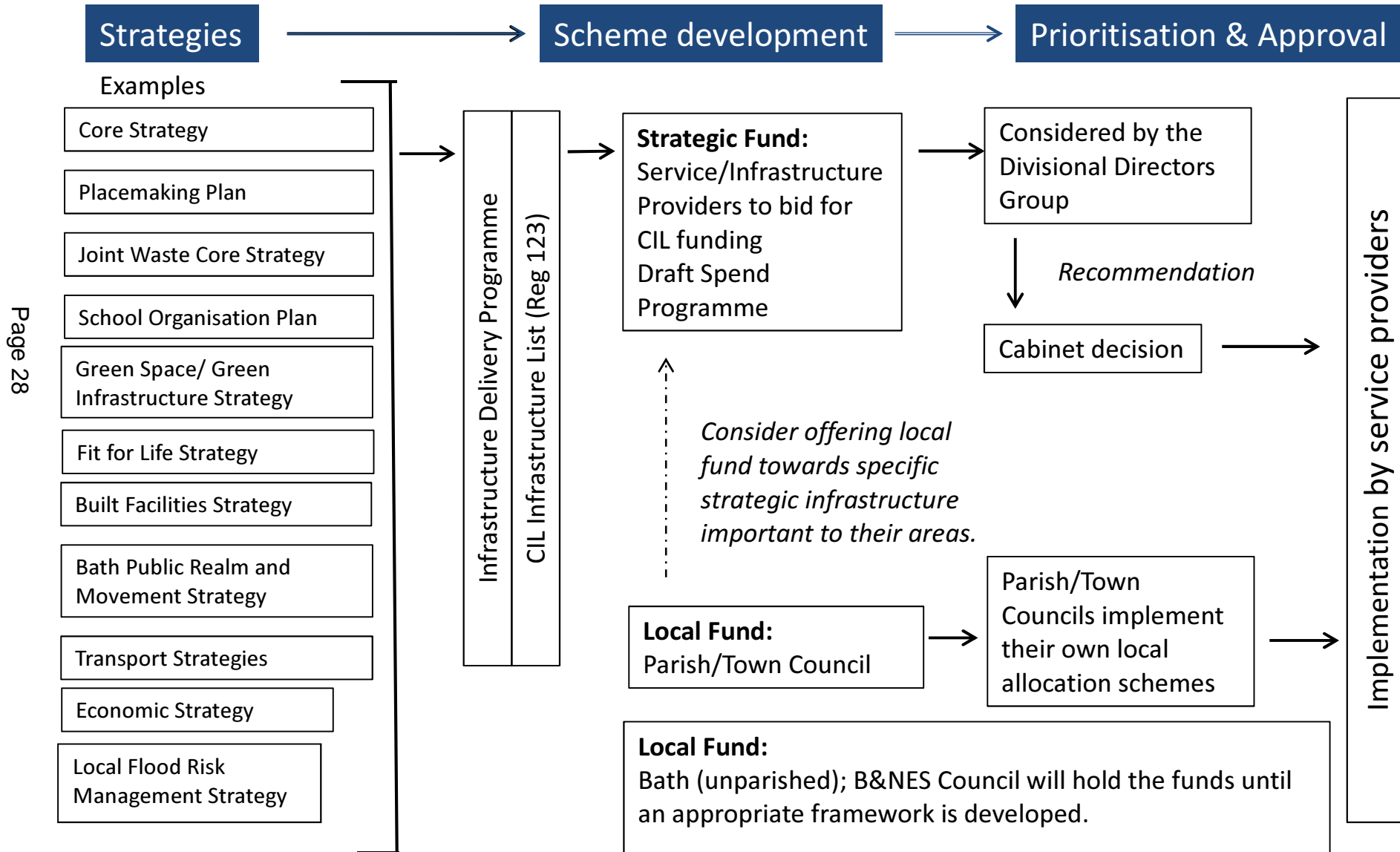
## 6. Monitoring

- 6.1. Details of CIL charges, receipts and spending will be monitored and audited by B&NES. The Council will produce an Annual Monitoring Report indicating the amount of CIL that has been received, spent (and on what) and remains in the fund in the reporting year, 'April to March'.

### **Useful links**

B&NES CIL Charging Schedule and Reg 123 list  
[www.bathnes.gov.uk/cil](http://www.bathnes.gov.uk/cil)

## CIL Funding Decision Process Protocol - Summary



## Appendix 1

### Bid for Funding from Community Infrastructure Levy

*Please Note: When preparing your submission, please ensure that your proposal is in conformity with criteria set out in the Protocol and:*

- ✓ *is supported by robust evidence;*
- ✓ *includes evidence of existing and additional demands and the extent to which existing infrastructure can meet those demands;*
- ✓ *includes estimated costs for the scheme and timing for delivery of the scheme;*
- ✓ *includes a reasonable assessment of alternative funding mechanisms available.*

#### 1. Infrastructure Provider/Service/Body making the bid:

#### 2. Project Lead Officer/Person and contact details:

#### 3. Project Title:

#### 4. Project Summary:

#### 5. Who will the project be delivered by?

#### 6. Is it included in B&NES Infrastructure Delivery Programme?

#### 7. Is it included in B&NES Regulation 123 list?

#### 8. What are the consequences of not carrying out the project?

**9. How will the scheme help support the ongoing development in B&NES, taking account of where development has or is proposed to take place and the capacity of existing infrastructure to meet those additional demands?**

**10. Funding summary: please explain the costs of the project, how much CIL funded is needed and when.**

**11. What other funding sources have been identified/explored?**

**a. If CIL funding is not available what is the likelihood of funding from these sources within next 5/10 years?**

**b. Does this lever in other funds that would not otherwise be available, e.g. needed to match or draw grant funding**

**c. Is the project likely to be directly linked to and necessary as a result of foreseeable development and therefore a separate S106 contribution or s278 may be justified?**

**12. Please provide an outline of the implementation timetable, including key milestones:**

**13. Please specify responsibility for on-going maintenance costs:**

**Please return this form to Planning Services, by 18<sup>th</sup> September 2015.**

<b>Bath &amp; North East Somerset Council</b>		
<b>MEETING/ DECISION MAKER:</b>	<b>Planning, Housing and Economic Development Policy Development and Scrutiny Panel</b>	
<b>MEETING/ DECISION DATE:</b>	<b>1<sup>st</sup> September 2015</b>	<small>EXECUTIVE FORWARD PLAN REFERENCE:</small>
		<b>E2787</b>
<b>TITLE:</b>	<b>Placemaking Plan</b>	
<b>WARD:</b>	All	
<b>AN OPEN PUBLIC ITEM</b>		
<b>List of attachments to this report:</b>		
None		

## **1 THE ISSUE**

- 1.1 The B&NES Placemaking Plan is due to be considered by Cabinet in November 2015 for public consultation and submission for independent examination. The Placemaking Plan is a key corporate document setting out the Council's position on the development sites and planning other planning policies across the district. The Scrutiny Panel will have the opportunity to comment on the Plan as part of the consultation and this report sets out the key issues to be included.

## **2 RECOMMENDATION**

- 2.1 That the Panel notes the scope and purpose of the Placemaking Plan and the opportunity to make detailed comments on the contents of the Plan as part of the formal consultation process.

## **3 RESOURCE IMPLICATIONS (FINANCE, PROPERTY, PEOPLE)**

- 3.1 The Plan has to date been prepared within the resources of the existing Local Development Framework budget. However, the costs associated with additional evidence collection and community engagement (para 5.5 below) will be in excess of existing budgets and requires resolution.
- 3.2 Its planning framework will have financial implications for the development of sites and the use of land within B&NES.
- 3.3 The Plan also reflects the outputs of other expenditure in the district such as the Bath City Riverside Enterprise Area Masterplan and the Transport Strategies.

## **4 STATUTORY CONSIDERATIONS AND BASIS FOR PROPOSAL**

- 4.1 Once adopted the Plan will be a formal planning document (a Development Plan Document) with full weight in planning decisions and appeals. Under s.38 (6) of the Planning Act decisions must be in accordance with the adopted Plan unless material considerations indicate otherwise.
- 4.2 The preparation of the Plan is subject to formal procedures, including consultation arrangements, sustainability appraisal and examination. As part of the latter, the Plan will be assessed for 'soundness'. This means the Plan must be:
- Positively prepared: deliver growth and change;
  - Justified: the most appropriate strategy in light of the reasonable alternatives and based on evidence;
  - Effective: deliverable
  - Consistent with national policy: the NPPF
- 4.3 Any proposals that the Council wishes to pursue must be set out in the Development Plan as other documents do not carry the same weight.

## **5 THE REPORT**

- 5.1 The Core Strategy sets out the strategic policy for the District and the Placemaking Plan complements this with more detailed planning proposals and policies. The scope of the Plan is to:
- Allocate development sites and sets development principles
  - Protect important assets eg Local Greenspace
  - Highlight infrastructure requirements needed to support development
  - Review Housing Development Boundaries
  - Provide up-to-date district wide planning policies
- 5.2 The Plan will be in 5 sections: Bath; Keynsham; Somer Valley; Rural Areas and the district-wide policies. The key issues for each section are set out below.
- Bath**
- 5.3 There are significant demands for the use of prime sites in the City, such as for office, retail, hotels, residential and student accommodation. However, the relatively small size of the City, the limited number of available sites and the need to take into account the special characteristics of the City mean that these uses are in competition for space. It is the role of the Placemaking Plan to set the priorities in light of the Council's corporate aspirations. The forthcoming examination will assess whether the Council has chosen the appropriate strategy in light of the reasonable alternatives.
- 5.4 It is also important that the development proposed is properly aligned with the necessary Infrastructure. To enable this, the Council's Infrastructure Delivery Plan has been updated and the draft Plan reflects the Bath Transport Strategy. It is essential to ensure that the Plan demonstrates that there is a strategy to enable the appropriate infrastructure to be in place when needed, especially transport infrastructure. The Council's preferred option for the East of Bath Park & Ride will need to be reflected in the Placemaking Pan as an allocation.



## **Keynsham**

5.5 The Placemaking Plan includes a Masterplan for Keynsham based on the Core Strategy. There are a number of key issues which need to be resolved before the Plan is finalised. A further engagement event is due to be held in Keynsham on 15<sup>th</sup> September to cover these and other related projects:

- Transport Strategy
- Conservation Area Appraisal and Management Plan
- Location of the new Leisure Centre
- Air Quality Management Plan
- Layout of the East of Keynsham employment allocation

## **Somer Valley**

5.6 Both Midsomer Norton and Westfield are preparing Neighbourhood Plans and so the Placemaking Plan will need to be closely co-ordinated with the preparation of these. The Midsomer Norton Neighbourhood Plan will make the key development site allocations such as for retail development and establish the principles for the redevelopment of sites such as the disused Welton Packaging Factory site.

5.7 The Placemaking Plan will review the Housing Development Boundary, make Local Green Space designations and designate those existing employment areas to be protected from loss to other uses as well as designate new employment sites.

5.8 In Radstock, the Placemaking Plan will need to clarify the direction for the town centre and set out proposals for the key development sites.

## **Rural Areas**

5.9 B&NES has been working closely with Parish Councils to support the preparation of neighbourhood plans. Together B&NES and the local communities will identify any necessary housing sites, review Housing Development Boundaries and make Local Green Space designations.

## **District-Wide Policies**

5.10 The Placemaking Plan will also need to include a suite of district-wide policies covering issues such as:

- Housing standards and design
- Green Infrastructure
- Lighting
- Energy Minerals (Fracking)
- Sustainable Urban Drainage Systems
- Renewable energy

## 6 RATIONALE

6.1 It is necessary to ensure that the District benefits from a robust, clear and up-to-date planning strategy. This is provided by the Placemaking Plan together with the Core Strategy.

## 7 OTHER OPTIONS CONSIDERED

7.1 The preparation of the Plan has entailed consideration of a range of alternative development options to help establish the most appropriate strategy. These have been documented in the Issues and Options Consultation document. The Plan has also undergone sustainability appraisals at key stages to ensure that the Council's spatial strategy is sustainable.

## 8 CONSULTATION

8.1 Preparation of the Plan has undergone significant consultation in line with the Council's Neighbourhood Planning protocol and the Planning Regulations. Consultation responses are treated formally as evidence. The draft Placemaking Plan is due to be considered by Cabinet in November 2015 for publication and submission for examination. The draft Plan is scheduled to be considered by the Scrutiny Panel once the Plan is published for consultation.

8.2 Whilst the comments received will be primarily for the Inspector's consideration at the examination, the Council can make changes to the Plan in response to key issues arising from the consultation. A statement of consultation will be published alongside the draft Plan.

8.3 The West of England Joint Spatial Plan is also due for consultation in the autumn and the consultation arrangements will need to limit any confusion between the two plans as far as possible.

8.4 The Council's Monitoring Officer has the opportunity to input to this report and has cleared it for publication.

## 9 RISK MANAGEMENT

9.1 A risk assessment related to the issue and recommendations has been undertaken in compliance with the Council's decision making risk management guidance.

<b>Contact person</b>	<i>Simon de Beer 01225 477616</i>
<b>Background papers</b>	<i>Placemaking Plan Options consultation document 2014 B&amp;NES Adopted Core Strategy 2014</i>
<b>Please contact the report author if you need to access this report in an alternative format</b>	

<b>Bath &amp; North East Somerset Council</b>		
<b>MEETING/ DECISION MAKER:</b>	<b>Policy Development &amp; Scrutiny Panel Planning, Housing and Economic Development</b>	
<b>MEETING/ DECISION DATE:</b>	<b>01 September 2015</b>	<b>EXECUTIVE FORWARD PLAN REFERENCE:</b>
		<b>E 9999</b>
<b>TITLE:</b>	<b>Draft Local Flood Risk Management Strategy – comments and recommendations for Council approval</b>	
<b>WARD:</b>	<b>All</b>	
<b>AN OPEN PUBLIC ITEM</b>		
<b>List of attachments to this report:</b>		
<ul style="list-style-type: none"> <li>• <b>Draft Local Flood Risk Management Strategy (main doc)</b></li> <li>• <b>Summary of the Draft Local Flood Risk Management Strategy</b></li> <li>• <b>Copy of an article to be published in September’s Connect Magazine promoting the public consultation for the Local Flood Risk Management Strategy.</b></li> <li>• <b>Surface Water Management Plan (without appendices)</b></li> </ul>		

## **1 THE ISSUE**

- 1.1 The Flood and Water Management Act 2010, makes Bath and North East Somerset Council a Lead Local Flood Authority and we are responsible for managing flood risk from surface water, groundwater and ordinary watercourses in the area. Under provisions in the Act, the Council must develop, monitor and apply a Local Flood Risk Management Strategy (and assist in the management of local flood risk).
- 1.2 We have drafted the Local Flood Risk Management Strategy. This Strategy will be publicly consulted on during September and October 2015, with a view to publishing a final draft by the end of the year. We may need Council approval of the Local Flood Risk Management Strategy in December 2015.
- 1.3 The Planning, Housing and Economic Development Panel are asked to consider and comment upon the Local Flood Risk Management Strategy.
- 1.4 Feedback is particularly sought on the Objectives (Section 2) and Actions (Section 5) of the Strategy document.

- 1.5 We are also seeking advice on who in the Council we can approach for a steer on the appropriate level of promotion of the use of sustainable drainage systems (SuDS) for the management of surface water.

## **2 RECOMMENDATION**

- 2.1 Consider and comment upon the Local Flood Risk Management Strategy.
- 2.2 Recommend the appropriate method of sign-off by the Council (e.g. Approval by Cabinet or Single Member etc).
- 2.3 Recommend the endorsement of the Local Flood Risk Management Strategy to the appropriate decision making process (2.2).
- 2.4 Recommend to the Lead Local Flood Authority the most appropriate individual, department or Democratic Service to discuss the Council's support or otherwise for sustainable drainage systems.

## **3 RESOURCE IMPLICATIONS (FINANCE, PROPERTY, PEOPLE)**

### **3.1 Financial Consequences – Revenue**

Implementing the Strategy is likely to have consequences for the Council's Revenue Budget, including in terms of staff resources and maintenance liabilities. The Lead Local Flood Authority revenue is currently funded by Defra grants.

The Strategy attached identifies in the table 5-1 the actions and their associated costs, many of which would be managed within existing budgets.

Key areas where costs arising from the adoption of the Strategy would be anticipated in excess of existing revenue budgets include:

- Completing a regional Surface Water Management Plan;
- Completing investigations of flood incidents, where the appropriate criteria is met;
- Deliver the actions in the regional Surface Water Management Plan;
- Continue to develop a register of assets which significantly affect local flood risk; and
- Evaluate flood reports to identify where drainage improvements or other mitigation works are possible.

Where possible the Council would look to work in new ways with multiple external stakeholders in order to fund works either through joint working or supported through external funding. The Council would also seek to secure other dedicated flood risk management funding where it is appropriate and available. Section 6 of the Strategy outlines the funding approach in more detail.

### **3.2 Financial Consequences – Capital**

None directly at this time, although future flood risk management is expected to require future capital projects and funding bids would be informed and supported by the strategy. Various capital funding options are identified in Section 6 of the Strategy.

Each capital project would be considered through the Council's usual review and approval process.

#### **4 STATUTORY CONSIDERATIONS AND BASIS FOR PROPOSAL**

4.1 Under the requirements of the Flood and Water Management Act 2010 the Council has a duty to work towards the objectives set out in the Local Flood risk Management Strategy, as well as to comply with statutory duties as a Lead Local Flood Authority as outlined in the Flood & Water Management Act.

The Flood & Water Management Act 2010 imposes specific statutory, executive duties on the Council to:

- Cooperate with other relevant bodies to manage flood risk.
- **Develop, maintain, apply and monitor a strategy for local flood risk management. i.e. This Local Flood Risk Management Strategy**
- Take over the Environment Agency role for 'ordinary watercourse regulation' under the Land Drainage Act 1991 (as amended by FWMA 2010).
- Investigate flooding incidents (Section 19 FWMA)
- Maintain a register of assets and structures that have a significant effect on flood risk.
- Designate assets and structures, which are considered to have a significant effect on local flood risk in an area.
- For the Lead Local Flood Authority to be a Statutory Consultee on all major planning applications in order to review surface water drainage and flood risk.
- To plan for the emergency management of flooding.
- To review and scrutinise the activities of (flood) Risk Management Authorities in implementing their flood risk management functions.

4.2 The Local Strategy will complement and support the National Strategy published by the Environment Agency, which outlines a national framework for flood and coastal risk management, which aims to balance the needs of communities, the economy and the environment. The National Strategy for Flood and Coastal Erosion Risk Management sets the following objectives:

- a) Reducing the impacts on individuals, communities, businesses and the environment from flooding and coastal erosion;
- b) Raising awareness of and engaging people in the response to flood and coastal erosion risk;

c) Providing an effective and sustained response to flood and coastal erosion events; and

d) Prioritising investment in communities most at risk.

4.3 The Local Flood Risk Management Strategy has been produced in conjunction with a Strategic Environmental Assessment (SEA) and Habitat Regulations Assessment (HRA) to analyse the environment impact of the measures and actions outlined in the Local Flood Risk Management Strategy.

4.4 A Strategic Environmental Assessment (SEA) of the Local Flood Risk Management Strategy is required under the Environmental Assessment of Plans and Programmes Regulations 2004 ('the SEA Regulations'). This means that the Council must prepare an Environmental Report which identifies, describes and evaluates the likely significant effects on the environment of implementing their Local Flood Risk Management Strategy and any reasonable alternatives taking into account the objectives and geographical scope of the strategy. An appropriate assessment under Regulation 61 of the Conservation of Habitats and Species Regulations 2010 is also required in respect of any plan which, either alone, or in combination with other plans or projects, would be likely to have a significant effect on a European Site, or is not directly connected with the management of the site for nature conservation. SEA is an on-going process and as the monitoring framework is developed linked to the Local Flood Risk Management Strategy Aims, Objectives and Policies, consideration of the SEA Objectives will also be given.

## **5 THE REPORT**

5.1 Scrutiny Panel members are advised to review the Local Flood Risk Management Strategy Executive Summary – this sets out the legislative requirements for the Lead Local Flood Authority to produce a Local Flood Risk Management Strategy and details the content of the Strategy, including the Objectives and Actions.

5.2 Further details can be scrutinised in the Draft Local Flood Risk Management Strategy (main doc).

## **6 RATIONALE**

6.1 The publication of the Local Flood Risk Management Strategy is a legislative requirement. All 174 Lead Local Flood Authorities are required to produce a Strategy.

6.2 The draft presented to this Scrutiny panel and made available for the purposes of public consultation has been developed in conjunction with technical consultants and is based on best practice.

6.3 The Local Flood Risk Management Strategy has been informed by an area wide Surface Water Management Plan. The Surface Water Management Plan has analysed incidents of local flooding between 2009-2014. This information has been used to help identify locations at risk of local sources of flooding and produce appropriate actions for these areas. These actions are then incorporated into the Local Flood Risk Management Strategy (and combined with others).

The draft Local Flood Risk Management Strategy has been developed in cooperation with other Risk Management Authorities and relevant Council departments and has included specific workshops with key stakeholders (other organisations and community groups) – see Consultation (below) for more details.

## 7 OTHER OPTIONS CONSIDERED

- 7.1 **NONE- There is no option to delegate this function of the Flood and Water Management Act to another Risk Management Authority. A decision not to adopt and publish the Local Flood risk Management Strategy may result in intervention by the Minister in accordance with section 20 of the Flood and Water Management Act 2010.**

## 8 CONSULTATION

- 8.1 Please see Appendix B of the main Strategy document for full details of the stakeholder engagement and consultation method used for the production of the Local Flood Risk Management Strategy.
- 8.2 Informal consultation has taken place between partners and stakeholders through the Strategic Flood Board and Operational Flood Working Group.
- 8.3 A key phase of consultation focused around a stakeholder workshop. This was held on 17th June 2015. A wide range of stakeholders were invited to attend – these are listed in Appendix B.

The stakeholder workshop consisted of:

- A briefing on the role of the Council as Lead Local Flood Authority, the background and context for the Local Flood Risk Management Strategy and the Local Flood Risk Management Strategy objectives.
- A more detailed presentation on the results of the Surface Water Management Plan and how these have been fed into the LFRMS as well as on the LFRMS Action Plan
- A break out session which gave attendees the opportunity to discuss the LFRMS objectives and Action Plan in more detail.

As a result of the workshop a number of changes were made to the emerging draft LFRMS documents. The version that is currently out for consultation therefore incorporates these amendments.

- 8.4 The formal area-wide consultation will take 8 weeks starting on 1<sup>st</sup> September 2015 through 26<sup>th</sup> October 2015. The draft Local Flood Risk Management Strategy will be shared with the public giving accurate information, myth-busting and taking the views of partners and residents.
- 8.5 The consultation will be primarily web based; using the Council's Consultation Module on the public website. The consultation information will also be available at the Council's libraries and One Stop Shops. Targeted emails to the main stakeholders will also be sent to draw attention to the consultation.

8.6 All partners are invited to visit the Strategy document on the Council website. Other channels of engagement include the following:

- News releases and feature articles flagging up consultation (external media, website, social media, Connect magazine article).
- Social media: As well as the social media channels of the Council, such as twitter and facebook pages, we can make links with partners' social media channels and engage with their followers.

8.7 Comments received as a result of the consultation will be assessed and used to refine the LFRMS within the legislative and policy framework that exists. The final version of the LFRMS requires Council approval, and we anticipate Cabinet approval for a Cabinet meeting currently scheduled for 2 December 2015 (however we await the Panel's decision on whether this is the most appropriate method for sign-off). We are aiming to publish the Local Flood Risk Management Strategy by 16 December 2015.

8.8 The Council's section 151 Officer has had the opportunity to input to this report.

8.9 The Council's Monitoring Officer is aware of this document and will be scrutinising ahead of any Cabinet decision meeting. We are likely to ask the Monitoring Officer to review the Strategy during the Consultation period.

## 9 RISK MANAGEMENT

9.1 A risk assessment related to the issue and recommendations has been undertaken, in compliance with the Council's decision making risk management guidance.

<b>Contact person</b>	<i>Jim Collings (Flood Authority Manager) 01225 39 4366</i>
<b>Background papers</b>	<i>(see opening section of this report)</i>
<b>Please contact the report author if you need to access this report in an alternative format</b>	

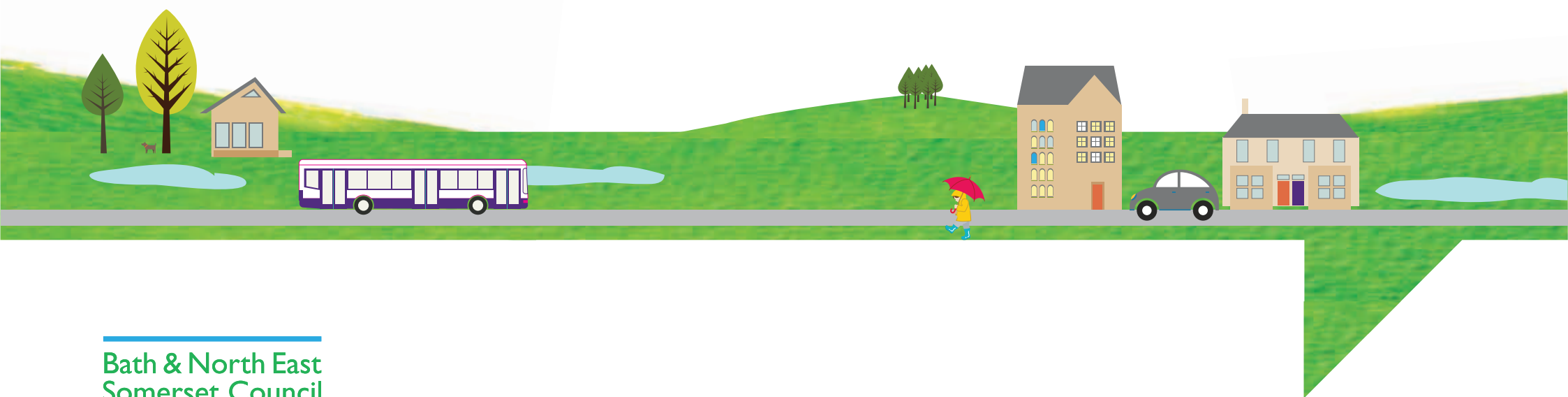


# A ten year plan for the management of flooding from local sources

Bath & North East Somerset's  
Local Flood Risk Management Strategy  
2015 – 2025

Issue 1 – Draft for Consultation

Page 41



Prepared by



Burderop Park  
Swindon  
SN4 0QD

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Produced by: Jemma Bennett (CH2M)

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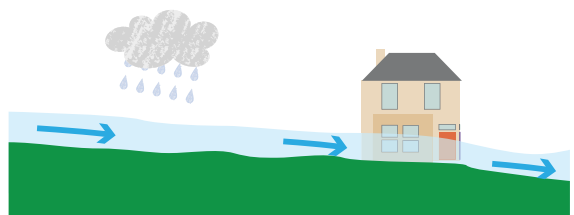

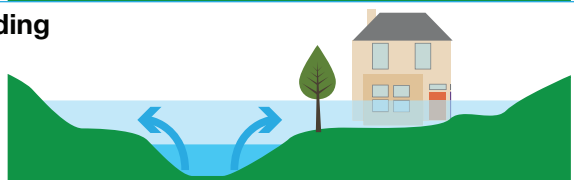
Approved by: Alistair Cotton (CH2M)



# Local Flooding

This document covers the ten year plan for the management of flooding from local sources in Bath & North East Somerset. It is therefore important to understand what is classified as *local* flooding. The summary below outlines what is classified as local flooding and what is not.

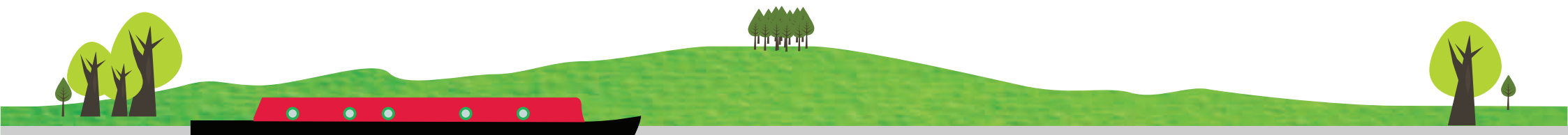
**Local flooding includes:**

<p><b>Surface water flooding</b></p>		<p><b>Surface water flooding</b> (also referred to as pluvial flooding or flash flooding), is rainwater, snow and other precipitation which runs across the surface of the ground and pools in low lying areas. To be classed as surface water flooding it must not have entered a watercourse, drainage system or public sewer. This type of flooding often occurs quickly during, or shortly after, a high intensity storm.</p>
<p><b>Groundwater flooding</b></p>		<p><b>Groundwater flooding</b> occurs where the water levels in rock and soil become high enough for the water to appear near to or above the ground surface. This may happen, for example, where there are underlying gravels, or porous or fractured rocks, allowing water to pass through. Flooding from natural springs would be classed as a form of groundwater flooding. Slow response means that groundwater flooding can occur a long time after prolonged or heavy rainfall and can last for a long time (often several weeks or months).</p>
<p><b>Ordinary Watercourse flooding</b></p>		<p><b>Ordinary watercourse flooding</b>, also referred to as fluvial flooding, occurs when water overtops the banks of a stream or smaller watercourse. This can occur because there is more water draining into the channel than it can hold, or because it is blocked. Flooding from Main Rivers, (as defined by the Environment Agency) is not classed as 'local' flooding.</p>

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**Local Flooding does not include:**

Main River flooding	Coastal flooding	Sewer flooding	Reservoir flooding	Flooding caused by burst water mains
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## Foreword



Flooding results in significant impacts to local communities, businesses, the economy and our environment. It causes damage to property and infrastructure, and results in distress and disruption to people.

Following the severe flooding in summer 2007 Government commissioned Sir Michael Pitt to undertake a detailed review of the flood events and to make recommendations about how flooding should be managed. Government accepted the findings of the Pitt Review, which resulted in new legislation in 2010 known as the Flood and Water Management Act. This gave Bath & North East Somerset Council, along with other local authorities across England and Wales, new responsibilities to manage flood risk from:

- surface water runoff;
- groundwater, and;
- Ordinary Watercourses.

Flood risk from these sources is known as ‘local flood risk’ in the legislation.

One of the key components of the Flood and Water Management Act (2010) was the requirement for the Council, under its duties as a

Lead Local Flood Authority, to “develop, maintain, apply and monitor a strategy for local flood risk management (local flood risk management strategy).”

The Local Flood Risk Management Strategy:

- sets out objectives for managing local flood risk;
- identifies the areas where local flood risk is most significant;
- considers how the Lead Local Flood Authority will work in partnership with other organisations who have a responsibility for flood risk management;
- identifies how local communities can be involved and helped to understand how to reduce their exposure to flood risk, and;
- set out the actions the Lead Local Flood Authority will take, in partnership with others, to manage local flood risk.

Flooding in Bath & North East Somerset occurs from rivers, surface water runoff, groundwater and drainage networks (e.g. sewers and highway drainage). No one organisation has responsibility to manage flood risk from all of these sources. Therefore, it is vital the Council, as a Lead Local Flood Authority, works with others to fulfil its responsibilities and manage flood risk for communities, businesses and the environment. This Local Flood Risk Management Strategy has

been developed in collaboration with the Strategic Flood Board, which includes representatives from Bath & North East Somerset, the Environment Agency, Wessex Water, Bristol Water and the Canals and Rivers Trust.

As the Lead Local Flood Authority, we have set up an Operational Flood Working Group which will address specific flooding or drainage issues with a view to developing practical measures to improve drainage or reduce flood risk. The importance of working with local communities is also recognised, and this will primarily be achieved through Local Flood Representatives who act as a point of contact between local communities and Bath & North East Somerset Council’s Drainage & Flooding team (who undertake most of the roles and responsibilities of the Lead Local Flood Authority).

We must all recognise that flooding cannot be completely prevented, but its impacts can be reduced and managed through investment, education and good planning. This is Bath & North East Somerset’s first Local Flood Risk Management Strategy for delivery over the next ten years. It represents the first step in ensuring we have a sound and deliverable strategy to manage local flood risk.

### **Councillor Liz Richardson**

(Chair of the Bath & North East Somerset Strategic Flood Board).



# Glossary

Please refer to Appendix F at the back of this document.

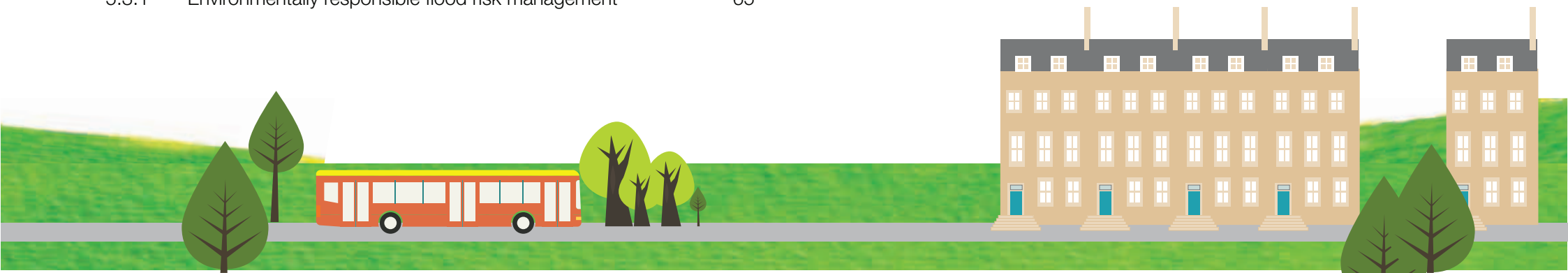


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# Section 1

## Introduction



## 1.1 Context of the Local Flood Risk Management Strategy

Bath & North East Somerset covers an area of approximately 350 km<sup>2</sup>, and two thirds of the study area is designated as a green belt. The largest urbanised areas within Bath & North East Somerset are Bath, Keynsham, Midsomer Norton and Radstock, and there are numerous villages and hamlets spread across 49 rural parishes which accommodate a substantial rural population.

Flooding is an important issue which affects individuals, businesses and communities, and can occur from rivers, surface water runoff, groundwater, reservoirs, canals and drainage networks (e.g. sewers and highway drainage). A regional Surface Water Management Plan was prepared in 2015 and identified that Bath, Keynsham, Whitchurch, Chew Magna, Chew Stoke, West Harptree, Midsomer Norton and Radstock are the locations in Bath & North East Somerset which have suffered the most flooding. This has affected people, property, critical infrastructure and key transport routes.

Until recently there has been limited understanding about who is responsible for different types of flooding and what can be done to reduce the risks. Responsibilities have been clarified in recent policy and legislation changes. Following these changes it is important that all organisations involved in managing flooding work in partnership to understand the causes of flooding and what can be done to manage it. This document sets the strategy for ensuring this is achieved.

## 1.2 The role of the Local Flood Risk Management Strategy

To improve the organisation of flood risk management in England, legislation was passed in 2010 called the Flood and Water Management Act (2010). Under the Flood and Water Management Act (2010) Bath & North East

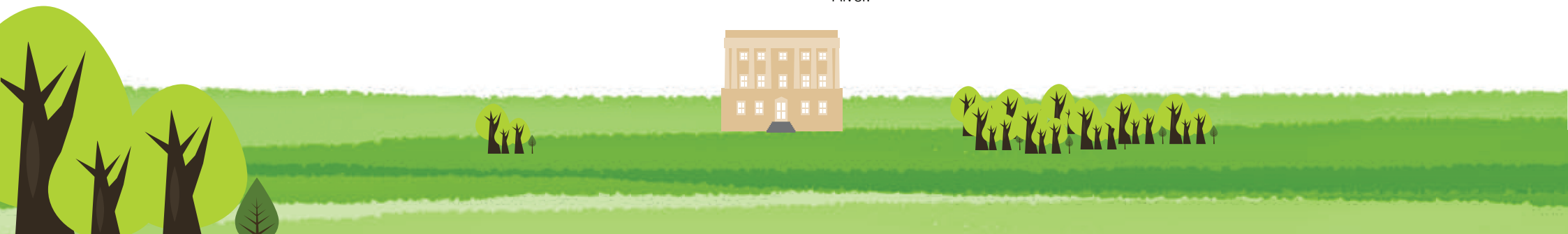
Somerset Council is now a Lead Local Flood Authority<sup>1</sup> with new duties and powers to take a leadership role on the management of local flood risk (surface water, Ordinary Watercourses<sup>2</sup> and groundwater), through working in partnership with others. This is in addition to other relevant statutory responsibilities the Council already has as the Local Highways Authority, Local Planning Authority, and Emergency Planning Authority.

Under the Flood and Water Management Act (2010) one of the statutory requirements was for each Lead Local Flood Authority to develop, maintain, apply and monitor a Local Flood Risk Management Strategy. The Local Flood Risk Management Strategy must:

- communicate the roles and responsibilities of the various Risk Management Authorities in Bath & North East Somerset (see Section 3 and Appendix C);
- identify 'locally significant' flood risk which are the priority risk areas (see the Regional Surface Water Management Plan and Section 4);
- set objectives for managing 'locally significant' flood risk (see Section 2);
- outline measures to achieve the objectives set above (see Section 5);
- identify costs and benefits of the proposed measures, and how they will be paid for (see Section 6 and Appendix E);
- communicate how the Local Flood Risk Management Strategy contributes to wider environmental objectives (refer to the accompanying Strategic Environmental Assessment), and;
- provide information on the review process for the Local Flood Risk Management Strategy (see Section 7.3).

1 The majority of the Lead Local Flood Authority roles and responsibilities are undertaken by the Drainage & Flooding team within the Council.

2 An Ordinary Watercourse is any watercourse, ditch, stream not classified as a Main River.



The purpose of the Local Flood Risk Management Strategy is to help inform the Council, partners and communities about local flood risk, where it is most significant, how it can be managed, and who is responsible for doing so. It sets out the objectives for doing this, and identifies the key actions we will take as the Lead Local Flood Authority, in partnership with other Risk Management Authorities, to manage local flood risk. Flooding cannot be completely prevented, though its impacts can be reduced and managed through investment and good planning. Therefore, through the Local Flood Risk Management Strategy there is also a need to manage the expectations of partners and communities to achieve better local flood risk management that benefits communities in Bath & North East Somerset, and establish new policies that will help minimise the impact of flooding.

### 1.3 Who is the Strategy aimed at?

The Local Flood Risk Management Strategy is aimed at a wide range of partners and stakeholders, as each has an important role to play in managing local flood risks in the Bath & North East Somerset area. These include:

- communities, parish councils, flood action groups, and individuals;
- businesses;
- voluntary groups;
- developers and their consultants;
- Risk Management Authorities (see section 3.3);
- members of the Strategic Flood Board;
- members of the Operational Flood Working Group, and;
- the West of England Flood Risk Managers Group.

Further details on members within these groups are included in the Glossary in Appendix F.

### 1.4 What types of flooding are covered by the Strategy

In line with the Council's statutory responsibilities as a Lead Local Flood Authority, the Local Flood Risk Management Strategy focuses on flood risk from local sources. Please refer to the Local Flooding page at the start of this document for further details.

The Local Flood Risk Management Strategy does however also outline the roles and responsibilities of other Risk Management Authorities who manage other types of flooding within Bath & North East Somerset, and how the Lead Local Flood Authority are working in partnership with these organisations.

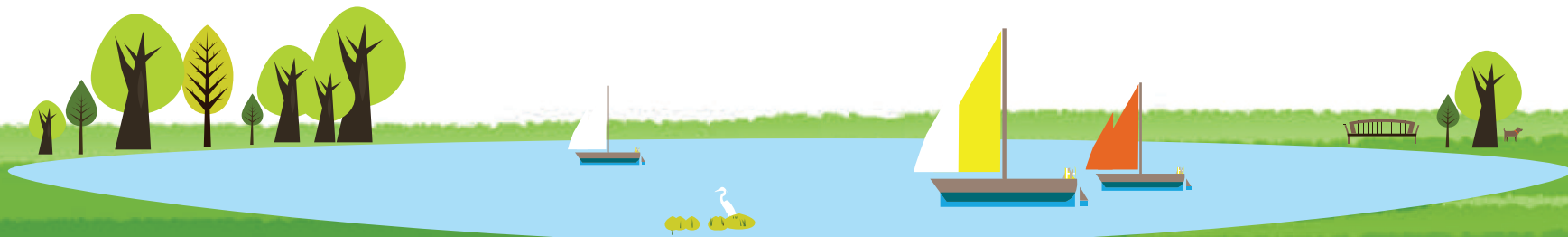
More details about roles and responsibilities of Risk Management Authorities are included in Section 3 and Appendix C, and information on local flood risk in Bath & North East Somerset is included in Section 4.

### 1.5 The area covered by the Strategy

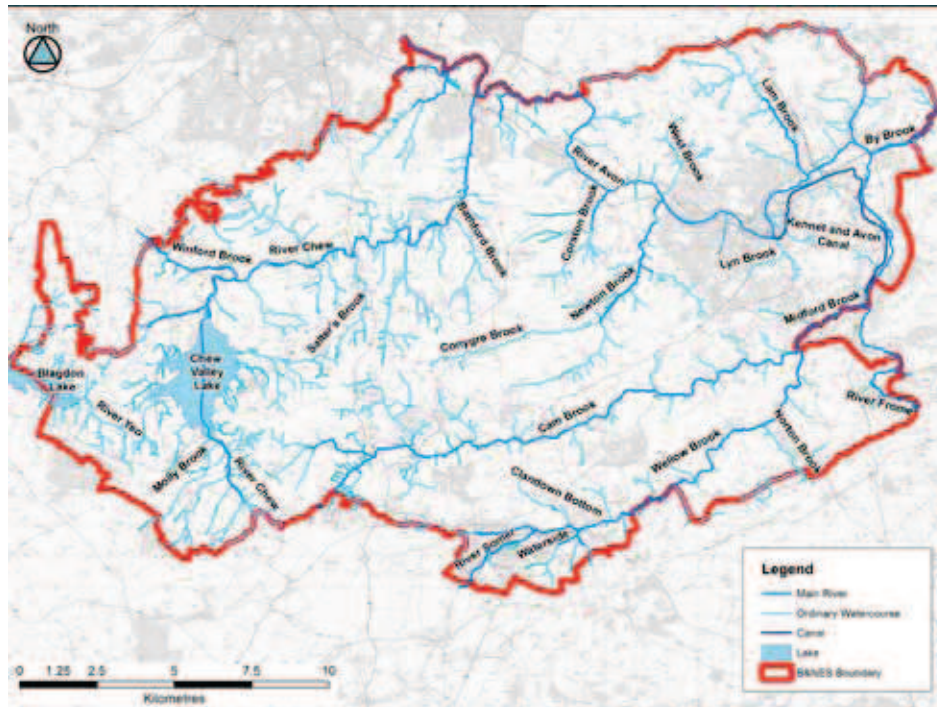
Bath & North East Somerset covers an area of approximately 350 km<sup>2</sup>, and two thirds of the study area is designated as a green belt.

The largest urbanised areas within Bath & North East Somerset are Bath, Keynsham, Midsomer Norton and Radstock, and there are numerous villages and hamlets spread across 49 rural parishes which accommodate a substantial rural population.

This document presents the Local Flood Risk Management Strategy for the whole of the Council's area which is depicted in Figure 1-1.



**Figure 1-1** Geographical extent of Bath & North East Somerset Council (courtesy of JBA Consulting)<sup>3</sup> area



## 1.6 Links to other plans, policies and legislation

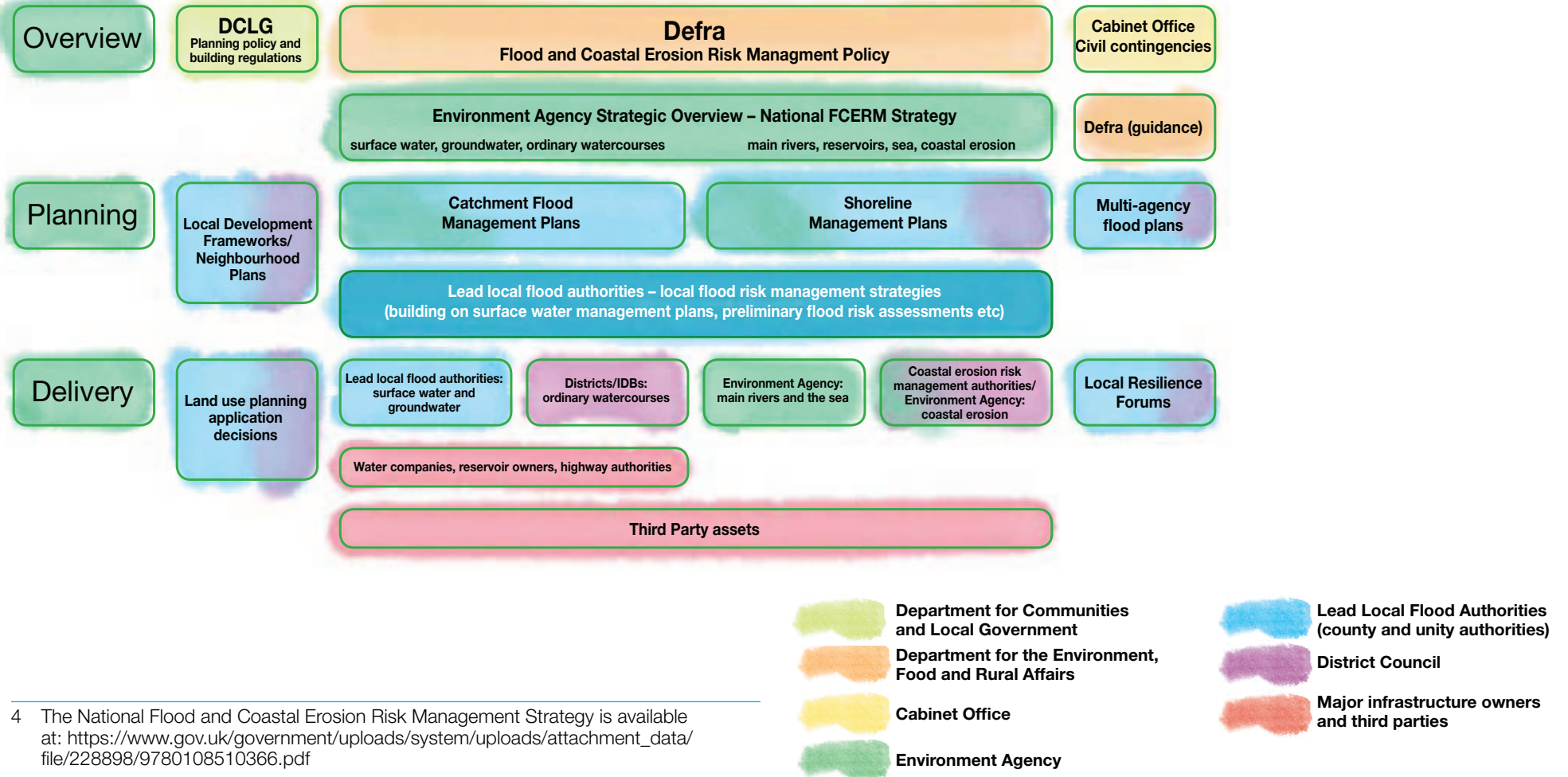
There are a number of additional important flood related documents which have been produced for Bath & North East Somerset such as the Strategic Flood Risk Assessment and Surface Water Management Plan. Figure 1-2 outlines how the Local Flood Risk Management Strategy links with these other flood and coastal erosion risk management strategies and plans.

There are also a number of pieces of legislation, planning documents and policies linked to the management of flood risk which also link to this Local Flood Risk Management Strategy, but again are not included specifically within it to avoid duplication. Details of these are included in Appendix A.

<sup>3</sup> JBA Consulting (2015), Bath & North East Somerset Council Surface Water Management Plan



**Figure 1-2** How this Strategy fits in with other planning initiatives  
(extracted from National Flood and Coastal Erosion Risk Management Strategy)<sup>4</sup>



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<sup>4</sup> The National Flood and Coastal Erosion Risk Management Strategy is available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/228898/9780108510366.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/228898/9780108510366.pdf)



## 1.7 How the Strategy has been prepared

The Local Flood Risk Management Strategy document has been developed by the Council as the Lead Local Flood Authority. To ensure a coordinated approach to flood risk management in the Bath & North East Somerset area, the Strategic Flood Board have been consulted to ensure the Local Flood Risk Management Strategy aims and objectives align with those of other Risk Management Authorities.

A stakeholder workshop has also been undertaken to outline the purpose and function of the Local Flood Risk Management Strategy to a wider audience and gain initial feedback on the objectives and actions explained within this document.

At this stage the Local Flood Risk Management Strategy is still considered to be a draft and has now been opened up for further public consultation to ensure this strategy is considered to be effective and suitable for the whole of the Bath & North East Somerset region. Once this consultation period is completed at the end of October 2015 the Local Flood Risk Management Strategy will be updated appropriately based on the comments received.

The full approach for stakeholder engagement is provided in Appendix B.

In addition, given the number of designated sites and cultural heritage interest in the Bath & North East Somerset district, it was felt that a Strategic Environment Assessment Report should be completed to accompany this Local Flood Risk Management Strategy and give consideration to the environmental implications of the objectives included within this strategy.

## 1.8 How the public will be involved

The public have an important role in influencing this document. Part of the Local Flood Risk Management Strategy process is the consultation process as outlined above. This allows the public and other partners of the Council to have their say on the Local Flood Risk Management Strategy document, its objectives and its action plans.

Following this the public have an important ongoing role to play in helping reduce the risks from flooding within the region. In addition to being aware of the risks, this includes:

- reporting flooding incidents to the appropriate Risk Management Authority (see Section 3.4.1);
- taking action to reduce flooding to their property or land (see Section 3.4.2);
- cooperating with Risk Management Authorities where appropriate to help improve understanding about the mechanisms of flooding and help develop effective approaches to manage risks, and;
- supporting the management of local risks through good land use practices, maintaining any privately owned flood risk structures or assets, and maintaining watercourses where there are Riparian Owner responsibilities (see Section 3.4.3).



# 2 Strategy Objectives



It is helpful to describe local flood risk management in Bath & North East Somerset in three phases, which are illustrated in Figure 2-1. The majority of actions arising from the Local Flood Risk Management Strategy are related to managing the risks of local flooding, although there are some actions to support the planning for, warning of, and response to, flooding. The warning and responding to flooding incidents is primarily undertaken by the emergency planning authority<sup>5</sup> with the support of the emergency services, including Bristol & Avon Fire and Rescue and the Police.

A series of objectives have been defined to help structure and govern the implementation of the Local Flood Risk Management Strategy. These objectives are to:

- **Objective 1:** improve our understanding of local flood risk;
- **Objective 2:** promote community awareness and build capability for appropriate action;
- **Objective 3:** manage local flood risk through capital and maintenance investment;
- **Objective 4:** prevent inappropriate development that creates or increases flood risk;
- **Objective 5:** improve flood preparedness, warning and ability to recovery.

Figure 2-1 identifies how each of these objectives are linked to the three phases of flood risk management. Objective 2 is an over-arching objective which needs to be promoted during all phases of local flood risk management. It is vital that local communities are aware of local flood risks, know how to prepare and respond to flooding, are empowered to take ownership of local flood risk issues, and understand the roles and responsibilities of Risk Management Authorities.

The measures proposed to help achieve these objectives are detailed in the action plan provided in Section 5, and an explanation of the principles of each objective are contained below /overleaf.

<sup>5</sup> This role is undertaken by the Emergency Planning and Business Continuity department within Bath & North East Somerset Council.





**Figure 2-1** Three phases of flood risk management in Bath & North East Somerset

Emergency response undertaken by the emergency planning authority and emergency service (Note: this is outside of the remit of the LFRMS)

**Warn and respond to flooding**

- Promote community awareness and build capability for appropriate action (Objective 2)
- Improve flood preparedness, warning and ability to recover (Objective 5)

**Manage the risks**

- Improve understanding of local flood risk (Objective 1)
- Promote community awareness and build capability for appropriate action (Objective 2)
- Manage local flood risk through capital and maintenance investment (Objective 3)
- Prevent inappropriate development that creates or increases flood risk (Objective 4)

**Plan for flooding**

- Promote community awareness and build capability for appropriate action (Objective 2)
- Improve flood preparedness, warning and ability to recover (Objective 5)



## Objectives

# 1

### Improve our understanding of local flood risk

To date a lot of work has been done by the Council and partners to improve understanding of flood risk in the Bath & North East Somerset area. This has included recording where and when flooding occurs, and assessments to ensure that new development considers flood risk. For further details refer to the:

- Bath & North East Somerset Preliminary Flood Risk Assessment;
- regional Surface Water Management Plan;
- and the Chew Magna and Chew Stoke Flood Section 19 Flood Investigation Reports (as required under the Flood and Water Management Act (2010)<sup>6</sup>.

These studies and investigations have partially helped to meet this objective, but there are additional measures outlined within the Strategy Action Plan in Section 5 which the Lead Local Flood Authority have developed as part of the Local Flood Risk Management Strategy.

# 2

### Promote community awareness and build capability for appropriate action

Communities, individuals and businesses have an important role to play in flood risk management, understanding what the risks are, and taking an active role in managing these risks. Further details on this essential role are discussed in Section 3.5. However, as part of the role as the Lead Local Flood Authority there is also a need to help ensure that useful information is provided to communities of Bath & North East Somerset.

# 3

### Manage local flood risk through capital and maintenance investment

Although the Lead Local Flood Authority has responsibility for taking a leading role in managing local flood risk, it is not possible or appropriate for the Lead Local Flood Authority to try to manage all flood risk in isolation. To ensure that flood risk is managed over the long term the Lead Local Flood Authority will engage with partners to develop long term, joined up approaches. Through our role as the Lead Local Flood Authority we will also prioritise our resources based on our improved understanding of where the risks are greatest.

<sup>6</sup> Available on the Bath & North East Somerset website at: <http://www.bathnes.gov.uk/services/environment/land-drainage>



# 4

## Prevent inappropriate development that creates or increases flood risk

The Council holds roles as both the Local Planning Authority and Lead Local Flood Authority, and as such have responsibility to ensure that new development properly considers drainage and flood risk as part of the planning application stage. In addition, the Lead Local Flood Authority is a statutory consultee on all major planning applications<sup>7</sup>. The Lead Local Flood Authority also offers technical advice on local flood risk and drainage issues in Bath & North East Somerset, and encourage pre-planning discussion to better inform proposed drainage strategies and minimise local flood risk.

To support this the Bath & North East Somerset Placemaking Plan incorporates a Sustainable Drainage System policy, and links with the Core Strategy Key Policy CP5 Flood Risk Management and CP7 Green Infrastructure, to ensure that all new sites are expected to incorporate sustainable drainage systems to reduce surface water runoff and minimise its contribution to flooding.

Local guidance in the form of the West of England Sustainable Drainage Developer Guide has also been recently published. This provides standards and guidance for developers, planners, designers and consultants on the requirements for design, approval and adoption of SuDS in the West of England and Somerset. The guidance provides information on the planning, design and delivery of attractive, high quality and well integrated SuDS schemes, promotes the need for early consideration of Sustainable Drainage Systems, and introduces the use of a “proof of concept” process to gain agreement in principle at an early stage from the Local Planning Authority.

As part of the Local Flood Risk Management Strategy a number of actions have been identified to help strengthen the information available and ensure that inappropriate development is prevented. This is described in Section 5.

# 5

## Improve flood preparedness, warning and ability to recover

The removal of all flood risk is not feasible and as such it is important to predict when flooding is likely to occur, warn people when there is a risk to themselves or their properties, and thereafter help people to recover from the adverse effects of flooding.

The Council is already responsible for planning and responding to flood emergencies as a Category 1 responder under the Civil Contingencies Act 2004, and works closely with the Bristol & Avon Fire and Rescue Service<sup>8</sup>, the Police Service and the Environment Agency to do this.

As part of the Local Flood Risk Management Strategy the Lead Local Flood Authority will develop a number of actions to ensure there is improved awareness about flood prediction, warning and how to recovery following a flood event. This is outlined further in Section 5.

<sup>8</sup> The Fire and Rescue Service are not a Risk Management Authority and do not have any specific mandated responsibilities around flood emergencies. However, as part of the service they offer, they are often involved.

<sup>7</sup> Major development is defined in Article 2(1) of the Town and Country Planning (Development Management Procedure) (England) Order 2010, [http://www.legislation.gov.uk/ukxi/2010/2184/pdfs/ukxi\\_20102184\\_en.pdf](http://www.legislation.gov.uk/ukxi/2010/2184/pdfs/ukxi_20102184_en.pdf)





# Section 3

## Roles and Responsibilities



### 3.1 Partnership Working

The Lead Local Flood Authority have established a number of working groups which enable partnership working with other organisations and Risk Management Authorities (explained in Section 3.3). These include the Strategic Flood Board and Operational Flood Working Group, which hold regular meetings. The Strategic Flood Board provides oversight and partnership working for flood risk management in Bath & North East Somerset. The purpose of the Operational Flood Working Group is to discuss and agree ways to manage flood risk from local sources.

The Lead Local Flood Authority also attend meetings with the South West Flood Risk Managers and West of England Flood Risk Working Groups which aids communication with other Lead Local Flood Authorities in the South West of England.

The established lines of communication between the various groups is shown in Figure 3-1.

Everybody in the Bath & North East Somerset area has the potential to play a role in a partnership working arrangement, and getting the right mix of people involved is key to the success or failure of a flood improvement project. The Lead Local Flood Authority will facilitate the development of further partnership working where required, and when resources allow. In particular the Lead Local Flood Authority will look to work with local communities through the Local Flood Representatives. The Local Flood Representatives act as a point of contact between local communities and the Lead Local Flood Authority. They provide an important communication link between residents or communities and other flood risk management stakeholders on issues regarding local flooding.

### 3.2 Who are the Risk Management Authorities

Certain organisations were defined in the Flood and Water Management Act (2010) as Risk Management Authorities and given specific responsibilities around flooding. This includes both new responsibilities from the Flood and Water Management Act (2010), and longstanding ones from previous legislation such as the Highways Act (1980), and the Land Drainage Act (1991).

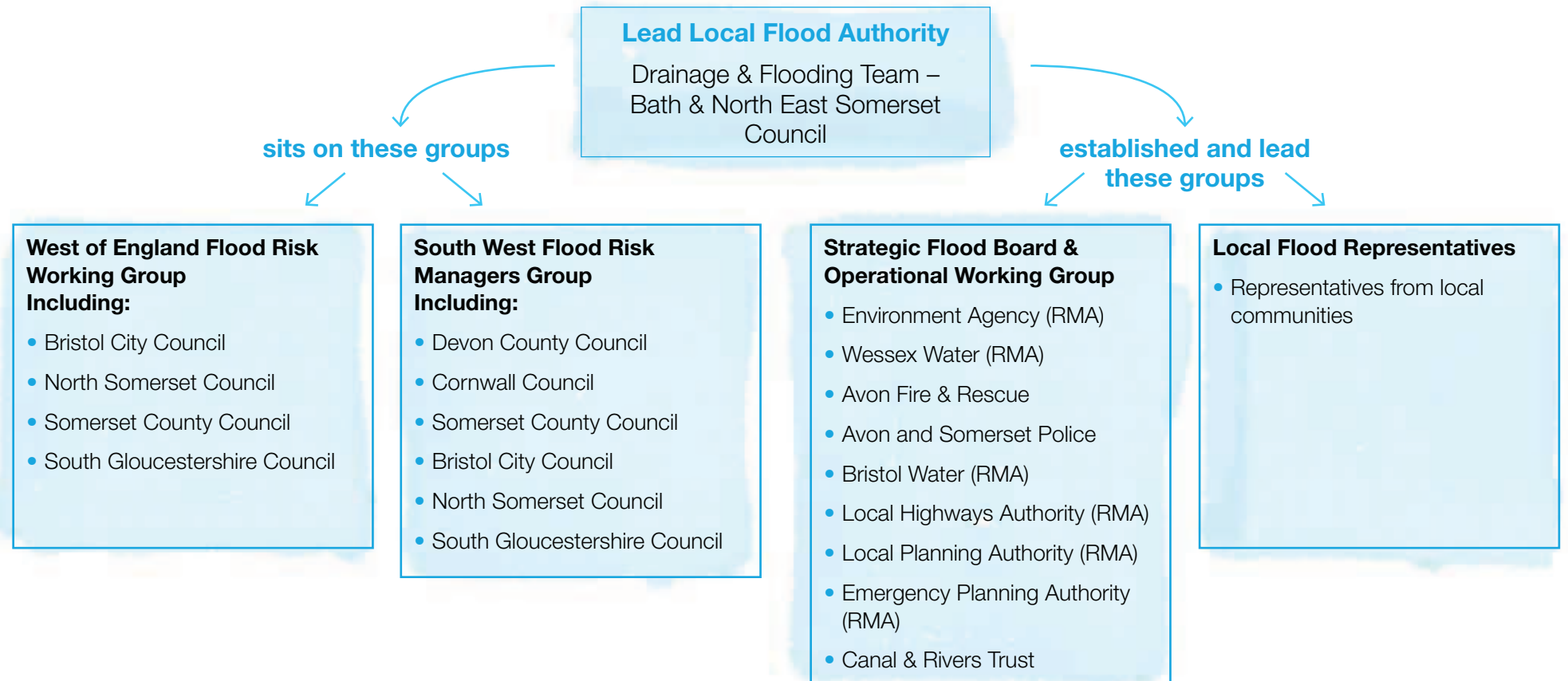
Within the Bath & North East Somerset region Risk Management Authorities include:

- Bath & North East Somerset Council;
- the Environment Agency;
- Highways England;
- Bristol Water; and
- Wessex Water.

Table 3-1 provides an overview of these Risk Management Authorities and their responsibilities for managing flood risk within the region.



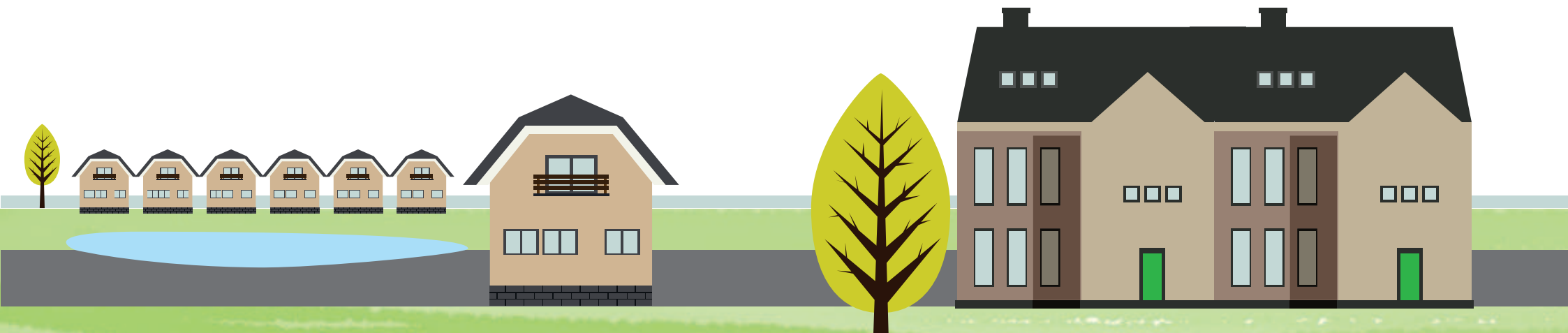
**Figure 3-1** Showing how Bath & North East Somerset Council as the Lead Local Flood Authority communicate with other partners who have roles and responsibilities for flood risk management. Risk Management Authorities have been defined in this diagram with (RMA) assigned next to their organisations title.



**Table 3-1** Overview of responsibility for flood risk management within Bath & North East Somerset

Flood Source	Responsible Risk Management Authority				
	Environment Agency	Bath & North East Somerset Council	Bristol Water	Wessex Water	Highways England
Main River	✓				
The Sea	✓				
Surface Water		✓			
Surface Water (on or coming from the highway)		✓			✓
Sewer Flooding				✓	
Ordinary Watercourse		✓			
Ground Water		✓			
Reservoirs	✓		✓	✓	
Burst Water Main			✓	✓	

A summary of the key roles and responsibilities are provided in subsequent sections. Full details of all roles and responsibilities are included in Appendix C.





### 3.3 Roles of Risk Management Authorities

All of the Risk Management Authorities in Bath & North East Somerset have the following general duties and powers:

- duty to co-operate with other Risk Management Authorities in the exercise of their flood and coastal erosion risk management functions, including sharing flood risk management data;
- duty to have regard for national and local flood and coastal erosion risk management strategies, and;
- power to take on flood and coastal erosion functions from another Risk Management Authorities when agreed by both sides (except those in relation to the function of the Lead Local Flood Authority or the Environment Agency).

The specific roles of each Risk Management Authority are explained in the following sections.

#### 3.3.1 Bath & North East Somerset Council

The main responsibilities of the Council associated with flood risk management are as the:

- Lead Local Flood Authority;
- Local Highways Authority;
- Local Planning Authority, and;
- Emergency Planning Authority.

The Council has an important role to play as the strategic leader for local flood risk management. This includes developing a Local Flood Risk Management Strategy, ensuring all Risk Management Authorities are aware of their responsibilities, and co-operate with each other through the Strategic Flood Board and the Operational Flood Working Group. Some of our functions are described below.

As the **Lead Local Flood Authority** the Council are responsible for:

- development, maintenance, application and monitoring of the Bath & North East Somerset Local Flood Risk Management Strategy;
- recording flood incidents, investigating and publishing reports on flooding incidents as appropriate<sup>9</sup>;
- managing an Asset Register of structures or features which have a significant (as defined in this Section 3.3.2) effect on flood risk in the region;
- Ordinary Watercourse consenting and enforcement;
- designation of assets (structures and features) that affect flooding, and;
- statutory consultee for major planning applications with surface water implications.

As the **Local Highways Authority** the Council are also responsible for:

- the provision and management of highway drainage under the Highways Act (1980) where these are not managed by Highways England. It should be noted that the majority of roadside ditches are the responsibility of adjacent landowners, unless the ditch was constructed by the highways authority solely for the purpose of draining the highway.

As the **Local Planning Authority** the Council are responsible for:

- preparing a Local Plan for development;
- considering flood risk assessments submitted in support of applications;
- determination of planning applications, giving consideration for flood risk within the region, and;
- working closely with the Lead Local Flood Authority to ensure that planning applications take adequate account of drainage requirements.

<sup>9</sup> This section of the Flood and Water Management Act (2010) also includes: Identifying which authorities have relevant flood risk management functions to deal with flooding incidents, and what they have done or intend to do to ensure future risks are reduced.



As the **Emergency Planning Authority** the Council has responsibility for:

- planning for and responding to flood emergencies as a Category 1 responder under the Civil Contingencies Act 2004, and;
- working closely with the Bristol & Avon Fire and Rescue Service<sup>10</sup> and the Police Service to do this.

### 3.3.2 Existing activities

Specific activities the Council are already undertaking to manage local flood risk are outlined below.

#### Highway drainage maintenance

As outlined in Section 3.3.1 the Local Highways Authority have responsibilities under the Highways Act (1980). This includes ensuring that highway drainage systems are maintained and that blockages on the highway are cleared, where reasonably practicable.

#### Ordinary Watercourse maintenance

Regular maintenance works undertaken on Ordinary Watercourses helps ensure the free flow of water in these watercourses. This is necessary to alleviate flooding and to assist land drainage. The Lead Local Flood Authority have identified 37 reaches of Ordinary Watercourses where clearance is required to reduce the risk of property flooding. These reaches are maintained on an annual basis. Furthermore, the Lead Local Flood Authority undertake reactive maintenance works on trash screens to reduce the risk of blockage using permissive powers under the Land Drainage Act (1991).

<sup>10</sup> The Fire and Rescue Service are not a Risk Management Authority and do not have any specific mandated responsibilities around flood emergencies. However, as part of the service they offer, they are often involved.

#### Maintenance of an asset register

As highlighted in Section 3.3.1, the Lead Local Flood Authority are required to establish and maintain a register of structures and features which are considered to have a significant impact on flood risk, under Section 21 of the Flood and Water Management Act (2010). This register holds a record of information about each of those structures or features, including information about ownership and condition. The flood risk asset register is a live database, and new structures and features are added as information becomes available.

The purpose of the asset register is to:

- inform the public of key flooding assets in their area;
- inform the Bath & North East Somerset Local Flood Risk Management Strategy;
- influence the maintenance regime of the assets, and;
- assist investigations of significant flood events ('significant' being as defined below).

The register is published on the the Council website and can currently be found under the following link: [http://isharemaps.bathnes.gov.uk/myBathNES.aspx?MapSource=BathNES/Lead Local Flood Authority&TAB=maps](http://isharemaps.bathnes.gov.uk/myBathNES.aspx?MapSource=BathNES/Lead%20Local%20Flood%20Authority&TAB=maps).

#### Emergency planning and response

As highlighted in Section 3.3.1, as the Emergency Planning Authority the Council has a responsibility for planning for and responding to emergencies; including flood emergencies.

During and after an emergency the Emergency Planning Authority:

- coordinate emergency support within their own functions;
- work with the other Category 1 and 2 responders as part of the multi-agency response;
- coordinate emergency support from the voluntary sector;



- liaise with central and regional government departments;
- liaise with essential service providers;
- open rest centres;
- manage the local transport and traffic networks;
- mobilise trained emergency social workers;
- provide emergency assistance;
- deal with environmental health issues, such as contamination and pollution;
- coordinate the recovery process;
- manage public health issues;
- provide advice and management of public health;
- provide support and advice to individuals, and;
- assist with business continuity.

### Land Drainage Consent

Under Schedule 2 of the Flood and Water Management Act (2010) the Lead Local Flood Authority has a duty to consent works and a power to undertake enforcement on ordinary watercourses under changes to the Land Drainage Act 1991 (sections 23, 24 and 25). The duty to consent enables the Lead Local Flood Authority to approve or reject applications for works on Ordinary Watercourses depending on the impact of the proposed works on flood risk. As part of this role the Lead Local Flood Authority review proposals from applicants who intend to carry out works (whether temporary or permanent) that may construct or alter any mill, dam, weir, or culvert which is likely to affect the water flow on an Ordinary Watercourse.

The reason for this consenting process is to ensure that any works do not endanger life or property by increasing the risk of flooding or cause harm to the water environment.

### Investigating flooding

The Lead Local Flood Authority have a duty to record and investigate significant flooding events under Section 19 of the Flood and Water Management Act (2010). There is no national definition of significant and it is up to the Lead Local Flood Authority to decide what flooding incidents are locally important to them and are worth of recording and investigating. Any of the following would trigger an investigation and be classified as significant:

- five or more properties at an urban location experience internal flooding;
- two or more properties at a rural location experience internal property flooding;
- where the event resulted in a loss of life, or;
- where critical infrastructure (e.g. power station, pump station, electricity supply, critical transport route) was affected by flooding for a significant period of time.

The investigations will identify which Risk Management Authority is responsible for the flood incident. The relevant Risk Management Authority will then be required to prepare a report detailing the cause of flooding, the consequences of the flood event and the actions taken to deal with the event during and after the flooding, in accordance with the requirements of Section 19 of the Flood and Water Management Act (2010). Investigations will involve consultation with the relevant Risk Management Authorities, landowners and private organisations involved, all of whom we will work with to ensure cooperation. These reports will be important tools that will bring all useful information together, providing a better picture and understanding of situations, outlining possible causes of flooding and identifying potential long-term solutions.



These reports will also include further recommendations for future flood risk management actions that could be undertaken to address and resolve flooding. Reports will be available to anyone on request within three months of an incident being reported to the Lead Local Flood Authority. However, there are cases where this timeframe will be extended (e.g. if widespread flooding occurred across the area).

### 3.3.3 The Environment Agency

The Environment Agency is required to publish a National Flood and Coastal Erosion Risk Management Strategy which provides a national framework for all sources of flooding and coastal erosion. Similar to the Local Flood Risk Management Strategy, it defines roles and responsibilities, and sets out some guiding principles for flood risk management. The Bath & North East Somerset Local Flood Risk Management Strategy must be consistent with this national strategy.

The Environment Agency is also responsible for:

- having a strategic overview of flood risk from all sources;
- managing flood risk from Main Rivers through preparation of plans and policies (e.g. Catchment Flood Management Plans and Flood Risk Management Plans), and delivery of flood risk management schemes;
- managing coastal erosion, but as Bath & North East Somerset does not contain any stretches of coastline this is not relevant for the management of flood risks in Bath & North Somerset;
- providing flood warnings to the public, protecting and improving the environment, and promoting sustainable development;
- flood defence consenting;
- carrying out flood defence works on Main Rivers, but the overall responsibility for maintenance lies with the Riparian Owner<sup>11</sup>;

<sup>11</sup> Riparian Owners are those who own land or property next to a river, stream or ditch. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/403435/LIT\\_7114.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/403435/LIT_7114.pdf)

- bringing forward flood defence schemes through the Regional Flood and Coastal Committees;
- working with Lead Local Flood Authorities and local communities to shape schemes which respond to local priorities;
- establishing and maintaining a register of reservoirs, and making this information available to the public;
- acting as Enforcement Authority for reservoirs under their jurisdiction (this is currently reservoirs that are greater than 25,000m<sup>3</sup>, but soon planned to reduce to 10,000m<sup>3</sup>), and;
- using their role as the Enforcement Authority for reservoirs under their jurisdiction to enforce the Reservoirs Act 1975 and ensures flood plans are produced for specified reservoirs. It should be noted that responsibility for carrying out work to manage reservoir safety lies with the reservoir owner/operator who should produce the flood plans.

### 3.3.4 Wessex Water

Wessex Water, as a water and sewerage company, has the following responsibilities related to flood risk management:

- responding to flooding incidents involving their assets;
- producing reports of the flood incidents as deemed necessary under Section 19 of the Flood and Water Management Act (2010);
- undertaking capacity improvements to alleviate sewer flooding problems where it is economically viable to do so, and in accordance with their business plan and performance commitments;
- providing, maintaining and operating public sewers systems and works for the purpose of effectively draining an area including adoption of new systems, and;
- have a role to play in integrated catchment management.



It should be noted that although a burst water main can also cause a property or road to flood, this is excluded from the definition of flooding in the Flood and Water Management Act (2010).

### 3.3.5 Bristol Water

Bristol Water are a water supply company only, and as such they do not have any responsibility for sewer flooding. Bristol Water are however responsible for:

- management of water impounding reservoirs, and have interests in;
- managing flooding caused by burst water mains within their area<sup>12</sup>, and;
- integrated catchment management.

### 3.3.6 Highways England (formally the Highways Agency)

Highways England are responsible for:

- managing the quantity and quality of road runoff that is collected within the Highways England network.

## 3.4 Roles of Stakeholders and the Public

As highlighted in Section 1.8, all residents have a role to play in helping to manage flooding. Further details regarding these roles is outlined in Section 3.5.

### 3.4.1 Reporting Flooding

Council Connect, and/or a Local Flood Representative, should be contacted:

- where flooding has led to internal property flooding;
- where there is a maintenance issue with a watercourse that may result in flooding of properties. For instance overgrown vegetation impeding flows, or other restrictions or blockages such as fallen trees or trash that could result in property flooding;
- maintenance issues with watercourse structures that may result in flooding of properties (e.g. blocked culverts or trash screens);
- where there is actual evidence of flooding from an Ordinary Watercourse;
- where surface water runoff from land may be flooding roads or property, or;
- where evidence of groundwater flooding is observed.

The more information that can be provided the better, with photos being particularly useful. Council Connect, or a Local Flood Representative, will then pass the information to the Lead Local Flood Authority for them to consider and escalate as appropriate. Issues may be discussed at an Operational Flood Working Group meeting or passed to the relevant Risk Management Authority.

Other types of flooding need to be reported directly to other authorities. Table 3-2 provides further details on who and how to contact different authorities depending on the situation. More advice about what to do during a flood is available on the Gov.uk website: <https://www.gov.uk/prepare-for-a-flood/get-help-during-a-flood>.

<sup>12</sup> It should be noted that flooding from burst water mains is specifically excluded from the Flood and Water Management Act (2010).



**Table 3-2** Reporting flooding – who to contact and how

Issue	Who to contact and how
Imminent or current property flooding	<p><b>Environment Agency or the Emergency Services.</b></p> <p>If a person's home is flooding they should call the Environment Agency's Floodline 0345 988 1188 for flooding advice. If they feel at risk or in danger then they should call 999.</p>
Surface water (including blocked gulleys, water ponding on highways etc), groundwater or Ordinary Watercourse flooding.	<p><b>Council Connect service:</b></p> <p>Online forms: <a href="http://www.bathnes.gov.uk/reportit">www.bathnes.gov.uk/reportit</a>            Email: <a href="mailto:councilconnect@bathnes.gov.uk">councilconnect@bathnes.gov.uk</a>            Twitter: @ccbathnes or            Telephone: 01225 39 40 41            Text (SMS): 07797 806 545</p>
Burst water main or sewer flooding	<p><b>Bristol Water</b> (0800 801 011) for mains supply in Bath &amp; North East Somerset (except for Bath area)</p> <p><b>Wessex Water</b> (0345 600 4 600) for sewers anywhere in Bath &amp; North East Somerset and mains supply in Bath area.</p>
Bank erosion	This is a Riparian Owner matter and should be taken up with the relevant land owners.
Private drainage matters	The appropriate land/asset owners.

### 3.4.2 Preparing for flooding

Even where drainage and flood risk systems are functioning in accordance with their design standards there will always be situations when rainfall exceeds the capacity of these systems and flooding will occur. Consequently it is important that householders and businesses, whose homes are at risk of flooding, to take steps to ensure that their house is protected and ensure they do not increase the risk of flooding to others. Table 3-3 provides information on the steps home and business owners should take to prepare themselves for flooding.

There may be opportunities for support with helping to prepare properties and premises against flooding, but this will be dependent on individual circumstances. Further details on potential financial support is outlined in Section 6 and Appendix D.



**Table 3-3** How to prepare for flooding

Steps to prepare for flooding	Further information on how to prepare for flooding
Checking whether your household is at risk from flooding.	<p>All households in areas at risk from coastal or Main River flooding (classified as Flood Zones 2 and 3) should have been contacted notifying them of this and, unless they have chosen to opt-out, will receive flood warnings from the Environment Agency when the risk of river or coastal flooding is high.</p> <p>Information about the risk from river and coastal flooding can be found on the Environment Agency website under the 'Risk of Flooding from Rivers and Sea' interactive map (which is currently available at <a href="http://watermaps.environment-agency.gov.uk/wiyby/wiyby.aspx?lang=_e&amp;topic=floodmap&amp;layer=default&amp;scale=2&amp;x=357683&amp;y=355134#x=357683&amp;y=355134&amp;scale=2">http://watermaps.environment-agency.gov.uk/wiyby/wiyby.aspx?lang=_e&amp;topic=floodmap&amp;layer=default&amp;scale=2&amp;x=357683&amp;y=355134#x=357683&amp;y=355134&amp;scale=2</a>).</p> <p>Information about surface water flood risk is provided in the regional Surface Water Management Plan and the Environment Agency website under the 'Risk of Flooding from Surface Water' map (which is currently available at <a href="http://watermaps.environment-agency.gov.uk/wiyby/wiyby.aspx?topic=ufmfs#wx=357683&amp;y=355134&amp;scale=2">http://watermaps.environment-agency.gov.uk/wiyby/wiyby.aspx?topic=ufmfs#wx=357683&amp;y=355134&amp;scale=2</a>).</p>
Ensuring that preparations have been made in the event of a flood.	<p>The Emergency Planning Authority recommend that Parishes at risk from flooding create a community flood plan and to assist this further guidance has been produced and is available on the Bath &amp; North East Somerset website at <a href="http://www.bathnes.gov.uk/services/planning-and-building-control/planning/planning-advice-and-guidance/flood-emergency-plan">http://www.bathnes.gov.uk/services/planning-and-building-control/planning/planning-advice-and-guidance/flood-emergency-plan</a>.</p> <p>The Environment Agency also provides information on what to do to prepare a household for flooding and what to do during a flood: <a href="https://www.gov.uk/prepare-for-a-flood">https://www.gov.uk/prepare-for-a-flood</a>. This includes how to make a flood plan which will help you decide what practical actions to take before and after a flood.</p>
Taking measures to ensure that your house is protected, or the impacts will be reduced, through use of property level protection.	<p>Further details on potential measures can be found in a pamphlet which has been developed by the Environment Agency which is currently available at <a href="https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/292943/geho1009brdl-e-e.pdf">https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/292943/geho1009brdl-e-e.pdf</a>.</p> <p>Another valuable document for householders to refer to is The National Flood Forum's Blue Pages Directory which provides information and advice on what products are available to help protect your home or business against flooding. It can be found on the Blue Pages website which is currently available at <a href="http://www.bluepages.org.uk">http://www.bluepages.org.uk</a>.</p>



### 3.4.3 Role of property owners next to a watercourse

If a property is adjacent to or backs onto a river, stream or other watercourse then it is likely that the land owner will be the Riparian Owner and as such be held to own the land up to the centre of the watercourse.

Riparian Owners have a right to protect their property from flooding and erosion, but will need to discuss the method of doing this with the Lead Local Flood Authority if the watercourse is an Ordinary Watercourse, or the Environment Agency if the watercourse is classified as a Main River (as outlined in Section 4.4.3). Riparian Owners also have responsibility for maintaining the bed and banks of the watercourse and ensuring there is no obstruction, or diversion to the flow of the watercourse.



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If you are a riparian owner there is useful information in the Environment Agency's document 'Living on the Edge' [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/454562/LIT\\_7114.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/454562/LIT_7114.pdf)

### 3.5 Responsibilities for surface water runoff from neighbouring property and land

All property and land owners are encouraged to adopt good land use practices and adequately maintain their drainage systems to avoid surface water runoff from causing problems for neighboring property and land.

However, under common law, land or property owners are responsible for the drainage of their own land. Higher land owners have the right to make natural discharge to lower ground, but the lower landowner does not have a duty to accept that runoff.

A dispute between neighbours over problems resulting from surface water runoff is a civil matter and the Law of Tort is applicable.

### 3.6 Responsibility for surface water runoff onto the public highway

Drainage of the highways, and maintenance of highway drainage features are the responsibility of the Local Highways Authority.

Under Section 163 of the Highways Act (1980) the Local Highways Authority have powers to issue notice to adjoining occupiers to construct, and thereafter maintain, "channels, gutters or downpipes as may be necessary to prevent:

- water from the roof or any other part of the premises falling upon persons using the highway, or;
- so far as is reasonably practicable, surface water from the premises flowing onto, or over, the footway of the highway.<sup>13</sup>

### 3.7 Who else has a role

Utility and infrastructure providers such as Network Rail, energy companies and telecommunication companies are not Risk Management Authorities, but have a crucial role to play in flood risk management. Their assets can be important consideration in planning for flooding, and although they already maintain plans for the future development and maintenance of the services they provide, it is important that they factor in flood risk management issues into this planning process.

Utility and infrastructure providers may therefore wish to invest time and resources into developing and delivering aspects of the Local Flood Risk Management Strategy in order to protect their assets and customers.

<sup>13</sup> Highways Act (1980), <http://www.legislation.gov.uk/ukpga/1980/66>

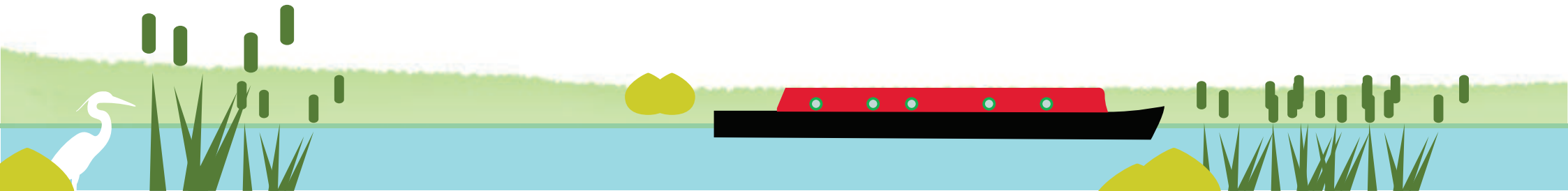




# Section 4

## Local Flood Risk in Bath & North East Somerset





This section provides an overview of the current, and potential future flood risk in Bath & North East Somerset. It draws primarily on information contained within the regional Surface Water Management Plan, but also the Preliminary Flood Risk Assessment produced in 2011<sup>14</sup>. This section should therefore be read in conjunction with the regional Surface Water Management Plan available at: <http://www.bathnes.gov.uk/services/environment/land-drainage>.

#### 4.1 What is classed as flooding?

Flooding occurs when:

- a watercourse overtops its banks;
- there is exceptional rainfall, and the capacity of drainage systems is exceeded;
- groundwater rises above the surface;
- drainage systems are not well maintained;
- there are blockages/collapses in the drainage network, or;
- there is increased runoff from land or hard standing areas.

A burst water main can also cause a property or road to flood, but this is excluded from the definition of flooding in the Flood and Water Management Act (2010). In addition the Flood and Water Management Act (2010) also excludes a flood from “any part of a sewerage systems, unless wholly or partly caused by an increase in the volume of rainwater (including snow and other precipitation) entering or otherwise affecting the system”.

The types of flooding which affect communities in Bath & North East Somerset are outlined in Section 4.4 and 4.5.

#### 4.2 What is flood risk?

Flood risk is a combination of the probability and consequence of flooding from any, or all, sources. High flood risk can endanger lives, damage buildings and infrastructure, historic structures, archaeology and settlements.

Flood risk means risk from all sources of flooding. This includes from:

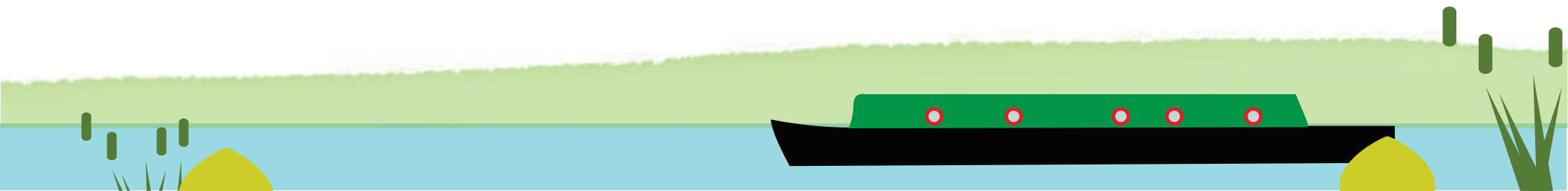
- rivers;
- the sea;
- directly from rainfall on the ground surface (surface water runoff);
- rising groundwater;
- overwhelmed sewers and drainage systems;
- from reservoirs;
- canals;
- lakes, or;
- other artificial sources<sup>15</sup>.

#### 4.3 What is flood risk management?

The ultimate aim of flood risk management is to reduce the likelihood and/or impact of potential flood risks, but there are a number of stages which are needed in order to do this effectively. For example without understanding the cause of flooding properly, the solution to reduce flood risk would not be as effective.

<sup>14</sup> <http://www.bathnes.gov.uk/sites/default/files/sitedocuments/Planning-and-Building-Control/Planning-Policy/Evidence-Base/Flood-Risk/PreliminaryFloodRiskAssessment.pdf>

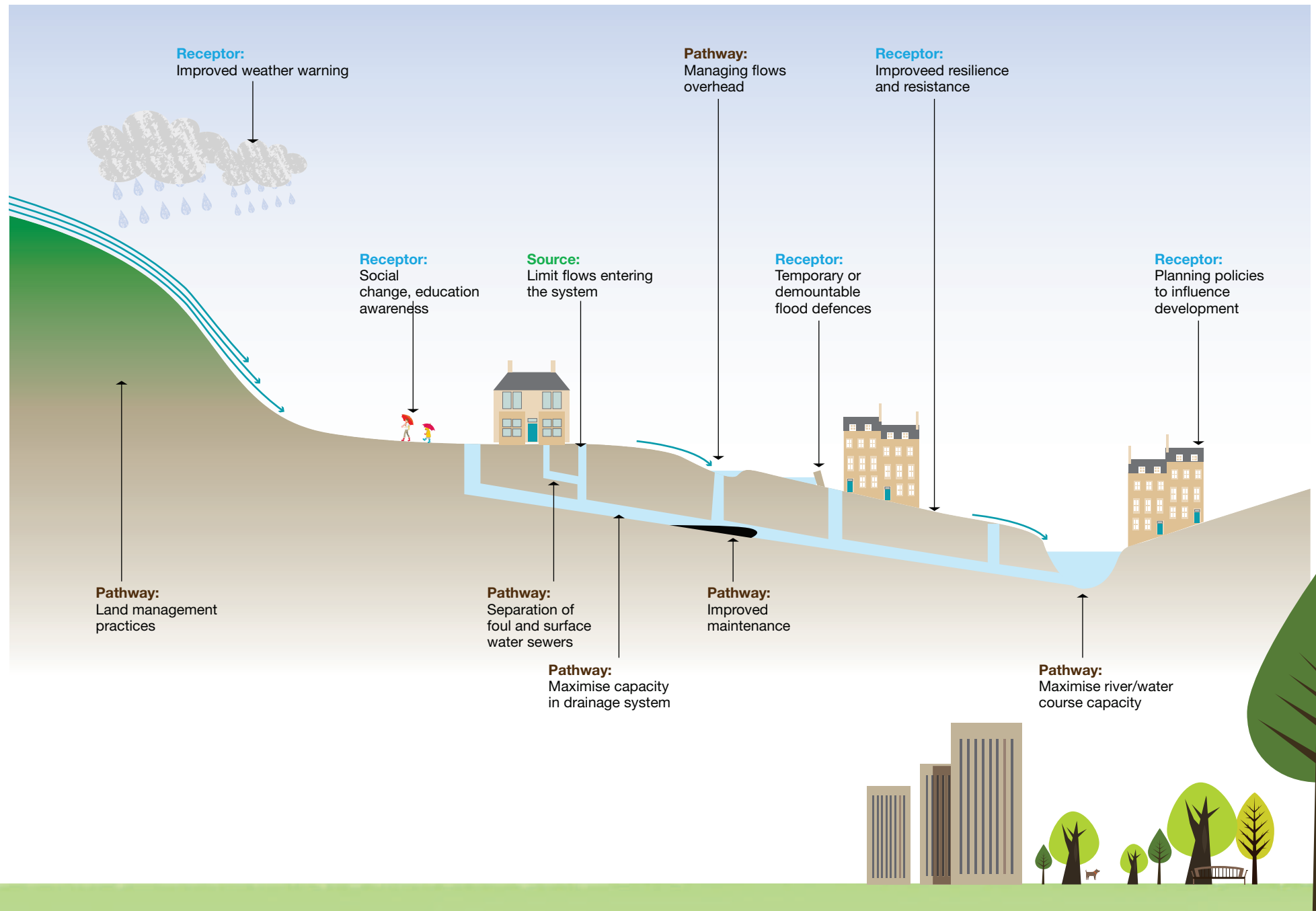
<sup>15</sup> Extracted from: Communities for Local Government (2012), Technical Guidance to the National Planning Policy Framework, [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/6000/2115548.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6000/2115548.pdf)



Flood risk management measures can be broken down into broad themes as detailed below and in figure 4-1

Measure	Description	Typical examples
<b>Investigations</b>	Aim to better understand the cause of flooding to improve the confidence in decision-making.	<ul style="list-style-type: none"> <li>• studies (e.g. Surface Water Management Plan);</li> <li>• site walkovers;</li> <li>• surveys, or;</li> <li>• drainage and overland modelling studies.</li> </ul>
<b>Source control</b>	Source control measures aim to control flood water at their source by increasing storage, reducing the rate of runoff or increasing the volume of water which soaks into the ground. Sustainable drainage systems are often an effective means to implement source control. Sustainable drainage systems encompass a variety of measures such as permeable paving which allows more water to soak into the ground than traditional impermeable road and path surfaces. Other sustainable drainage measures may include introducing ponds and wetlands that can hold flood water, or swales and detention basins which slow the movement of water and reduce the volume of runoff. Source control measures can also integrate with re-use of water through grey-water recycling or rainwater harvesting.	<ul style="list-style-type: none"> <li>• introducing sustainable drainage systems / green infrastructure / rainwater harvesting;</li> <li>• improving land management practices, or;</li> <li>• intercepting and diverting pluvial runoff.</li> </ul>
<b>Pathway</b>	Pathway measures aim to effectively manage the movement of flood water through both natural and manmade drainage systems. Measures may be structural, for example involving the development of new drainage systems, or separating foul and surface water sewers. They may be non-structural, for example encouraging land management practices which reduce runoff. Maintenance of existing drainage infrastructure is also an important aspect to managing flood risk. It can reduce flood risk with minimal capital investment, freeing up funds for measures elsewhere.	<ul style="list-style-type: none"> <li>• storage above or below ground;</li> <li>• management of exceedance flows (e.g. re-profiling road);</li> <li>• increasing capacity of urban drainage network (sewer or highway drainage);</li> <li>• increasing capacity of drains/watercourses;</li> <li>• raising/creating flood defences;</li> <li>• removing culverted sections of watercourses and replace with open channels;</li> <li>• enhancing maintenance of gullies / drainage network;</li> <li>• enhancing maintenance of watercourses/culverts, or;</li> </ul>
<b>Receptor level</b>	Measures aim to reduce the likelihood and/ or impact of flooding on people, property and environment.	<ul style="list-style-type: none"> <li>• introducing individual property level protection / resilience measures;</li> <li>• improving flood warning</li> <li>• planning policies to prevent inappropriate development;</li> <li>• raising awareness and education, and;</li> <li>• promoting community level resilience.</li> </ul>

Figure 4-1 Flood risk management (Source Control, Pathway, Receptor)



#### 4.4 Records of local flooding in Bath & North East Somerset

One of the purposes of the regional Surface Water Management Plan was to collate information and map recent and relevant flood incidents within Bath & North East Somerset, to help inform what the local flood risk issues are within the region.

Recorded flooding incidents in the regional Surface Water Management Plan were based on the information supplied by the partners and stakeholders involved in the management of surface water, Main Rivers, Ordinary Watercourses, groundwater and sewer flooding. This included data from Bath & North East Somerset Council, the Environment Agency, Wessex Water, and the Canal and River Trust.

Based on this, over 990 recorded flood incidents of recent and relevant flooding were recorded in the region between 2009 and 2014. Records of flooding prior to 2009 were removed to prevent any misrepresentation of recorded flood incidents which may now have been actioned. Further details on the methodology used to analyse flooding incidents is detailed in the regional Surface Water Management Plan report.

These records were used to develop a Flood Incident Register and Interactive Maps of Local Flood Incidents. These outputs are available in the regional Surface Water Management Plan report. As demonstrated on the Interactive Maps of Local Flood Incidents, flooding occurs across the region, although there are notable clusters of flooding in Bath, Keynsham, Whitchurch, Chew Magna, Chew Stoke, West Harptree, Midsomer Norton and Radstock.

#### 4.5 Potential flood risks in Bath & North East Somerset

The information in Sections 4.5.1 to 4.5.6 describe the nature of flood risk in Bath & North East Somerset from a range of sources. Information on local flooding is summarised in Table 4.2.

##### 4.5.1 Flood risk from surface water

Surface water flooding, also referred to as pluvial flooding or flash flooding, is “rainwater, including snow and other precipitation, which is on the surface of the ground and has not entered a watercourse, drainage system or public sewer”.<sup>16</sup> When this happens the water either ponds on the surface or runs over it and this can potentially lead to flooding.

In 2014 the Environment Agency produced the Updated Flood Map for Surface Water to identify areas that were vulnerable to flooding from surface water. The maps have been published online and is currently available at [http://watermaps.environment-agency.gov.uk/wiyby/wiyby.aspx?lang=\\_e&topic=ufrmsw&layer=default&scale=5&x=387426&y=172732#x=387426&y=172732&scale=5](http://watermaps.environment-agency.gov.uk/wiyby/wiyby.aspx?lang=_e&topic=ufrmsw&layer=default&scale=5&x=387426&y=172732#x=387426&y=172732&scale=5). The regional Surface Water Management Plan was completed in July 2015 using the updated data from the Environment Agency to better understand the risk of flooding from surface water. For this regional Surface Water Management Plan a count of the number of residential properties, critical infrastructure and emergency service assets at risk of flooding was undertaken, for all of the mapped return periods in the Updated Flood Map for Surface Water, which is shown in Table 4-1.

<sup>16</sup> Extract from: Department for Environment, Food and Rural Affairs and the Environment Agency (2011), Understanding the risks, empowering communities, building resilience: the national flood and coastal erosion risk management strategy for England, [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/228898/9780108510366.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/228898/9780108510366.pdf)



**Table 4-1** Estimated number of receptors at risk from surface water flooding (extracted from regional Surface Water Management Plan)

Return Period	Residential Properties	Critical Infrastructure	Emergency Responders
1 in 30 year	302	11	0
1 in 100 year	737	24	0
1 in 1000 year	3039	77	2

The Lead Local Flood Authority has also completed a number of other studies looking into the effect of surface water flooding within the region. These include the following:

- a Preliminary Flood Risk Assessment;
- Surface Water Assessment for Weston (Bath), and;
- Section 19 flood investigations for Chew Stoke, Chew Magna and Broadmead Lane Industrial Estate (Keynsham).

Further information on these and other studies which have been completed are provided on the Bath & North East Somerset website at <http://www.bathnes.gov.uk/services/environment/land-drainage>.

#### 4.5.2 Flood risk from groundwater

Groundwater flooding occurs where the water levels in the ground becomes high enough for the water to appear above the ground surface. This may happen, for example, where there are underlying gravels, or porous or fractured rocks, allowing water to pass through. Flooding from natural springs would be classed as a form of groundwater flooding.

Flooding of this type tends to occur after long periods of sustained heavy rainfall and can last for weeks or even months. The areas at most risk are

often low-lying areas where the water table is more likely to be at a shallow depth; flooding can be experienced through water rising up from the underlying aquifer or from water flowing from springs or when watercourses force fluvial flood water into the ground.

The regional Surface Water Management Plan has noted that no recent and relevant flood incidents have been directly attributed to groundwater. There is likely to be some interaction between Ordinary Watercourses, surface water runoff, and groundwater for a number of flood incidents (e.g. as has previously occurred in Chew Magna when fluvial flooding infiltrated into the ground and caused properties to suffer from groundwater flooding).

#### 4.5.3 Flood risk from Main Rivers and Ordinary Watercourses

Flooding from rivers occurs when water overtops the banks of the channel. This can occur because there is more water draining into the channel than it can hold, or because it is blocked. In England watercourses are defined as either Ordinary Watercourses or Main Rivers. Main Rivers are generally the larger arterial watercourses, but smaller watercourses can be designated if they pose a significant flood risk. Flooding from Main Rivers is managed by the Environment Agency using its permissive powers under the Environment Act (1995). The Lead Local Flood Authority have permissive powers to carry out works on Ordinary Watercourses within the area to manage risks from flooding, but Riparian Owners (see Section 3.4.3) have the primary responsibility for managing these risks.

The Environment Agency has published 'Risk of Flooding from Rivers and Sea' maps of flood risk from Main Rivers and Ordinary Watercourses, which are available at: [http://watermaps.environment-agency.gov.uk/wiyby/wiyby.aspx?lang=\\_e&topic=floodmap&layer=default&scale=11&x=415469&y=184167-x=415469&y=184167&scale=11](http://watermaps.environment-agency.gov.uk/wiyby/wiyby.aspx?lang=_e&topic=floodmap&layer=default&scale=11&x=415469&y=184167-x=415469&y=184167&scale=11).

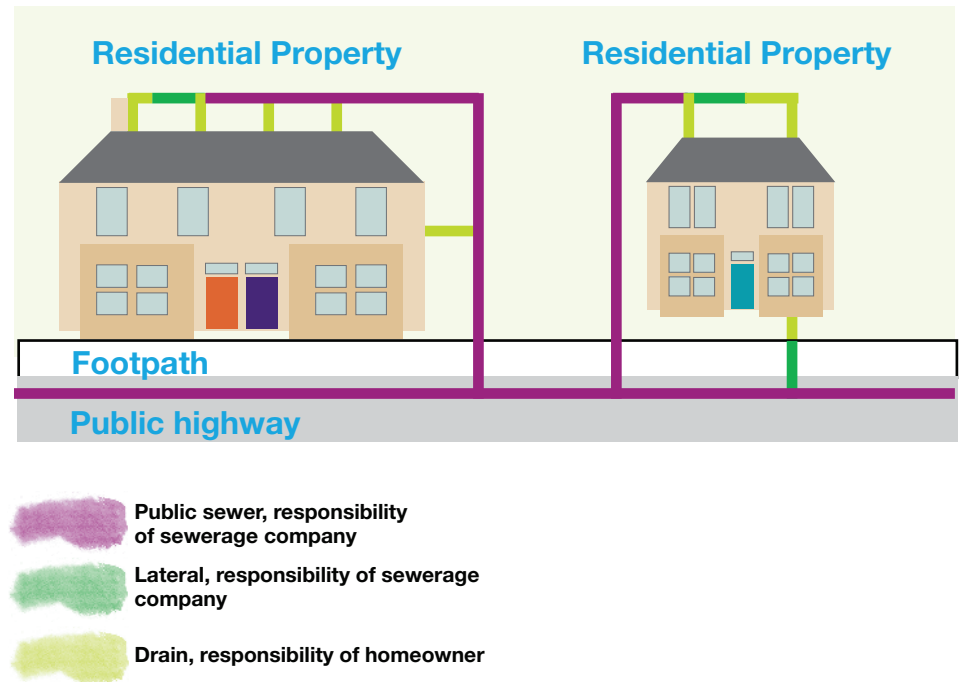


#### 4.5.4 Flooding from sewerage systems

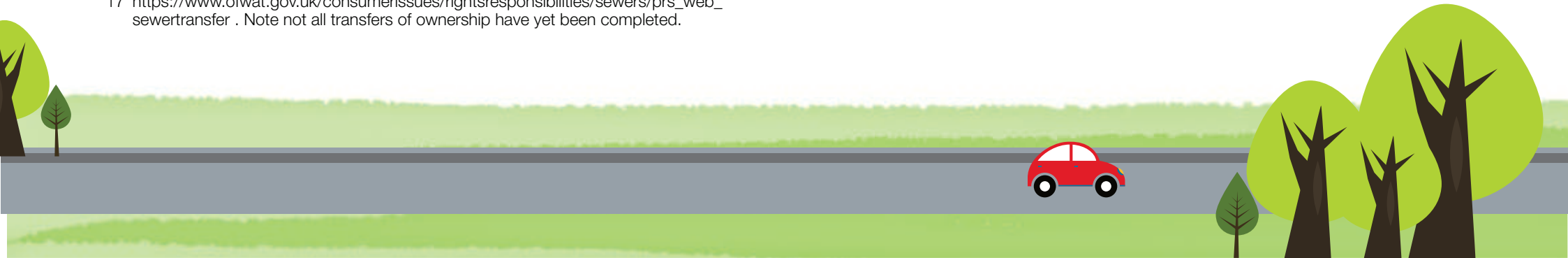
Flooding from sewerage systems occurs when the capacity of the drainage network is exceeded. This can be due to blockage, failure of equipment or overloading of sewers due to rainfall. Sewerage companies are responsible for managing sewerage networks under the Water Industry Act (1991). Wessex Water maintain records of flooding from foul sewers, combined sewer and surface water sewers. The difference between these types of sewer are explained in the glossary in Appendix F.

In 2011 water companies in England and Wales took on new responsibilities for private drainage, under the transfer of private sewers<sup>17</sup>. Under this transfer most private sewers, lateral drains and pumping stations that form part of the sewer or lateral drain that connect to the public sewer network were transferred to the ownership of the water companies. Homeowners remain responsible for household drainage to the point at which it connects to the public sewer. This is normally at the property boundary, as illustrated in Figure 4-2.

**Figure 4-2** Responsibility of householders and sewerage companies (from Ofwat website)



<sup>17</sup> [https://www.ofwat.gov.uk/consumerissues/rightsresponsibilities/sewers/prs\\_web\\_sewertransfer](https://www.ofwat.gov.uk/consumerissues/rightsresponsibilities/sewers/prs_web_sewertransfer) . Note not all transfers of ownership have yet been completed.





For the regional Surface Water Management Plan, Wessex Water provided a list of sewer flooding incidents for the period 2013-2014, including those attributable to surface water flooding. Wessex Water has identified postcode locations for 44 occurrences of sewer flooding during this period. These have been mapped and referred to as the Interactive Maps of Local Flood Incidents. This is available in Appendix B of the regional Surface Water Management Plan. Where there is overlap with other sources of flooding (e.g. surface water runoff or Ordinary Watercourses) there may be opportunities for Risk Management Authorities to co-fund or co-deliver flood risk management schemes to address flooding more cost effectively.

#### 4.5.5 Flooding from highway drainage

Highways England are responsible for maintaining drainage systems which drain highways in their network, and the Local Highways Authority are responsible for maintaining surface water drainage systems from all other publically maintained highways in the region. A significant proportion of the recent and relevant recorded incidents of flooding are from highway drainage systems. However, it should be noted that this might not actually reflect the true split of flooding, and may just be the incidents of flooding that the Council were previously responsible for, and hence have been reported to the Council and recorded on its systems.

#### 4.5.6 Flooding from other artificial sources

Flooding from other artificial sources includes risk from reservoirs, canals and manmade structures.

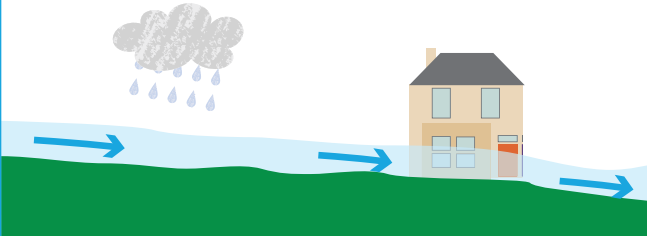
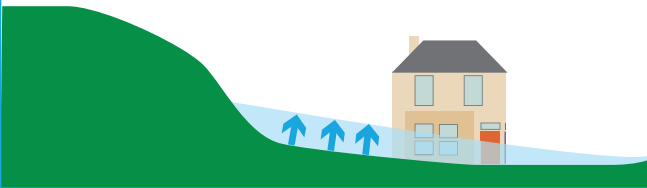
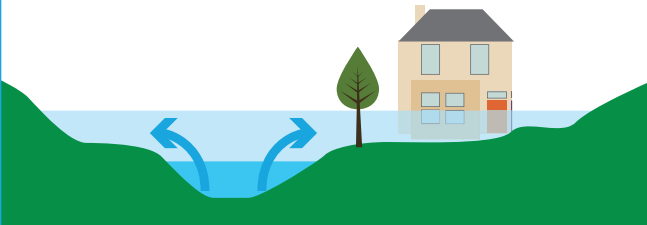
The flood risk along canals is generally considered to be low as they are not subject to the same flows as other water bearing infrastructure. The Canals & River Trust do however keep records of flooding along canals within the Bath & North East Somerset area and to date there have been limited flooding incidents recorded.

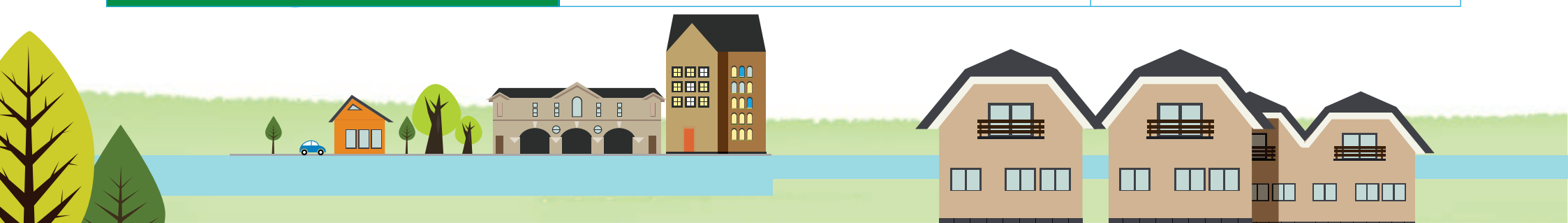
Reservoirs are designed to accommodate large quantities of water and although it is unlikely that flooding will occur in Bath & North East Somerset, there would be significant consequences if a reservoir structure was to fail. The Environment Agency act as the enforcement authority for reservoirs with a storage capacity greater than 25,000m<sup>3</sup> and, once the relevant parts of the Flood and Water Management Act 2010 have been commenced, reservoirs with a capacity of 10,000 m<sup>3</sup>. Responsibility for carrying out work to manage reservoir safety lies with the reservoir owner/operator such as Bristol Water.

The Environment Agency has published mapping to indicate the area that could be flooded is a large reservoir were to fail and release the water it holds. This is available [http://watermaps.environment-agency.gov.uk/wiyby/wiyby.aspx?lang=\\_e&topic=reservoir&layer=default&scale=5&x=387426&y=172732 - x=387426&y=172732&scale=5](http://watermaps.environment-agency.gov.uk/wiyby/wiyby.aspx?lang=_e&topic=reservoir&layer=default&scale=5&x=387426&y=172732 - x=387426&y=172732&scale=5).



**Table 4-3** Sources of flood risk and organisations with responsibilities

Type of flooding	Description of flooding	Organisation/s responsible
<p><b>Surface water flooding:</b></p> 	<p>Surface water flooding, also referred to as pluvial flooding or flash flooding, is rainwater, snow and other precipitation which is on the surface of the ground and has not entered a watercourse, drainage system or public sewer.</p> <p>This leads to the surface water flowing across the ground and pooling in low-lying areas. This flooding often occurs quickly during, or shortly after, a high intensity storm. Highway runoff is included within this category.</p>	<p>Bath &amp; North East Somerset Council is responsible for managing the risk of surface water flooding. Bath &amp; North East Somerset Council is also responsible for managing highway drainage and flooding.</p>
<p><b>Groundwater flooding:</b></p> 	<p>Groundwater flooding occurs where the water levels in rock and soil become high enough for the water to appear near to or above the ground surface. This may happen, for example, where there are underlying gravels, or porous or fractured rocks, allowing water to pass through. Flooding from natural springs would be classed as a form of groundwater flooding.</p> <p>This slow response means that groundwater flooding can occur a long time after prolonged or heavy rainfall and can last for a long time (often several weeks or months).</p>	<p>Bath &amp; North East Somerset Council is responsible for managing the risk of flooding from groundwater.</p>
<p><b>Watercourse (fluvial) flooding:</b></p> 	<p>Watercourse flooding can also be referred to as fluvial flooding and occurs when water overtops the banks of the river or stream. This can occur because there is more water draining into the channel than it can hold, or because it is blocked.</p>	<p>Bath &amp; North East Somerset Council is responsible for managing flood risk from Ordinary Watercourses. Flooding from Main Rivers is the management responsibility of the Environment Agency. Riparian Owners have a responsibility for maintaining the bed and banks of the watercourse.</p>



## 4.6 Future increases in flood risk

There are a number of factors which will influence flooding in the future. This will result in an increase in the risk of flooding across Bath & North East Somerset unless this is adequately planned for and managed.

Although there are many factors that can increase flood risk, the major risks include:

- climate change;
- new development, and;
- deterioration or blockage of drainage infrastructure and flood defence structures.

### 4.6.1 Climate change

Climate change is predicted to result in more severe extreme weather which could lead to extreme floods with more serious consequences. Although this will vary depending on the catchment, the UK Climate Projections 2009 Study (described in the Glossary in Appendix F) predicted that by 2050 the South West of England will experience winter rainfall increases of around 12% (very likely to be between 2 and 26%); rainfall on the wettest day in winter will be increased by around 9% (very unlikely to be more than 22%); and peak river volumes in a typical catchment are likely to increase by between 9 and 18%.

**Table 4-3** Sensitivity ranges for considering climate change impacts on flooding (extracted from National Planning Policy Framework Technical Guidance)

Parameter	Development Design Life			
	1990 to 2025	2025 to 2055	2055 to 2085	2085 to 2115
Peak river flow	+10%	+20%	+20%	+20%
Peak rainfall intensity	+5%	+10%	+20%	+30%

As part of the regional Surface Water Management Plan additional surface water modelling was undertaken to assess the impact of climate change on surface water flood risk in Bath & North East Somerset. A 30% uplift was applied to the rainfall (as per Table 4 3), and the regional Surface Water Management Plan report notes that:

“The results show that climate change is likely to have a notable impact on flood risk across the Bath & North East Somerset area. Flood outlines for the 1 in 100 year return period rainfall event are slightly larger than present day outlines in all flooding wet-spot locations. Increases in flood extents are generally more pronounced in flatter valleys where water would spread further at lower depths. In steep-sided valleys flood extents do not increase significantly, however flooding becomes deeper.”<sup>18</sup>

Further analysis undertaken for the regional Surface Water Management Plan indicated that with 30% allowance for climate change, an additional 656 residential properties, 22 critical infrastructure locations and two emergency responders may be at risk of surface water flooding following a 1 in 100 year return period rainfall event.

<sup>18</sup> JBA Consulting (2015), Bath & North East Somerset Surface Water Management Plan



### 4.6.2 New development

If new development and changes in land use are not properly controlled and managed this could cause increased runoff during rainfall events and result in increased flood risk.

The Lead Local Flood Authority are a Statutory Consultee for major planning applications and will scrutinise applications in terms of surface water flood risk and sustainable drainage. This will also provide guidance on all applications which have surface water implications and may affect local flood risk.

When making planning decisions the Local Planning Authority and Lead Local Flood Authority work together to review development proposals to ensure that inappropriate new developments are prevented or directed away from high risk flood areas, and that appropriate drainage is to be provided. This includes a review of whether suitable consideration has been given to climate change.

There are a number of national and local documents which need to be considered by developers prior to applying for a Planning Application. Table 4-4 sets out the policies and legislation in relation to the management of surface water drainage for new developments. Table 4-5 sets out the national and local guidance in relation to the management of surface water drainage for new developments.

**Table 4-4** Surface water drainage policies and legislation for development

Policy/ legislation	More information
National Planning Policy Framework Paragraph 103	<a href="https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf">https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf</a>
Sustainable drainage systems: Written statement (HCWS161) 18 December 2014	<a href="http://www.parliament.uk/business/publications/written-questions-answers-statements/written-statement/Commons/2014-12-18/HCWS161/">http://www.parliament.uk/business/publications/written-questions-answers-statements/written-statement/Commons/2014-12-18/HCWS161/</a>
Bath & North East Somerset Council emerging Placemaking Plan: Policy SU1	TBC
Building Regulations Part H (HM Government, 2010)	<a href="http://www.planningportal.gov.uk/buildingregulations/approveddocuments/parth/approved">http://www.planningportal.gov.uk/buildingregulations/approveddocuments/parth/approved</a>
Bath & North East Somerset Council's Core Strategy	<a href="http://www.bathnes.gov.uk/services/planning-and-building-control/planning-policy/core-strategy-examination">http://www.bathnes.gov.uk/services/planning-and-building-control/planning-policy/core-strategy-examination</a>



**Table 4-5** Surface water drainage guidance for development

Guidance	More information
Planning Practice Guidance (Department for Communities and Local Government)	<a href="https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf">https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf</a>
Non-statutory technical standards for sustainable drainage systems (Department for Environment, Food & Rural Affairs, 2015)	<a href="http://www.parliament.uk/business/publications/written-questions-answers-statements/written-statement/Commons/2014-12-18/HCWS161/">http://www.parliament.uk/business/publications/written-questions-answers-statements/written-statement/Commons/2014-12-18/HCWS161/</a>
West of England Sustainable Drainage Developer Guide (West of England Partnership, 2015)	<a href="http://www.bathnes.gov.uk/sites/default/files/sitedocuments/Planning-and-Building-Control/Planning-Policy/LDFGeneral/bd6457_woe_developer_guide_complete_72dpi.pdf">http://www.bathnes.gov.uk/sites/default/files/sitedocuments/Planning-and-Building-Control/Planning-Policy/LDFGeneral/bd6457_woe_developer_guide_complete_72dpi.pdf</a>
Surface Water Management Plan for Bath & North East Somerset (Bath & North East Somerset Council, 2015)	<a href="http://www.bathnes.gov.uk/services/environment/land-drainage">http://www.bathnes.gov.uk/services/environment/land-drainage</a>
Environment Agency Local Flood Risk Standing Advice (Environment Agency, 2014)	<a href="http://www.bathnes.gov.uk/sites/default/files/sitedocuments/Planning-and-Building-Control/Apply-for-Planning-Permission/flood_risk_standing_advice_banes_v1_0_march_2014.pdf">http://www.bathnes.gov.uk/sites/default/files/sitedocuments/Planning-and-Building-Control/Apply-for-Planning-Permission/flood_risk_standing_advice_banes_v1_0_march_2014.pdf</a>
Bath & North East Somerset Council's Local Flood Risk Management Strategy (Bath & North East Somerset Council, 2015)	-

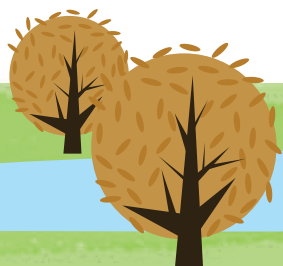
If national and local guidance is adopted, flood risk should not increase as a result of new development. There will occasionally be situations where development in the floodplain is unavoidable or where, when all things are considered, the risks posed are outweighed by very significant environmental and socio-economic benefits. It is important in these circumstances to be able to demonstrate no detrimental impact on downstream impacts and that new development will remain safe through resilience and resistance measures. The Lead Local Flood Authority will review this as part of the application process. It is therefore important that developers follow national and local guidance and seek advice from the Lead Local Flood Authority as needed to ensure the right information is provided as part of a planning application.

#### 4.6.3 Asset deterioration and/or blockage

Unless maintained, deterioration will occur in the condition and performance of existing drainage infrastructure and flood defence structures. As a result an increase in future flood risk may be seen unless there is investment to ensure drainage infrastructure is functioning. The Risk Management Authorities listed in Section 3 maintain their assets to minimise the risks they are responsible for. The Lead Local Flood Authority also maintain an asset register, detailed in Section 3.3.2, and this is a vital tool to help manage flood risk.

As part of the regional Surface Water Management Plan a high level analysis was undertaken to look at critical infrastructure assets comprising of bridges, culverts and screens. These structures could contribute to significant flooding if they became blocked or were in a state of collapse requiring repair.

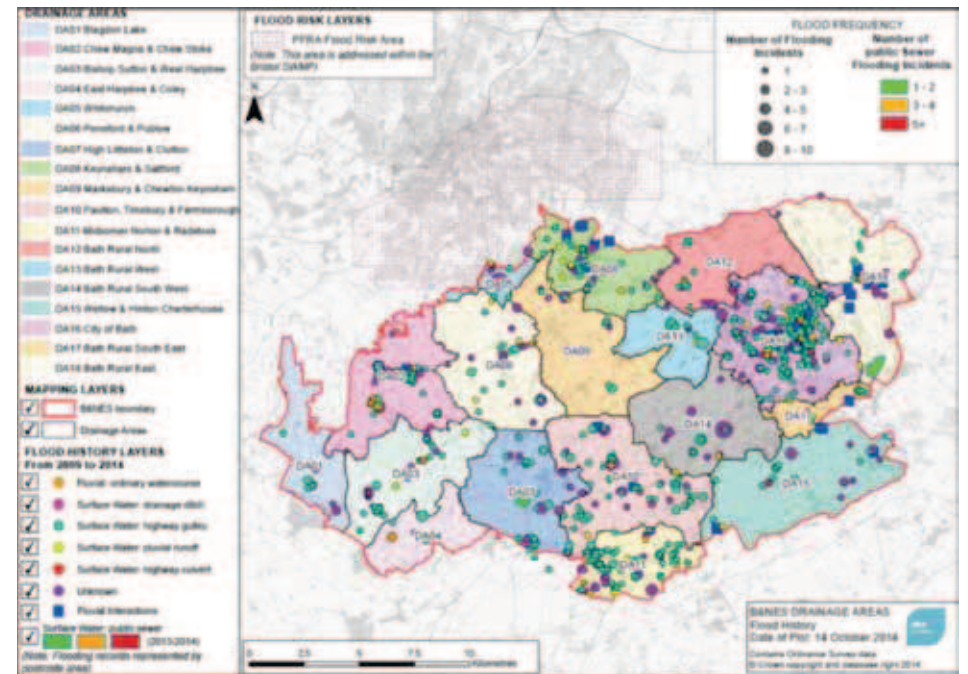
This high level analysis identified 27 structures which are deemed critical for maintenance to avoid blockage. The Strategy Action Plan (section 5.1) sets out a process for developing prioritised routine and emergency asset monitoring.



### 4.7 Communities most at risk from local flooding

A number of ‘wet-spots’ were identified in the regional Surface Water Management Plan. These were derived from analysis of recent and relevant flood incident data, and verified through an analysis of the predicted surface water flood risk areas identified by the Updated Flood Map for Surface Water. In total 53 individual wet-spots were identified. In every wet-spot a suitable action was identified in the regional Surface Water Management Plan, and has been transposed into this Local Flood Risk Management Strategy to form the actions the Lead Local Flood Authority will take, in partnership with others, to manage local flood risk. Section 5.2 and Appendix D provide further information on these actions.

Figure 4-3 Exert of the Interactive Map of Local Flood Incidents, taken from the Surface Water Management Plan



# Section 5 Action Plan



This section sets out the actions the Lead Local Flood Authority will take, in partnership with others, to manage local flood risk. Measures already being delivered are outlined in Section 3. Actions that the Lead Local Flood Authority will take across Bath & North East Somerset ('Strategy Action Plan') are outlined in Section 5.1, and location-specific actions are identified in Section 5.2.

The delivery of actions in the Local Flood Risk Management Strategy will be dependent upon the availability of funding. Therefore a phased implementation will be required. The actions are also subject to legislative, regulatory and financial changes during the ten year period of the Local Flood Risk Management Strategy and the Council needs to maintain some flexibility during the delivery period. The Lead Local Flood Authority will update the action plan annually, and this update will identify these changes and the effect on the Local Flood Risk Management Strategy actions.

## 5.1 The Strategy Action Plan

The Strategy Action Plan measures are identified in Table 5-1 and are broken down by the objectives set out in Section 2. These are repeated below for reference:

- Objective 1: improve our understanding of local flood risk;
- Objective 2: promote community awareness and build capability for appropriate action;
- Objective 3: manage local flood risk through capital and maintenance investment;
- Objective 4: prevent inappropriate development that creates or increases flood risk;
- Objective 5: improve flood preparedness, warning and ability to recovery.

The Strategy Action Plan includes measures which are currently underway, but also includes new measures which are necessary to ensure the delivery of the objectives outlined. It is a 'live' document which the Lead Local Flood Authority will update as part of the annual review of the action plan.





# Objectives

For reference, Table 5-1 is broken down into the following columns:

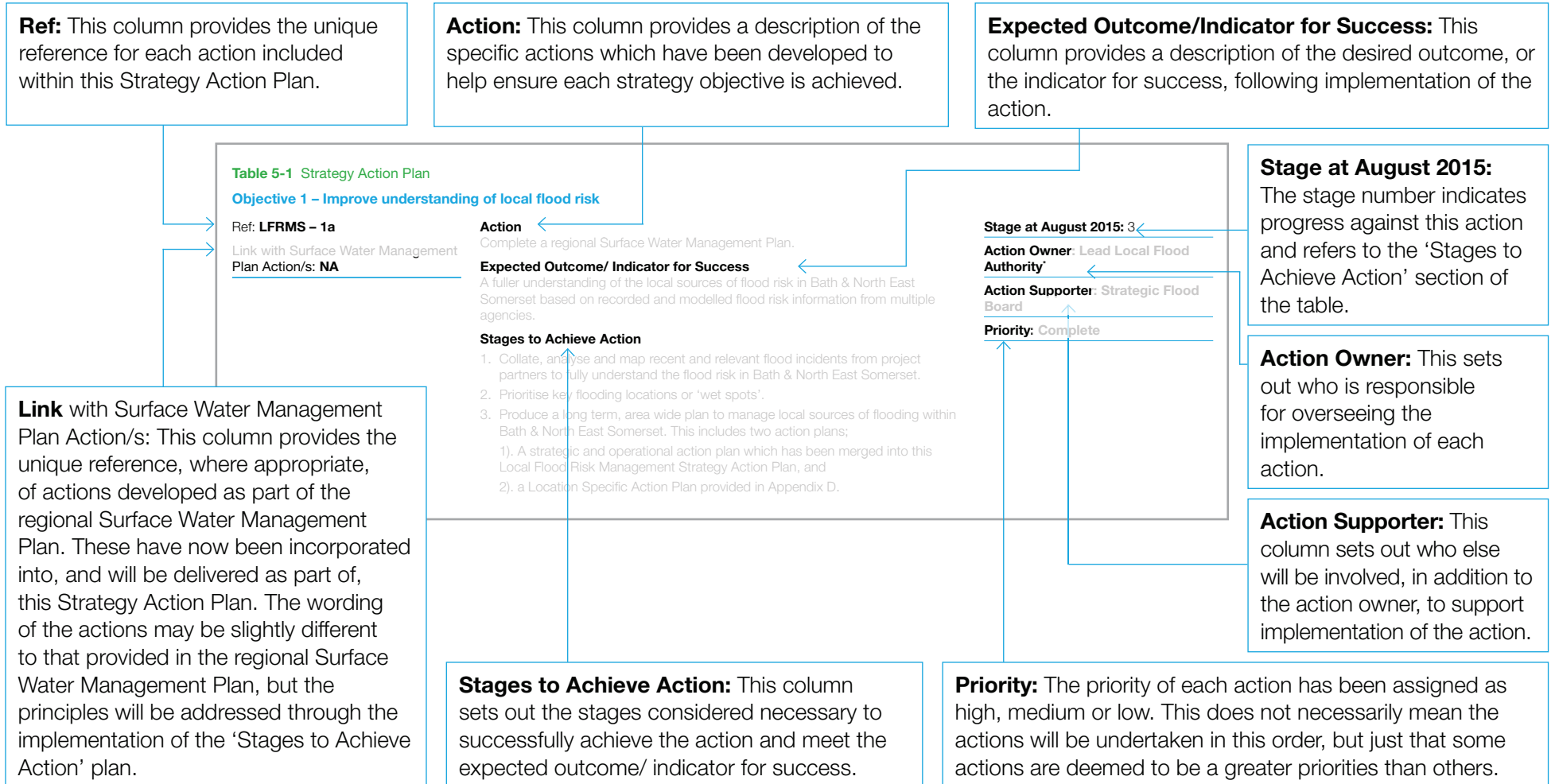


Table 5-1 Strategy Action Plan

## Objective 1 – Improve understanding of local flood risk

<p>Ref: <b>LFRMS – 1a</b></p> <p>Link with Surface Water Management Plan Action/s: <b>NA</b></p>	<p><b>Action</b> Complete a regional Surface Water Management Plan.</p> <p><b>Expected Outcome/ Indicator for Success</b> A fuller understanding of the local sources of flood risk in Bath &amp; North East Somerset based on recorded and modelled flood risk information from multiple agencies.</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>1. Collate, analyse and map recent and relevant flood incidents from project partners to fully understand the flood risk in Bath &amp; North East Somerset.</li> <li>2. Prioritise key flooding locations or ‘wet spots’.</li> <li>3. Produce a long term, area wide plan to manage local sources of flooding within Bath &amp; North East Somerset. This includes two action plans;             <ol style="list-style-type: none"> <li>1). A strategic and operational action plan which has been merged into this Local Flood Risk Management Strategy Action Plan, and</li> <li>2). a Location Specific Action Plan provided in Appendix D.</li> </ol> </li> </ol>	<p><b>Stage at August 2015:</b> 3</p> <p><b>Action Owner:</b> Lead Local Flood Authority*</p> <p><b>Action Supporter:</b> Strategic Flood Board</p> <p><b>Priority:</b> Complete</p>
<p>Ref: <b>LFRMS – 1b</b></p> <p>Link with Surface Water Management Plan Action/s: <b>SOAP01</b></p>	<p><b>Action</b> Continue to develop an updated flood reporting system.</p> <p><b>Expected Outcome/ Indicator for Success</b> Flood incident data provided in a standardised format which will improve ability to use the data as a beneficial source of information.</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>1. Review the Surface Water Management Plan database summarising flooding to understand key information.</li> <li>2. Review Bath &amp; North East Somerset flood incident reporting system.</li> <li>3. Update the reporting system to include prompts for key information. Information to include; date, location, duration, an idea of the flood source, description of the flood extent and depth.</li> <li>4. Undergo annual review of the flood reporting system and update as appropriate.</li> </ol>	<p><b>Stage at August 2015:</b> 4</p> <p><b>Action Owner:</b> Lead Local Flood Authority</p> <p><b>Action Supporter:</b> Council Connect, Local Highways Authority, Environment Agency, Wessex Water, Avon Fire and Rescue.</p> <p><b>Priority:</b> High</p>

\* Lead Local Flood Authority: Bath & North East Somerset Council's Drainage and Flooding Team undertake most of these responsibilities.

**Objective 1 – Improve understanding of local flood risk**

Ref: <b>LFRMS – 1c</b> Link with Surface Water Management Plan Action/s: <b>NA</b>	<p><b>Action</b>          Improve the use of visual tools (e.g. GIS) to record and analyse flooding incidents.</p> <p><b>Expected Outcome/ Indicator for Success</b>          A holistic picture of flooding in the region and improved ability to identify priority areas in the future.</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>1. Identify and map flooding incidents as part of the regional Surface Water Management Plan.</li> <li>2. Develop a process to add new flooding incidents to GIS when they occur.</li> <li>3. Incorporate flooding incidents to the GIS.</li> </ol>	<p><b>Stage at August 2015: 3</b></p> <p><b>Action Owner:</b> Lead Local Flood Authority, Bath &amp; North East Somerset GIS team.</p> <p><b>Action Supporter:</b> Environment Agency, Wessex Water</p> <p><b>Priority:</b> Medium</p>
Ref: <b>LFRMS– 1d</b> Link with Surface Water Management Plan Action/s: <b>NA</b>	<p><b>Action</b>          Continue to complete investigations of flood incidents, where the appropriate criteria is met (see Section 3.4.6).</p> <p><b>Expected Outcome/ Indicator for Success</b>          The appropriate Risk Management Authority is identified, and an investigation is completed</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>1. Lead Local Flood Authority to identify the relevant authority responsible for undertake a Section 19 investigation where the criteria is met.</li> </ol>	<p><b>Stage at August 2015: 1</b></p> <p><b>Action Owner:</b> Lead Local Flood Authority</p> <p><b>Action Supporter:</b> Relevant Risk Management Authorities.</p> <p><b>Priority:</b> High (following flood events which meet the criteria)</p>
Ref: <b>LFRMS– 1e</b> Link with Surface Water Management Plan Action/s: <b>NA</b>	<p><b>Action</b>          Ensure that appropriate data on flooding is shared between organisations, and between organisations and communities.</p> <p><b>Expected Outcome/ Indicator for Success</b>          Awareness about flood risk is improved within Bath &amp; North East Somerset.</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>1. Ensure Risk Management Authorities share appropriate data about flooding with the Lead Local Flood Authority. (Links specially with LFRMS 1a &amp; 3a).</li> <li>2. Ensure communities and other organisations can share knowledge about flooding with the relevant Risk Management Authority. (Links specially with LFRMS 2a, 2b &amp; 2d).</li> <li>3. Ensure relevant flooding information obtained through stages 1 and 2 above is shared appropriately with communities in Bath &amp; North East Somerset</li> </ol>	<p><b>Stage at August 2015: 2</b></p> <p><b>Action Owner:</b> Lead Local Flood Authority</p> <p><b>Action Supporter:</b> Relevant Risk Management Authorities, communities, other organisations</p> <p><b>Priority:</b> Medium</p>

**Objective 2 – Promote community awareness and build capability for appropriate action**

<p>Ref: <b>LFRMS– 2a</b></p> <p>Link with Surface Water Management Plan Action/s: <b>NA</b></p>	<p><b>Action</b> Establish clearer routes for communicating with communities and businesses about the roles and responsibilities for flood risk.</p> <p><b>Expected Outcome/ Indicator for Success</b> Good communication will enable people to clearly understand their risks, the impact of proposed actions to manage these risks, and what can be done by communities and businesses to manage the residual risk.</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>1. Agree routes for communication between communities, the Operational Flood Working Group, Local Flood Representatives and other appropriate partners.</li> <li>2. Raise awareness of ways to report property flooding and communicate about other appropriate flooding information.</li> </ol>	<p><b>Stage at August 2015:</b> 1 &amp; 2</p> <p><b>Action Owner:</b> Lead Local Flood Authority</p> <p><b>Action Supporter:</b> Parish councils, Wards, Federation of Bath Residents Association, Local Flood Representatives, Environment Agency, Wessex Water</p> <p><b>Priority:</b> Medium</p>
<p>Ref: <b>LFRMS– 2b</b></p> <p>Link with Surface Water Management Plan Action/s: <b>NA</b></p>	<p><b>Action</b> Help communities understand their own flood risk and their responsibilities for managing flooding.</p> <p><b>Expected Outcome/ Indicator for Success</b> Improved awareness within communities about responsibilities around managing flooding and how to assess flood risks.</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>1. Work with partners to support community-led flood forums or flood awareness events.</li> </ol>	<p><b>Stage at August 2015:</b> –</p> <p><b>Action Owner:</b> Lead Local Flood Authority, Emergency Planning and Business Continuity</p> <p><b>Action Supporter:</b> Local Flood Representatives Parish Councils, Wards, Community Groups, Environment Agency Wessex Water</p> <p><b>Priority:</b> Medium</p>
<p>Ref: <b>LFRMS– 2c</b></p> <p>Link with Surface Water Management Plan Action/s: <b>NA</b></p>	<p><b>Action</b> Raise awareness of land drainage and riparian responsibilities.</p> <p><b>Expected Outcome/ Indicator for Success</b> Improved maintenance of watercourses by Riparian Owners</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>1. Work with Local Flood Representatives, or other appropriate partners, to ensure awareness riparian responsibilities is improved amongst communities.</li> </ol>	<p><b>Stage at August 2015:</b> –</p> <p><b>Action Owner:</b> Lead Local Flood Authority</p> <p><b>Action Supporter:</b> Local Flood Representatives, other appropriate partners</p> <p><b>Priority:</b> Medium</p>



**Objective 2 – Promote community awareness and build capability for appropriate action**Ref: **LFRMS– 2d**Link with Surface Water Management Plan Action/s: **SOAP 08****Action**

Develop a network of Local Flood Representatives to act as a point of contact in the community on flooding issues.

**Expected Outcome/ Indicator for Success**

Improved communication between individual communities and the Lead Local Flood Authority on flooding issues.

**Stages to Achieve Action**

1. Invite Parish Councils, the Federation of Bath Residents Associations and Bath Wards to nominate Local Flood Representatives as a communication channel between the Operational Flood Working Group and communities.
2. Appoint Local Flood Representatives.
3. Continue to review Local Flood Representatives and recruit as needed.

**Stage at August 2015: 2****Action Owner:** Lead Local Flood Authority**Action Supporter:** Parish Councils, Wards, Federation of Bath Residents Association, Local Flood Representatives**Priority:** MediumRef: **LFRMS – 2e**Link with Surface Water Management Plan Action/s: **NA****Action**

Ensure communities know what to do in the event of a flood.

**Expected Outcome/ Indicator for Success**

Communities can approach the appropriate Risk Management Authority for support and are able to recover more quickly as a result of actions taken.

**Stages to Achieve Action**

1. Develop a guidance sheet to improve awareness of what communities should do in the event of a flood.
2. Share this guidance sheet with Councillors and communities through the appropriate communication channels established as part of LFRMS 2a.

**Stage at August 2015: 1****Action Owner:** Lead Local Flood Authority**Action Supporter:** Local Flood Representatives, Councillors**Priority:** Medium

**Objective 3 – Manage local flood risk through capital and maintenance investment**

<p>Ref: <b>LFRMS – 3a</b></p> <p>Link with Surface Water Management Plan Action/s: <b>SOAP03 &amp; SOAP04</b></p>	<p><b>Action</b> Continue to work with partners, including adjacent authorities, to develop long term approaches to manage flood risk.</p> <p><b>Expected Outcome/ Indicator for Success</b> A more coordinated approach to the management of local flood risk in Bath &amp; North East Somerset.</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>1. Form a Strategic Flood Board and Operational Flood Working Group.</li> <li>2. Schedule regular meetings of the Strategic Flood Board, and Operational Flood Working Group as required.</li> </ol>	<p><b>Stage at August 2015: 2</b></p> <p><b>Action Owner:</b> Lead Local Flood Authority.</p> <p><b>Action Supporter:</b> Strategic Flood Board, Operational Flood Working Group.</p> <p><b>Priority:</b> High</p>
<p>Ref: <b>LFRMS – 3b</b></p> <p>Link with Surface Water Management Plan Action/s: <b>NA</b></p>	<p><b>Action</b> Deliver the actions in the regional Surface Water Management Plan.</p> <p><b>Expected Outcome/ Indicator for Success</b> Improved local flood risk in the Bath &amp; North East Somerset.</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>1. Use the findings from the regional Surface Water Management Plan to inform the need for projects/ schemes.</li> <li>2. Work with the Strategic Flood Board, and Operational Flood Working Group, to help deliver this as part of a long term plan.</li> </ol>	<p><b>Stage at August 2015: 1</b></p> <p><b>Action Owner:</b> Lead Local Flood Authority, Local Highways Authority.</p> <p><b>Action Supporter:</b> Strategic Flood Board, Operational Flood Working Group.</p> <p><b>Priority:</b> High</p>
<p>Ref: <b>LFRMS – 3c</b></p> <p>Link with Surface Water Management Plan Action/s: <b>SOAP05</b></p>	<p><b>Action</b> Continue to develop a register of assets which significantly affect local flood risk.</p> <p><b>Expected Outcome/ Indicator for Success</b> Effective management of assets which have a significant effect on flood risk</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>1. Develop an improved flood risk asset register and record template, a process for the assessment of assets, and establish a periodic monitoring procedure for further discussion.</li> <li>2. Strategic Flood Board to agree the register and record template, and the assessment and monitoring procedures.</li> <li>3. Produce the agreed updated flood risk asset register and record.</li> <li>4. Record and monitor assets using the agreed procedures.</li> </ol>	<p><b>Stage at August 2015: 1</b></p> <p><b>Action Owner:</b> Lead Local Flood Authority.</p> <p><b>Action Supporter:</b> Strategic Flood Board, Bath &amp; North East Somerset GIS team, Local Highway Authority.</p> <p><b>Priority:</b> Medium</p>

**Objective 3 – Manage local flood risk through capital and maintenance investment**

<p>Ref: <b>LFRMS – 3d</b></p> <p>Link with Surface Water Management Plan Action/s: <b>NA</b></p>	<p><b>Action</b> Designate structures that effect local flood risk, to protect them from alteration or removal.</p> <p><b>Expected Outcome/ Indicator for Success</b> Significant assets will not be altered, removed or replaced without consideration of the impacts to flood risk. This will also enable the Lead Local Flood Authority to understand who owns and maintains structures.</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>Using the procedure identified for the identification of flood risk assets (Action 3c), identify 3rd party assets.</li> <li>Implement individual procedures on a case by case basis.</li> </ol>	<p><b>Stage at August 2015: 1</b></p> <p><b>Action Owner:</b> Lead Local Flood Authority</p> <p><b>Action Supporter:</b> Relevant partners</p> <p><b>Priority:</b> Low</p>
<p>Ref: <b>LFRMS– 3e</b></p> <p>Link with Surface Water Management Plan Action/s: <b>NA</b></p>	<p><b>Action</b> Continue to assess applications for works on Ordinary Watercourses, through the land drainage consent process.</p> <p><b>Expected Outcome/ Indicator for Success</b> To ensure the normal flow of water in Ordinary Watercourses with no increase in flood risk</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>Use consenting and enforcement powers when required</li> <li>Raise awareness of Land Drainage Consent via Planning and other means.</li> </ol>	<p><b>Stage at August 2015: 1</b></p> <p><b>Action Owner:</b> Lead Local Flood Authority.</p> <p><b>Action Supporter:</b> Local Planning Authority.</p> <p><b>Priority:</b> Medium</p>
<p>Ref: <b>LFRMS – 3f</b></p> <p>Link with Surface Water Management Plan Action/s: <b>See the Location Specific Action Plan for wet spots provided in Appendix D</b></p>	<p><b>Action</b> Identify catchments where improved land management could reduce flood risk and/ or improve the water environment.</p> <p><b>Expected Outcome/ Indicator for Success</b> Reduced local flood risk and improved overall water environment (e.g. contribution to meeting Water Framework Directive)</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>Monitor flooding incidents recorded in wet spots identified in the regional Surface Water Management Plan to identify catchments where improved land management could reduce flood risk, and work with other organisations to help identify potential areas.</li> <li>If improved land management is deemed as preferable in order to reduce flood risk or improve the water environment, investigate opportunities to work with landowners to develop schemes.</li> </ol>	<p><b>Stage at August 2015: 1</b></p> <p><b>Action Owner:</b> Lead Local Flood Authority.</p> <p><b>Action Supporter:</b> Relevant partners</p> <p><b>Priority:</b> Medium</p>

**Objective 3 – Manage local flood risk through capital and maintenance investment**Ref: **LFRMS – 3g**Link with Surface Water Management Plan Action/s: **SOAP06****Action**

Identify critical highway drainage assets, in order to undertake targeted maintenance and respond to issues as the Local Highways Authority.

**Expected Outcome/ Indicator for Success**

More effective management of highways drainage assets to mitigate/ reduce flood risk.

**Stages to Achieve Action**

1. Investigate highways drainage flooding events to identify the critical assets.
2. Develop a revised maintenance regime for these critical assets; or identify assets that require replacement or improvement.

**Stage at August 2015: 1****Action Owner:** Lead Local Flood Authority, Local Highways Authority.**Action Supporter:** –**Priority:** HighRef: **LFRMS – 3h**Link with Surface Water Management Plan Action/s: **NA****Action**

Prioritise maintenance and clearance works to culverts and watercourses.

**Expected Outcome/ Indicator for Success**

More targeted and effective management of culverts and watercourses which pose a significant flood risk.

**Stages to Achieve Action**

1. Identify and prioritise which culverts or watercourse pose the most significant flood risk to people, property and infrastructure
2. Develop a revised maintenance regime for these critical assets; or identify assets that require replacement or improvement.

**Stage at August 2015: 1****Action Owner:** Lead Local Flood Authority**Action Supporter:** Riparian Owners**Priority:** HighRef: **LFRMS – 3i**Link with Surface Water Management Plan Action/s: **NA****Action**

Evaluate flood reports to identify where drainage improvements or other mitigation works are possible.

**Expected Outcome/ Indicator for Success**

Improved drainage/ flood risk.

**Stages to Achieve Action**

1. Identify locations and investigate flood mechanisms.
2. Prioritise locations using a risk based approach.
3. Design schemes.
4. Implement schemes where possible.

**Stage at August 2015: 1****Action Owner:** Lead Local Flood Authority**Action Supporter:** Relevant partners**Priority:** High



**Objective 4 – Prevent inappropriate development that creates or increases flood risk**

Ref: **LFRMS – 4a**  
Link with Surface Water Management Plan Action/s: **SOAP02**

**Action**  
Continue to review planning applications to make recommendations for surface water drainage and managing flood risk.

**Expected Outcome/ Indicator for Success**  
Planning decisions are properly informed about flood risk and drainage requirements.

- Stages to Achieve Action**
1. Ensure new developments consider all flood risk and climate change. Promote Sustainable Drainage Systems in accordance with National Planning Policy Framework, the Bath & North East Somerset Place Making Plan, West of England Sustainable Drainage Systems Guidance and other relevant sustainable drainage requirements.

**Stage at August 2015: 1**  
**Action Owner:** Lead Local Flood Authority, Local Planning Authority\*, Environment Agency.

**Action Supporter:** Wessex Water, Canal & River Trust Emergency Planning Authority

**Priority:** High

Ref: **LFRMS – 4b**  
Link with Surface Water Management Plan Action/s: **NA**

**Action**  
Publish the West of England Sustainable Drainage System Guidance for developers, and work across the West of England to co-ordinate sustainable drainage system implementation.

**Expected Outcome/ Indicator for Success**  
Developers utilise sustainable methods of surface water drainage and increases in surface water flow from future development are mitigated.

- Stages to Achieve Action**
1. Complete the West of England Sustainable Drainage Systems Guidance document.
  2. Publish the guidance on the Bath & North East Somerset Council website and ensure this is communicated to developers as appropriate.

**Stage at August 2015: 2**  
**Action Owner:** Lead Local Flood Authority, Local Planning Authority.

**Action Supporter:** West of England Partnership.

**Priority:** High

\* LPA: Bath & North East Somerset Council/ Local Planning Authority



**Objective 4 – Prevent inappropriate development that creates or increases flood risk**

Ref: <b>LFRMS – 4c</b> Link with Surface Water Management Plan Action/s: <b>NA</b>	<p><b>Action</b>            Include Sustainable Drainage System planning policy within the Council's Placemaking Plan/ Core Strategy.</p> <p><b>Expected Outcome/ Indicator for Success</b>            Sustainable drainage is incorporated into new development to reduce surface water runoff and minimise its contribution to flooding.</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>1. Incorporate Sustainable Drainage System planning policy within the Council's Placemaking Plan/ Core Strategy.</li> </ol>	<p><b>Stage at August 2015: 1</b></p> <p><b>Action Owner:</b> Local Planning Authority, Lead Local Flood Authority</p> <p><b>Action Supporter:</b> –</p> <p><b>Priority:</b> High</p>
Ref: <b>LFRMS – 4d</b> Link with Surface Water Management Plan Action/s: <b>NA</b>	<p><b>Action</b>            Continue to provide guidance at the pre-application stage on flooding issues.</p> <p><b>Expected Outcome/ Indicator for Success</b>            Drainage and flooding issues are adequately considered prior to applications gaining approval and that applications consider the use of Sustainable Drainage Systems.</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>1. Work with developers and the Local Planning Authority to implement the most appropriate drainage strategy for planning applications.</li> <li>2. Promotion of advisory service via Council communication channels and Local Flood Representatives.</li> </ol>	<p><b>Stage at August 2015: 1</b></p> <p><b>Action Owner:</b> Lead Local Flood Authority, Local Planning Authority.</p> <p><b>Action Supporter:</b> Environment Agency, Wessex Water.</p> <p><b>Priority:</b> High</p>
Ref: <b>LFRMS – 4e</b> Link with Surface Water Management Plan Action/s: <b>NA</b>	<p><b>Action</b>            Consider the need for additional planning guidance on flooding specific to Bath &amp; North East Somerset.</p> <p><b>Expected Outcome/ Indicator for Success</b>            Effective planning guidance on flooding is provided within Bath &amp; North east Somerset.</p> <p><b>Stages to Achieve Action</b></p> <ol style="list-style-type: none"> <li>1. Continually review the appropriateness and effectiveness of current planning guidance to minimise flooding in Bath &amp; North East Somerset.</li> <li>2. Take appropriate action to improve planning guidance and considered necessary.</li> </ol>	<p><b>Stage at August 2015: 1</b></p> <p><b>Action Owner:</b> Lead Local Flood Authority, Local Planning Authority.</p> <p><b>Action Supporter:</b> –</p> <p><b>Priority:</b> Low</p>



## Objective 4 – Prevent inappropriate development that creates or increases flood risk

Ref: **LFRMS – 4f**

Link with Surface Water  
Management Plan Action/s: **NA**

### Action

Identify areas that are sensitive to surface water flood risk and develop appropriate surface water drainage and flood risk requirements for any proposed development in these areas.

### Expected Outcome/ Indicator for Success

To ensure flood risk is not compromised and potentially improved with any proposed development.

### Stages to Achieve Action

1. Identify development sensitive areas.
2. Develop appropriate drainage and/or flood risk requirements.

**Stage at August 2015: 1**

**Action Owner:** Lead Local Flood Authority

**Action Supporter:** Local Planning Authority

**Priority:** Medium



**Objective 5 – Improve flood preparedness, warning and ability to recover**Ref: **LFRMS – 5a**Link with Surface Water Management Plan Action/s: **NA****Action**

Help develop a multi-agency flood plan for high risk areas in Bath & North East Somerset.

**Expected Outcome/ Indicator for Success**

A joined up approach that ensures resources are effectively managed.

**Stages to Achieve Action**

1. Identify areas at high risk.
2. Work with partners and communities to produce plans.
3. Share the flood plan with communities in the region using the agreed approach developed in LFRMS 2a.

**Stage at August 2015: 1****Action Owner:** Emergency Planning Authority**Action Supporter:** Strategic Flood Board**Action Supporter:** Emergency Services, Environment Agency, Lead Local Flood Authority.**Priority:** MediumRef: **LFRMS – 5b**Link with Surface Water Management Plan Action/s: **NA****Action**

Communicate information to communities, businesses and individuals on flood preparedness and recovery.

**Expected Outcome/ Indicator for Success**

Communities, individuals and businesses can adequately prepare for flooding and are more likely to be able to recover more quickly following a flood event.

**Stages to Achieve Action**

1. Work with Local Flood Representatives, or other appropriate partners, to target the most vulnerable communities, businesses and individuals as outlined in the regional Surface Water Management Plan / those interested in developing their own Community Flood Plans.
2. Provide literature and templates to ensure plans are appropriately structured, developed and maintained.

**Stage at August 2015: 1****Action Owner:** Lead Local Flood Authority, Emergency Planning Authority.**Action Supporter:** Environment Agency, Parish Councils, Community Groups, Local Flood Representatives.**Priority:** Low

**Objective 5 – Improve flood preparedness, warning and ability to recover**Ref: **LFRMS – 5c**Link with Surface Water Management Plan Action/s: **NA****Action**

Promote uptake of the Environment Agency's Floodline Warnings Direct service.

**Expected Outcome/ Indicator for Success**

Individuals will have improved access to flood warnings which will aid them in their ability to respond to threats.

**Stages to Achieve Action**

1. Review information provided on the Bath & North East Somerset Council website and update as appropriate. Ensure consideration is also given to providing information about the service on appropriate Council literature and other communications.

**Stage at August 2015:** 1**Action Owner:** Lead Local Flood Authority, Communications team.**Action Supporter:** Environment Agency.**Priority:** LowRef: **LFRMS – 5d**Link with Surface Water Management Plan Action/s: **SOAP07****Action**

Improve warnings and proactive mitigation in response to predicted rainfall.

**Expected Outcome/ Indicator for Success**

Assets can be targeted for maintenance in advance of forecast rainfall to reduce the risk of blockage, and hence flood risk.

**Stages to Achieve Action**

1. Develop a timely and appropriate response to flood and serve weather warnings; giving consideration for proactively maintaining assets in response to forecast rainfall.

**Stage at August 2015:** 1**Action Owner:** Lead Local Flood Authority.**Action Supporter:** Local Highways Authority, Emergency Planning and Business Continuity, Met Office.**Priority:** High

## 5.2 Location-Specific Action Plan

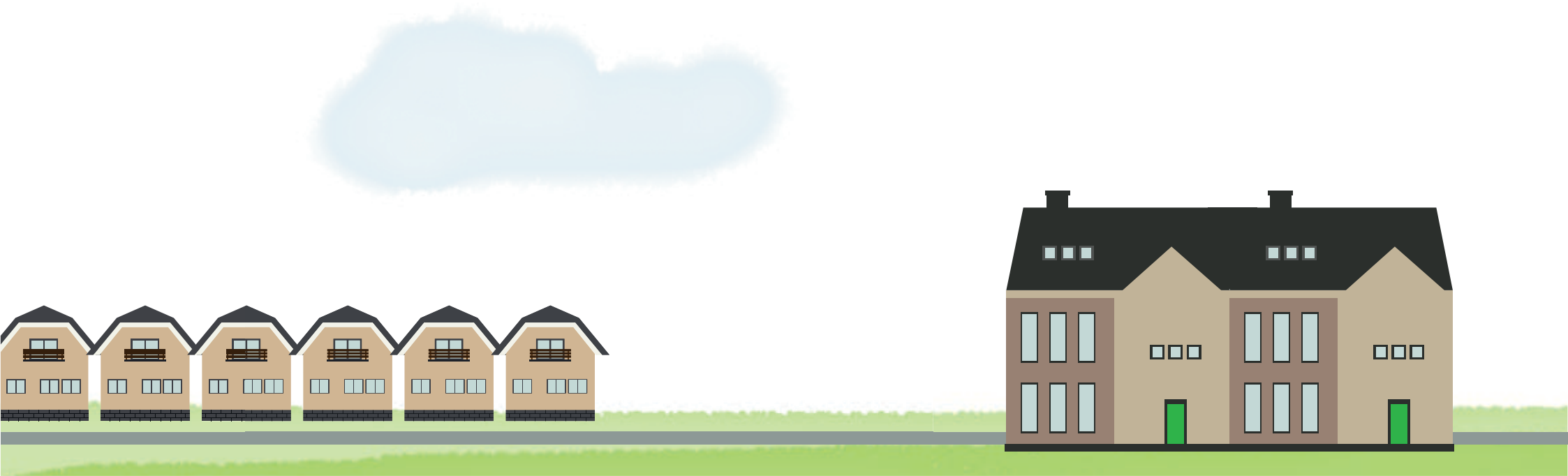
The regional Surface Water Management Plan is the most comprehensive source of information about location-specific actions. It contains at least one action for each of the wet-spots identified as being vulnerable to surface water flood risk based on recent and relevant flooding incidents and predicted flood risk. For the Local Flood Risk Management Strategy the Location Specific Action Plan has been transposed from the regional Surface Water Management Plan. This is a 'live' action plan which will be updated as measures are implemented or new information becomes available following further inspections or investigations. It will be reviewed on an annual basis.

This Location Specific Action Plan recommends measures to investigate, reduce or mitigate local flood risk in Bath & North East Somerset, and has been developed so it can be delivered in a phased approach. In many locations the action plan recommends further investigation or survey in the first instance. This is necessary to fully understand flooding mechanisms and impacts prior to the development of flood mitigation schemes.

A significant number of the wet-spots identified in the regional Surface Water Management Plan (42 of the 53 identified in total) had common actions around improvements to highway and/or land drainage, and have been grouped together in the regional Surface Water Management Plan and Local Flood Risk Management Strategy. For these wet-spots a five stage implementation plan was identified in the regional Surface Water Management Plan:

1. monitor;
2. check cyclic maintenance has been carried out;
3. investigate performance of highway/land drainage system, identifying any maintenance or design requirements;
4. carry out required maintenance or design and construct engineering scheme, and;
5. implement continued maintenance programme.

The 42 wet-spots identified in the regional Surface Water Management Plan which have been grouped together with common actions are listed in Table 5-2. Further details on the action owner, priority and indicative cost are provided in Appendix D.



**Table 5-2** Action plan with common actions for highway/land drainage improvements

<b>Wet-spot ID</b>	<b>Location</b>	<b>Wet-spot ID</b>	<b>Location</b>
DA06A	Publow Lane and Pensford Hill	DA16I	Priory Park Road, Wiscombe
DA07B	Wells Road, Hallatrow	DA09A	Redlynch Lane, Chewton, Keynsham
DA07C	Rush Hill, Farrington	DA12A	Bath Road, Kelston
DA10C	Durcott Lane, Camerton and Radford	DA13A	Wells Road, Corston
DA10D	Brookside Paulton	DA14B	Tunley Road, Longhouse
DA11A	Hayes Park area, Midsomer Norton	DA16A	Weston and Upper Weston
DA11D	Fortescue Road, Radstock Regeneration area	DA16C	Newbridge Road
DA14A	Vicinity of Crossways, Dunkerton	DA01A	Ubley, Blagdon Lake
DA16B	Charlcombe Lane and Landon Road, Larkhall and Fairfield	DA03A	Wick Road and Ham Lane, Bishop Sutton
DA16E	Camden Crescent, Walcot	DA04A	South Widcombe
DA16F	Bathwick Street, Bathwick	DA04B	Coley
DA16H	Lymore Avenue, South Twerton	DA07A	Clutton Hill
DA16J	Wellsway, Bloomfield	DA08C	Bath Road, Saltford
DA03B	Bristol Road, Whitecross Farm	DA11C	Fosse Way, Clandown
DA05A	Bristol Road, Whitchurch	DA11E	Kilmersdeon Road, Haydon
DA06B	Charlwood	DA13B	Pennyquick, Newton St Loe
DA08A	Park Road, Keynsham	DA15A	Old Milford Road, Twinhoe
DA10A	The Street, Farmborough	DA15B	The High St, Wellow
DA10E	Carlingcott Lane	DA15C	Green Lane, Hinton Charterhouse
DA10F	Bath Road & Albert Avenue, Peasdown St John	DA17A	Brassknocker Hill, Monkton Combe
DA11B	Charlton Road, Midsomer Norton	DA18A	Box Road and London Road East, Batheaston and Bathford



In addition, 14 wet-spots identified in the regional Surface Water Management Plan have been assigned specific actions. In these wet-spots the actions are bespoke to each area, and range from inspection and investigation, through to scheme design and build. The following wet-spots have specific actions identified:

- Bath City Centre;
- Batheaston and Bathford;
- Chew Magna;
- Chew Stoke;
- Clandown;
- West Harptree;
- Whitchurch;
- Keynsham;
- Lower Bristol Road;
- Timsbury;
- Midsomer Norton;
- Weston and Upper Weston;
- Weston Village;
- Weston Park, and;
- White Cross Farm (Bristol Road).

Across these 14 wet-spots 21 specific actions have been identified (i.e. a few wet-spots have more than 1 specific action). 17 of these actions are considered high priority in the regional Surface Water Management Plan, with a further four considered as medium priority. The specific actions for each wet-spot is provided in Appendix D.

### 5.3 Maximising the wider benefits of flood risk management

Flood risk management intervention can offer a significant range of wider benefits beyond reducing flood risk. For example, it can:

- protect or enhance the environment by improving water quality, hydromorphology of watercourses, creating habitat or new biodiversity;
- provide amenity for local communities;
- improve mental and physical health through reduction of the stress associated with flood risk, and creation of new amenity features integrated into the design of a scheme;
- support economic regeneration, and;
- unlock additional land for future development.

Historically, drainage and flood risk management infrastructure have been designed and implemented with limited focus on the wider social, environmental or economic benefits. Through implementation of the Local Flood Risk Management Strategy actions the Lead Local Flood Authority will encourage and promote investment in drainage and flood risk management which integrates wider social, economic and environmental benefits into design and implementation.

Indeed, to access many funding sources the Lead Local Flood Authority will need to demonstrate the wider benefits of our investment. The Lead Local Flood Authority will therefore need to think carefully during design and implementation to maximise the wider social, economic and environmental benefits of our investment, which in turn will support access to funding. This can only be achieved through close partnership working and early consideration of the wider opportunities through investment. For example, through implementation of green infrastructure in developed areas which capture surface water at source, thereby reducing flood risk, but which also provide significant opportunities to improve amenity, and to create habitat and biodiversity within developed areas.





### 5.3.1 Environmentally responsible flood risk management

There is a range of European and UK legislation which ensures protection and enhancement of the environment, such as the Strategic Environment Assessment Directive, the Water Framework Directive and the Conservation of Habitats and Species Regulation ('Habitats Regulation'). Any investment must not cause detriment to the environment, and should seek enhancement wherever possible.

The Local Flood Risk Management Strategy action plan has been developed to set policy or process to reduce flood risk, prevent deterioration of the environment, and seek enhancement where possible. For example, in the 'Strategy Action Plan' measures Local Flood Risk Management Strategy – 3f is to "identify catchments where improved land management could reduce flood risk and/or improve the water environment. Implementation of this measures will reduce flood risk to communities and reduce diffuse pollution from runoff into watercourses. Another example is our planning policy in the Placemaking Plan about implementation of Sustainable Drainage Systems as part of new development, which will reduce flood risk, improve water quality, and deliver amenity benefits for local residents.

With respect to the Location Specific Action Plan the majority of actions are focused on improvements to highway drainage, inspections and/or investigations. These will have limited, if any, impact on the environment, although we will always undertake measures with consideration to the surrounding environment. Where location-specific actions identified in the regional Surface Water Management Plan or Local Flood Risk Management Strategy interact with a Main River or ordinary watercourse they will need to be subject to a Water Framework Directive assessment<sup>20</sup> during implementation.

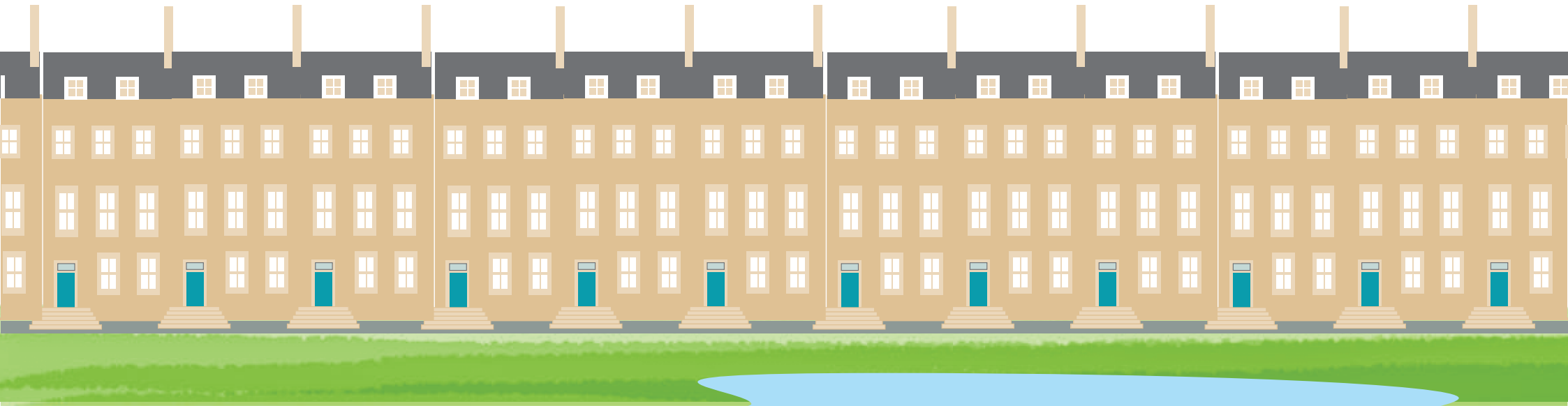
Should larger schemes be identified and progressed these will be in line with planning controls, which will include consideration of environmental impact, and a screening opinion on the need for an Environmental Impact Assessment will be sought from the Local Planning Authority. It is also recognised that an environmental reporting procedure should and will be undertaken to ensure that the Council's duties under the relevant legislation are met.

Further details on environmentally responsible flood risk management is available in the Strategic Environmental Assessment Environmental Report which is a separate document.

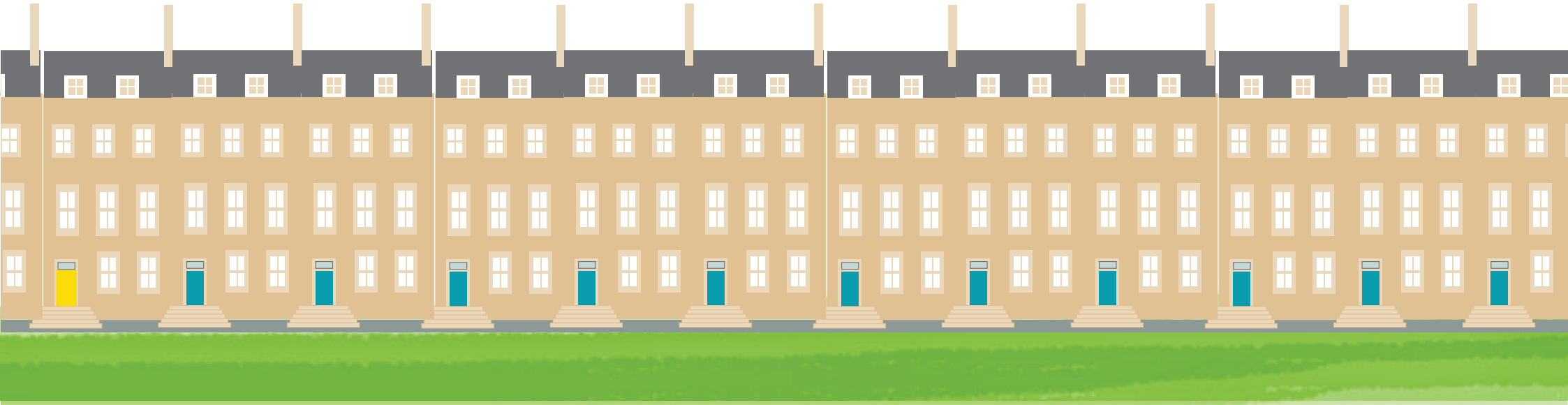
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<sup>20</sup> The requirements of the Water Framework Directive and actions to achieve Good Ecological Status need to be taken into account in the planning of all new activities, plans or strategies that could affect the water environment. Many of the aims of the Water Framework Directive are relevant to the preparation of local flood risk management schemes, and such schemes also may offer opportunities to help deliver some of the actions identified in relevant River Basin Management Plans. Therefore when we are proposing local flood risk management schemes as part of our Strategy, these schemes will be subject to a Water Framework Directive Assessment where they involve works to ordinary or main watercourses. This assessment will take account of the requirements of the Water Framework Directive and ensure that the scheme proposals do not conflict with the relevant local River Basin Management Plan or undermine the aims of the Water Framework Directive.





# Section 6 Funding Strategy



Small drainage works can often be funded from Bath & North East Somerset Council's revenue and capital funding streams, but in a continued era of austerity the delivery of flood risk management infrastructure will require new ways of working and funding across different organisations and stakeholders. The Council may also seek to secure other dedicated flood risk management funding from Government<sup>21</sup> where a project is of sufficient magnitude to justify additional funding or it is likely to qualify for funding.

The introduction of partnership funding by the Department for Environment, Food and Rural Affairs in 2011 for flood and coastal erosion risk management projects means that the ability to leverage additional funding contributions could be the difference between a project going ahead or not. It may be possible for some projects to be fully funded by Flood and Coastal Erosion Risk Management Grant in Aid (which is the current partnership funding mechanism for capital works provided by the Department for Environment, Food and Rural Affairs). However, the majority are likely to require supplementary funding from a range of sources to make up the total sum needed.

To leverage additional funding will require relationships and the right timing. In addition tailoring the outputs or outcomes of flood risk management infrastructure is essential to attract a wider range of funding sources. For example, a flood storage area not only provides reduced flood risk, but creates wider benefits such as new amenity, biodiversity and recreation. These wider benefits are often key to unlocking additional funding from non-dedicated flood risk management sources (e.g. Heritage or Lottery Funding).

The following sections provide information on the approaches that will be taken to gain funding for both strategic and individual actions. Appendix E expands further on the full range of potential funding opportunities available. In addition the Department for Environment, Food and Rural Affairs has

published a guide to “Partnership funding and collaborative delivery of local flood risk management”<sup>22</sup>, intended to promote successful collaboration and partnership funding.

The development of the Strategic Flood Board, Operational Flood Working Group and the West of England Local Enterprise Partnership will assist the Lead Local Flood Authority in its ability to effectively communicate project needs to appropriate partners, whether local businesses or Risk Management Authorities, to identify funding needs for projects. The role of the Lead Local Flood Authority will be to ensure that proposed schemes are financially viable with respect to whole life costing, to identify who will be best placed to assist with funding or in kind contributions, and to work with partners to develop appropriate solutions to manage risks.

## 6.1 The ‘Strategy’ funding approach

Figure 6-1 and Figure 6-2 set out the funding sources and approaches for the actions outlined for the Council's Local Flood Risk Management Strategy. These separate the approach for funding of capital works (i.e. new infrastructure to reduce flood risk) and maintenance of existing infrastructure.

### 6.1.1 Funding capital works

Figure 6-1 outlines a hierarchical approach to access funding for capital works to alleviate flooding. The Lead Local Flood Authority will seek to secure dedicated funding from Flood and Coastal Erosion Risk Management Grant in Aid and Local Levy in the first instance (Tier 1) where a project is likely to qualify for funding. Refer to Appendix E for further details on these types of funding.

21 This could include Flood and Coastal Erosion Risk Management Grant in Aid funding from Central Government, or funding from the Regional Flood and Coastal Committee

22 <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=17085>

To determine what funding is likely to be available through Flood and Coastal Erosion Risk Management Grant in Aid we will use Department for Environment, Food and Rural Affairs Partnership Funding Calculator to identify the amount that is likely to be available through this route and help the Lead Local Flood Authority to identify the size of the funding gap. The Lead Local Flood Authority will then engage with the Regional Flood and Coastal Committee to identify the likelihood of securing Local Levy. In the majority of cases funding from these sources will not be sufficient to fully fund a scheme (unless it scores >100% on the Department for Environment, Food and Rural Affairs Partnership Funding Calculator). It should be recognised that funding from this category is dependent on the benefits the scheme will provide (i.e. linked to Department for Environment, Food and Rural Affairs outcomes).

**Flood and Coastal Erosion Risk Management Grant in Aid** is provided by the Department for Environment, Food and Rural Affairs, but administered and managed by the Environment Agency.

Funding is unlikely to meet the full scheme costs in most cases, and approvals are subject to the consent of the Wessex Regional Flood and Coastal Committee.

**Local Levy** can be raised by the Wessex Regional Flood and Coastal Committee and used to support flood risk management projects that do not attract 100% national funding through Flood and Coastal Erosion Risk Management Grant-in-Aid.

Where a funding shortfall remains, the Lead Local Flood Authority will subsequently consider Tier 2 funding. This primarily considers economic growth and/or other direct beneficiaries of the proposed scheme, and may include:

- Local authority contributions (either capital or revenue);
- West of England Local Enterprise Partnership where a scheme can directly contribute towards economic growth;
- Section 106 agreements can be used to support provision of infrastructure where they are directly related to development, necessary to make the development acceptable, and relevant to planning;
- Bath & North East Somerset Community Infrastructure Levy, and;
- Beneficiaries of the scheme (e.g. homeowners, businesses or utility providers).

For each capital scheme the Lead Local Flood Authority will identify the economic growth and development opportunities, and the potential beneficiaries. The Lead Local Flood Authority will also engage with relevant organisations early to identify potential funding, either as a contribution towards a Flood and Coastal Erosion Risk Management Grant in Aid application or a contribution outside of this process.

Tier 3 funding is from non-flood risk management sources. To access these will require thinking about the wider benefits such as biodiversity, amenity, health/wellbeing, recreation, and education. Sources could include Lottery funding, money raised by the community and from potential European Union funding sources.

Further explanation on these sources of funding is provided in Appendix E.

**Figure 6-1** Options for funding of capital flood risk management works.



**6.1.2 Funding maintenance of existing infrastructure**

Most of the responsibility for funding of maintenance lies with the Risk Management Authority responsible for the asset (as explained in Section 3.3.2), but Riparian Owners (explained in Section 3.4.3) also have responsibilities for funding maintenance along watercourses which form part of the land they own.

As highlighted in Figure 6-2 this means that Wessex Water are responsible for funding maintenance of sewer network assets that they are responsible for. The money for this comes from the revenue they gain from charging their customers for the services they provide.

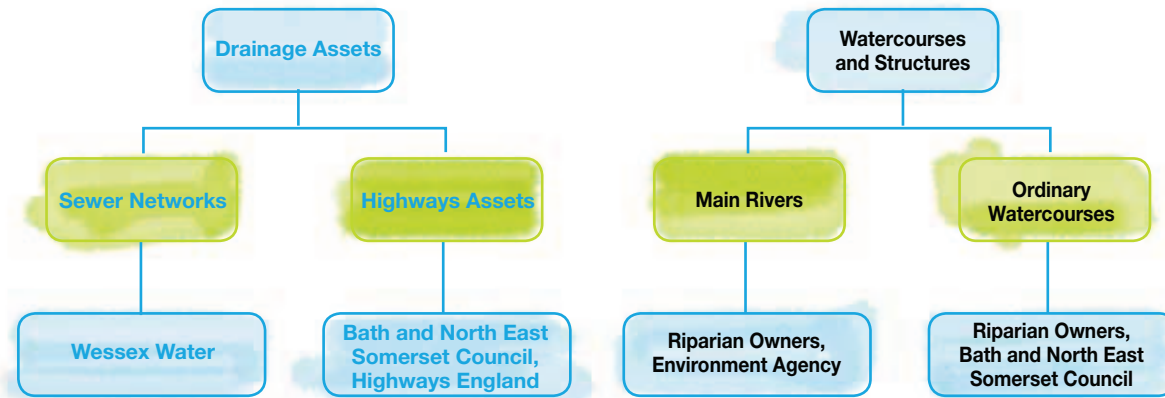
With respect to roads the responsibility for maintenance depends on the asset owner. Funding for maintenance of the assets we are responsible for comes predominantly from revenue through the Council's Settlement Funding Assessment and Council Tax. Funding for the Highways England comes via the Department for Transport.

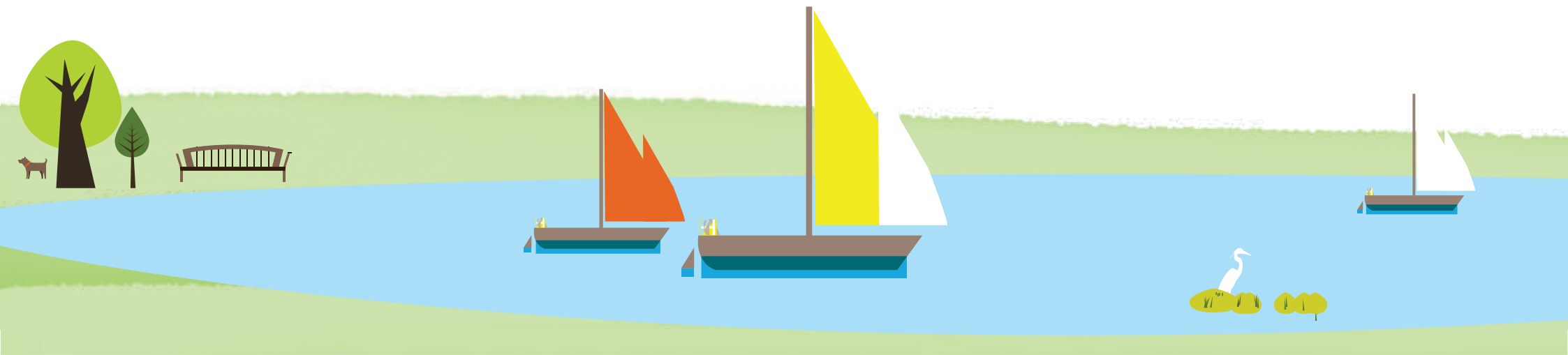
Maintenance of Main Rivers (and associated structures) is the responsibility of Riparian Owners and/or the Environment Agency, depending on ownership. In some cases the Environment Agency will undertake maintenance of Main Rivers which are under Riparian Ownership, using their permissive powers to manage flood risk under the Water Resources Act (1995). Funding for work undertaken by the Environment Agency comes from central government.

Similarly, maintenance of Ordinary Watercourses is the responsibility of Riparian Owners. Using permissive powers under the Land Drainage Act (1991) the Lead Local Flood Authority proactively maintain 37 reaches of ordinary watercourses and reactively maintain trash screens, to reduce property flood risk. Funding for the Council's maintenance work comes predominantly from revenue through our Settlement Funding Assessment and Council Tax. Riparian Owners will need to privately fund their own maintenance works.

The Council already compile a yearly maintenance and improvements programme to prioritise where efforts will be focused. This will continue to be undertaken, but using a risk based approach to ensure resources are allocated effectively. This will ensure there is a clearer approach to where the Council plan to focus its attention in the medium term.

**Figure 6 2** Funding for maintenance of existing infrastructure







# Section 7 Governance, Monitoring and Review



## 7.1 Governance for flood risk management

There is a governance arrangement in place to co-ordinate actions at an operational and strategic level, and ensure that these have appropriate scrutiny and accountability through our Flood Risk Scrutiny Panel, and Full Council. An overview of the governance arrangements for flood risk management, and the interfaces with stakeholders, is provided in Figure 7-1.

## 7.2 Monitoring

Monitoring, reviewing and updating the Local Flood Risk Management Strategy will be essential to ensure it continues to be 'fit for purpose'. It will also demonstrate success in delivering reduced flood risks to communities in Bath & North East Somerset.

The Lead Local Flood Authority will monitor the progress of the Local Flood Risk Management Strategy on an annual basis through preparation of the annual action plan, which will be presented to, and agreed by, the Strategic Flood Board. The annual action plan will identify:

- progress against the strategies objectives;
- whether measures have been delivered and can therefore be removed from the action plan;
- any changes to legislation or understanding of flood risk, and the implications of this, and;
- set the priorities for the forthcoming year.

The action plan will be published on the Bath & North East Somerset Council website.

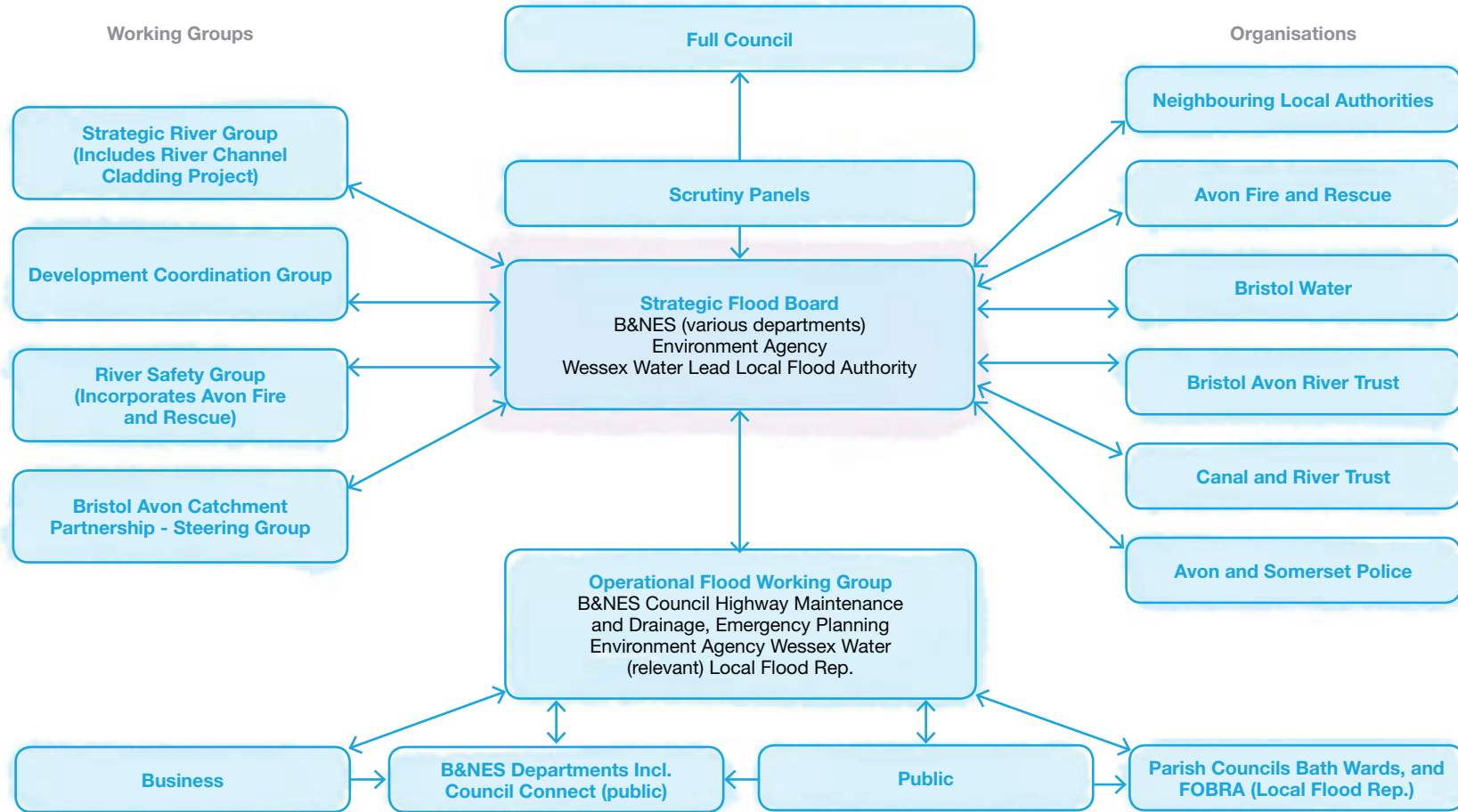
## 7.3 Review and Update

The Local Flood Risk Management Strategy will remain live for a ten year period to 2025, after which it will be reviewed and updated where necessary. A mid-term update of the Local Flood Risk Management Strategy will take place after five years, in 2020, to check progress against the strategies objectives and update the document where required. The update of the Local Flood Risk Management Strategy in 2020 will be reviewed by the Flood Risk Scrutiny Panel. Any significant changes to the Flood and Water Management Act (which is to be reviewed in 2017) which concern the duties of the Lead Local Flood Authority will be reflected in the 2020 review.

In the interim period the Local Flood Risk Management Strategy will only be updated if:

- it is not meeting its objectives as identified in the annual action plan;
- significant flooding occurs that causes the Lead Local Flood Authority to re-consider the risk assessment and prioritised locations;
- there are significant updates to datasets which underpin the risk assessment undertaken in the regional Surface Water Management Plan;
- there are regulatory, policy or legislative changes that affect the roles and responsibilities for flood risk management, or;
- there are changes to the funding landscape which affects our ability to meet the Local Flood Risk Management Strategy actions.

Figure 7-1 Governance for flood risk management





# Appendix A

## Policies, legislation, plans, assessments and strategies

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# National legislation

## The Flood and Water Management Act 2010

The Flood and Water Management Act (2010) brings together the recommendations of the Pitt report and previous policies to improve the management of water resources and create a more comprehensive and risk based regime for managing the risk of flooding from all sources. The Flood and Water Management Act states that its purpose is to “make provision about water, including provision about the management of risks in connection with flooding and coastal erosion”. The key features of the Flood and Water Management Act in relation to flood and coastal risk management are that it provides:

- the Environment Agency a strategic overview role of all flood and coastal erosion risk management and re-affirms their responsibility as the lead authority for managing flood risk from Main Rivers, the Sea and reservoirs;
- unitary Authorities and County Councils a Lead Local Flood Authority role, allocating responsibility for managing flooding from surface runoff, groundwater and ordinary watercourses;
- an improved risk based approach to reservoir safety, and;
- a duty for relevant flood risk management authorities to co-operate and share information.

A key implication for County Councils and Unitary Authorities is the introduction of the Lead Local Flood Authority role, which enhances their responsibilities so that they lead the co-ordination of local flood risk management in their areas. However, partnership arrangements are in no way prevented, which will ensure full use of all capabilities and experience locally. In addition, the Flood and Water Management Act allows for all roles and actions to be delegated to another risk management authority (subject to agreement), with the exception of the Local Flood Risk Management Strategy, which must be developed by the Lead Local Flood Authority. The Flood and Water Management Act is available at <http://www.legislation.gov.uk/ukpga/2010/29/contents>.

To avoid administrative burdens, the Flood and Water Management Act does not require routine reporting on performance, but allows information to be requested where necessary. Local authorities can bring matters to the Government’s attention and if a risk management authority fails to exercise a flood or coastal erosion risk management function, the Secretary of State can direct another authority to carry out that function. In addition, the Flood and Water Management Act enables Overview and Scrutiny Committees in Lead Local Flood Authorities to hold all the risk management authorities to account. In this way, the public can be actively involved in ensuring authorities perform and fulfil their responsibilities.

Under the Flood and Water Management Act a ‘flood’ is caused by heavy rainfall; a river overflowing its banks or being breached; a dam overflowing or being breached; tidal waters; groundwater; or anything else including a combination of factors. It does not include a flood caused from any part of a sewerage system, unless wholly or partly caused by an increase in the volume of rainwater (including snow and other precipitation) entering or otherwise affecting the system; or a flood caused by a burst water main.

## Flood Risk Regulations 2009

The Flood Risk Regulations came in to force on 10th December 2009 and transposes the European Commission Floods Directive (Directive 2007/60/EC on the assessment and management of flood risks) into UK domestic law. The Flood Risk Regulations can be viewed at <http://www.legislation.gov.uk/ukpga/2010/29/contents>.

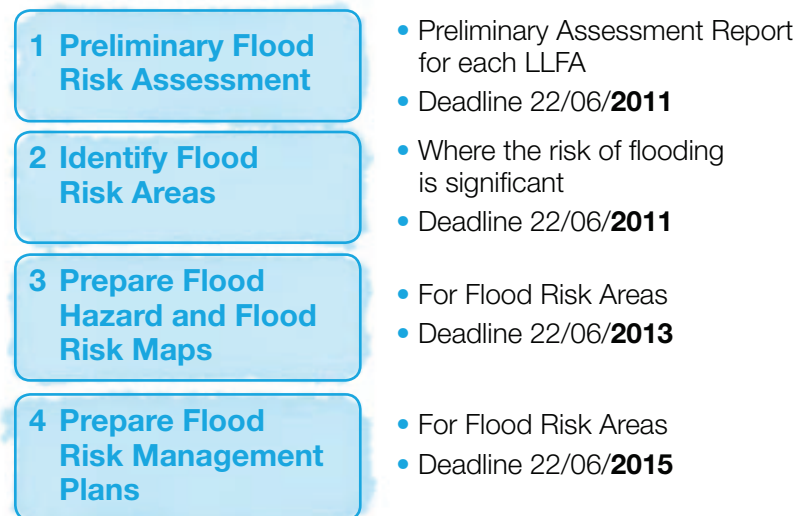
The Directive requires Member States to develop and update a series of tools for managing all sources of flood risk. The Flood Risk Regulations outline the roles and responsibilities of the various authorities consistent with the Flood and Water Management Act and provide for the delivery of the outputs required by the directive.

The Regulations give responsibility to:

- \* the Environment Agency to prepare Directive deliverables: preliminary assessment report, flood risk maps and hazard maps and flood risk management plans for flood risk from the sea, main rivers and reservoirs;
- \* Lead Local Flood Authorities to do the same for 'local flood risk', which includes surface runoff, groundwater and ordinary watercourses, and;
- \* the Environment Agency for collating and publishing the preliminary assessment reports, flood risk maps and hazard maps, and flood risk management plans.

The stages of the Flood Risk Regulations are illustrated in Figure 1. The Flood Risk Regulations operate on a six yearly cycle; therefore an updated version of the Preliminary Flood Risk Assessment will be prepared in 2017. The Preliminary Flood Risk Assessment is a high level screening exercise to identify areas of most significant flood risk across Europe. The aim of the Preliminary Flood Risk Assessment is to assess local flood risk with respect to past floods and the potential harmful consequences of future floods.

**Figure 1 Flood Risk Regulations process (taken from Environment Agency guidance)**



## Land Drainage Act 1991

The Land Drainage Act (1991) outlines the duties and powers to manage land drainage for a number of bodies including the Environment Agency, Internal Drainage Boards, local authorities, navigation authorities and riparian owners. A number of its provisions have been re-defined following the Flood and Water Management Act, in particular the provisions on consenting and enforcement on ordinary watercourses. As a result Bath & North East Somerset Council is now responsible for administering and issuing consents to third parties for undertaking works which could affect ordinary watercourses, and enforcing where works have been undertaken without the necessary consent, under Sections 23, 24 and 25 of the Act.

## Water Framework Directive

The Water Framework Directive is the most substantial piece of European Commission water legislation to date and is designed to improve and integrate the way water bodies are managed throughout Europe. It came into force on 22 December 2000 and was transposed into UK law in 2003. Member States must aim to reach good chemical and ecological status in inland and coastal waters by 2015. It is designed to:

- prevent deterioration in the classification status of aquatic ecosystems, protect them and improve the ecological condition of waters;
- achieve at least good status for all waters. Where this is not possible, good status should be achieved by 2021 or 2027;
- promote sustainable use of water as a natural resource;
- conserve habitats and species that depend directly on water;
- progressively reduce or phase out releases of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment;
- progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants, and;
- contribute to mitigating the effects of floods and droughts.



In essence, the Water Framework Directive establishes new and better ways of protecting and improving rivers, lakes, groundwater, transitional (where freshwater and sea water mix) and coastal waters. To address this, the Environment Agency has embarked on river basin management planning with the aim to develop new and better ways of protecting and improving the water environment. It should be noted that the objectives referred to above and contained in the Water Framework Directive, whilst supported in the Bath & North East Somerset Local Flood Risk Management Strategy, are considered outside the scope of this Strategy. Nevertheless it is important that measures to manage local flood risk does not cause deterioration of water bodies and considers opportunities to improve water bodies in conjunction with local flood risk management.

River Basin Management Plans have been produced by the Environment Agency for the eleven river basin districts in England and Wales and are the central tool setting out the objectives and actions required to achieve the objectives of the Water Framework Directive. River Basin Management Plans describe the main issues for each river basin district and state the environmental objectives for the basin, explain the objectives selected to achieve good ecological status and summarise the actions needed to deliver those objectives. A River Basin District is: a river basin, or several river basins, and the river basin's adjacent coastal waters. The Severn River Basin District River Basin Management Plan<sup>1</sup> covers the Bath & North East Somerset Council boundary, and within the area there are 239 artificial or heavily modified water bodies and 633 natural water bodies. As of 2009 when the Plan was published, only 29% of these were meeting good ecological status. At least 75% of the 40 groundwater bodies were however achieving good status. As a requirement of the Water Framework Directive all 912 water bodies will need to meet good or high ecological status or potential by 2027.

## Climate Change Act

The Climate Change Act (2008) requires a UK wide climate change risk assessment every five years, accompanied by a national adaptation programme that is also reviewed every five years. The Act has given the Government powers to require public bodies and statutory organisations such as water companies to report on how they are adapting to climate change.

## Conservation of Habitats and Species Regulations

The Conservation of Habitats and Species Regulations (2010) transpose the Habitats Directive into UK law. The regulations aim to help maintain and enhance biodiversity throughout the European Union, by conserving natural habitats, flora and fauna. The main way it does this is by establishing a coherent network of protected areas and strict protection measures for particularly rare and threatened species.

## Civil Contingencies Act

The Civil Contingencies Act (2004) is legislation that aims to deliver a single framework for civil protection in the UK and sets out the actions that need to be taken in the event of a flood. The Civil Contingencies Act is separated into two substantive parts: local arrangements for civil protection (Part 1) and emergency powers (Part 2).

## Strategic Environmental Assessment Directive

The Strategic Environmental Assessment Directive (2001) (European Commission Directive 2001/42/EC) is legislation which aims to increase the consideration of environmental issues during decision making related to strategic documents such as plans, programmes or strategies. The Strategic Environmental Assessment identifies the significant environmental effects that are likely to result due to the implementation of a plan, programme or strategy. A Strategic Environmental Assessment has been prepared in parallel to the development of the Bath & North East Somerset Local Flood Risk Management Strategy.

<sup>1</sup> The Severn River Basin Management Plan is available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/291442/gemi0910bssk-e-e.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/291442/gemi0910bssk-e-e.pdf)

## National Flood and Coastal Erosion Risk Management Strategy

The National Flood and Coastal Erosion Risk Management Strategy<sup>2</sup> was produced to ensure that government, the Environment Agency, local authorities, water companies, internal drainage boards and other organisations that have a role in flood and coastal erosion risk management understand each other's roles. It also encourages them to work together to:

- understand the risks;
- manage the likelihood;
- help people to manage their own risk;
- prevent inappropriate development, and;
- Improve flood prediction, warning and post flood recovery.

This Flood and Coastal Erosion Risk Management Strategy fulfils a requirement in the Flood and Water Management Act (2010), which gave the Environment Agency a 'strategic overview' of flood and coastal erosion risk management and in turn takes forward a recommendation from Sir Michael Pitt's inquiry into the 2007 floods.

## National Planning Policy Framework

The National Planning Policy Framework<sup>3</sup> sets out the Government's planning policies for England and was produced to help ensure sustainable development can be achieved. It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities. Within the National Planning Policy Framework it states that local plans should take account of climate change over the longer term, including factors such as flood risk by:

- applying the Sequential Test, and if necessary the Exception Test;
- safeguarding land from development that is required for current and future flood management;
- using opportunities offered by new development to reduce the causes and impacts of flooding;
- seeking opportunities to facilitate the relocation of development, including housing, to more sustainable locations where climate change is expected to increase flood risk so that existing development may not be sustainable in the long-term;
- ensuring the most vulnerable new development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location, and;
- ensuring development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed, including by emergency planning, and it gives priority to the use of sustainable drainage systems.

It also states local planning authorities should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding where, informed by a site-specific flood risk assessment following the Sequential Test, and if required the Exception Test, it can be demonstrated that:

- the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location, and;
- development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed, including by emergency planning; and it gives priority to the use of sustainable drainage systems.

2 The FCERMS is available at: <http://nationalfloodforum.org.uk/wp-content/uploads/EA-National-Strategy-flooding-and-coastal-erosion-risk-management-summary.pdf>

3 The National Planning Policy Framework is available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/6077/2116950.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf)

# Plans, Assessments and Strategies undertaken locally by Risk Management Authorities

## Preliminary Flood Risk Assessment

Bath & North East Somerset Council produced its Preliminary Flood Risk Assessment<sup>4</sup> in 2011. The Preliminary Flood Risk Assessment provides a high level overview of local flooding within Bath and North East Somerset, considering both past flooding and potential future flooding. In order to do this the Preliminary Flood Risk Assessment used Environment Agency Flood Risk Maps and gathered records of historic flooding. The historical flooding information was combined into a single database using records held by the council's land drainage and highways drainage departments, Wessex Water, the Environment Agency and information from Parish Councils.

In England the Department for Environment, Food and Rural Affairs and the Environment Agency have identified the 'Flood Risk Areas' on a national basis. This has been done by identifying locations where there are clusters of 30,000 or more people predicted to be vulnerable to surface water flooding. There are ten 'Flood Risk Areas' in England. No standalone indicative Flood Risk Areas fall within the Bath and North East Somerset area. The closest Indicative Flood Risk Area to Bath and North East Somerset is that of Bristol. A relatively small portion of this area (1.5%) falls within Bath and North East Somerset administrative boundary. Discussions with Bristol City Council have resulted in the agreement that they will take the lead in reviewing this indicative flood risk area on the basis that the selected location falls predominantly within their administrative boundary.

## Strategic Flood Risk Assessments

Strategic Flood Risk Assessments are tools used by a planning authority to assess flood risk for spatial planning, producing development briefs, setting constraints, informing sustainability appraisals and identifying locations of emergency planning measures and requirements for flood risk assessments. The purpose of a Strategic Flood Risk Assessment is to assess and map all forms of flood risk from groundwater, surface water, impounded water bodies, sewer and river sources, taking into account future climate change predictions, to allow planning authorities to use this as an evidence base to locate future development primarily in low flood risk areas. The outputs from a Strategic Flood Risk Assessment also assist in the production of sustainable policies for the long-term management of flood risk.

In 2008 the Level 1 Strategic Flood Risk Assessment was produced for Bath & North East Somerset Council. The Strategic Flood Risk Assessment provides an overview of flood risk within Bath & North East Somerset using historical flooding records gathered from the Environment Agency and Bath & North East Somerset Council, Parish Councils, Wessex Water and local residents. This was supported by the use of mapping products provided by the Environment Agency outlining modelled flood extents and locations of flood defences. The SFRA was designed provide the information required through the planning process so that land is allocated for development in low risk flood areas first.

Following the Level 1 Strategic Flood Risk Assessment, Level 2 Strategic Flood Risk Assessments<sup>5</sup> were produced to focus on areas considered to be at higher potential risk from flooding as a result of conclusions in the Level 1 report. These Level 2 Strategic Flood Risk Assessments covered three areas:

- Bath;
- Keynsham, and;
- Midsomer Norton/ Radstock.

As part of these Level 2 Strategic Flood Risk Assessments sequential tests and a scoping studies for flood risk management strategies were undertaken.

4 The Bath & North Somerset PFRA is available from: [HTTP://WEBARCHIVE.NATIONALARCHIVES.GOV.UK/20140328084622/HTTP://CDN.ENVIRONMENT-AGENCY.GOV.UK/FLHO1211BVPL-E-E.PDF](http://web.archive.org/web/20140328084622/http://cdn.environment-agency.gov.uk/flho1211bvpl-e-e.pdf)

5 The level 1 & 2 SFRA's can be accessed from the Bath & North East Somerset Council website at: [HTTP://WWW.BATHNES.GOV.UK/SERVICES/PLANNING-AND-BUILDING-CONTROL/PLANNING-POLICY/EVIDENCE-BASE/FLOOD-RISK](http://www.bathnes.gov.uk/services/planning-and-building-control/planning-policy/evidence-base/flood-risk)

## Flood Risk Management Strategy

Following on from the Level 2 Strategic Flood Risk Assessment a Flood Risk Management Strategy was prepared for Bath & North East Somerset. This provides strategic options for the management of flood risk in areas prioritised in the SFRA, namely, Bath<sup>6</sup>, Keynsham, Midsomer Norton and Radstock. This Flood Risk Management Strategy sits alongside the Council's Local Development Framework and provides guidance and advice on flood risk management and sustainable urban drainage systems.

## Surface Water Management Plans

Bath & North East Somerset Council has completed a regional Surface Water Management Plan. Surface Water Management Plans are described as a framework through which key local partners with a responsibility for surface water and drainage in their area work together to understand the causes of surface water flooding and agree the most cost effective way of managing that risk. The purpose is to make sustainable surface water management decisions that are evidence based, risk based, future proofed and inclusive of stakeholder views. A Surface Water Management Plan establishes a long-term action plan to manage surface water in an area and should influence future capital investment, drainage maintenance, public engagement and understanding, land-use planning, emergency planning and future developments.

The regional Surface Water Management Plan was undertaken in order to be used as an overarching framework to assist with the identification and management of flood risk from surface water within Bath & North East Somerset. To understand the flood risk, data was collated and scored according to its quality from Bath & North East Somerset Council records and those of project partners including the Environment Agency and Wessex Water. Source-Pathway-Receptor modelling was then applied, and the data mapped to identify key flooding locations which are referred to as 'wet spots'. Based on the overall findings of the regional Surface Water Management Plan a Strategic and Operational Action Plan was developed which identified actions which can be applied in general to address flood risk. Using the flood

history data, a location specific Action Plan was developed to summaries actions required in wet spot areas. The actions from both of these action plans have now been incorporated into the Local Flood Risk Management Strategy, see Section 5 of the main Local Flood Risk Management Strategy for further details.

## Catchment Flood Management Plans

Catchment Flood Management Plans have been produced by the Environment Agency and are high-level planning tools that set out objectives for flood risk management for each river catchment and estuary. They also identify flood risk management policies that are economically practical, have a potential life of 50 to 100 years, and will help partnership working to put them in place. Catchment Flood Management Plans consider inland risk from rivers, surface water, groundwater and tidal flooding but do not consider sewer flooding. The Bristol Avon Catchment Flood Management Plan covers Bath and North East Somerset<sup>7</sup> as three sub-areas and each has preferred policy options identified to manage the risks most relevant to each area.

In the sub-area of Bath policy option 5 is outlined as the preferred option to take further action to reduce flood risk. Under this it is proposed that action will be taken through carrying out improvements to existing assets below standard; identifying an overall strategy for the future protection of the city; increasing awareness of risk and response to flood warning developed for area; and discouraging inappropriate development.

In the Lower Avon sub-area the preferred option is policy option 3 which means managing existing flood risk effectively. To do this it is proposed that a System Asset Management Plan be developed; investigation be undertaken to understand the cost efficiency of existing asset maintenance in areas such as Bathford, Swineford and Batheaston; and recommended improvements as a result of the above be implemented.

In the sub-area of Mendip Slopes and Long Ashton the preferred option is policy option 4 as it is believed that flood risk is already being managed effectively, but that further action is needed to keep pace with climate change.

<sup>6</sup> Bath & North East Somerset Council is currently in the process of undertaking a flood risk study or Weston (Bath) which is expected to be completed in June 2015.

<sup>7</sup> The Bristol Avon CFMP is available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/294182/Bristol\\_Avon\\_Catchment\\_Flood\\_Management\\_Plan.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/294182/Bristol_Avon_Catchment_Flood_Management_Plan.pdf)

To implement the preferred policy option it is proposed that actions will include reviewing emergency contingency planning; increasing awareness of risk and response to flood warnings; discourage inappropriate development; and investigate the benefits of improved flood forecasting and warnings.

## Core Strategy

Adopted in July 2014, the Bath & North East Somerset Core Strategy<sup>8</sup> is one of the main planning document for Bath & North East Somerset Council. It sets out the Council's vision and objectives and translates them into a deliverable plan from now up to 2029.

The key policy relating to flood risk management within the Core Strategy is CP5: Flood Risk Management. This outlines Development in the District will follow a sequential approach to flood risk management, avoiding inappropriate development in areas at risk of flooding and directing development away from areas at highest risk in line with Government policy (i.e. National Planning Policy Framework). Any development in areas at risk of flooding will be expected to be made safe throughout its lifetime, by incorporating mitigation measures, which may take the form of on-site flood defence works and / or a contribution towards or a commitment to undertake such off-site measures as may be necessary. All development will be expected to incorporate sustainable drainage systems to reduce surface water run-off and minimise its contribution to flood risks elsewhere. All development should be informed by the information and recommendations of the Bath & North East Somerset's Strategic Flood Risk Assessments and Flood Risk Management Strategy.

Other policies within the Core Strategy which relate to flood risk management include:

- CP2: Sustainable Construction: which states that all planning applications should, almost others, minimise the vulnerability to flooding and give consideration of climate change adaptation.
- CP7: Green infrastructure: which seeks to maintain, protect and enhance green infrastructure as an integral part of creating sustainable communities.

## Strategic Environmental Assessment

Under the Strategic Environmental Assessment Directive, a Strategic Environmental Assessment is required to accompany the Bath & North East Somerset Local Flood Risk Management Strategy. This identifies any potentially significant environmental effects arising from the implementation of the Local Flood Risk Management Strategy so that their impact can be mitigated. It considered effects on water, flooding, population, human health, biodiversity, the landscape, climatic factors, material assets, cultural heritage and air quality.

<sup>8</sup> The Bath & North East Somerset Core Strategy is available at: <http://www.bathnes.gov.uk/services/planning-and-building-control/planning-policy/core-strategy-examination>



# Appendix B

## Statement of stakeholder engagement

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## Introduction

This Statement of stakeholder engagement summarises the consultation activities that have been undertaken to help shape the Bath & North East Somerset's Local Flood Risk Management Strategy.

It provides an overview of the 5 key stages of work:

- stage 1 – development of a stakeholder engagement plan (2014);
- stage 2 - set up of the Strategic Flood Board, Operational Flood Working Group and Local Flood Representatives (2014);
- stage 3 – stakeholder updates/briefing notes;
- stage 4 – stakeholder workshop (June 2015), and;
- stage 5 – formal public consultation (September and October 2015).

### Context

Bath & North East Somerset Council has a duty to undertake consultation on the Local Flood Risk Management Strategy. The Flood and Water Management Act 2010 states (in Section 9) that:

“A lead local flood authority must consult the following about its local flood risk management strategy – (a) risk management authorities that may be affected by the strategy (including risk management authorities in Wales), and (b) the public.”

In preparing the draft Local Flood Risk Management Strategy the Council has undertaken engagement in order to meet, and hopefully exceed, this requirement for consultation.

The Act does not specify how or when consultation should take place. The steps taken have therefore followed good practice to develop an overall engagement strategy which is embedded within and clearly influences the Local Flood Risk Management Strategy development process.

The approach has taken account of the guidance set out in the Council's Statement of Community Involvement, the Parish Charter, and the messages contained within the Local Government Association document 'Framework to Assist the Development of the Local Strategy for Flood Risk Management' (Nov, 2011).

Overall the consultation approach has been based on a combination of:

- informal engagement - undertaken in parallel to the preparation of the draft Local Flood Risk Management Strategy which has helped to inform the documents which are now out for public consultation;
- formal engagement – which, through the current consultation, will invite feedback on the published draft version of the Local Flood Risk Management Strategy, and;
- ongoing technical discussions.

## Objectives

Engagement on the Local Flood Risk Management Strategy has aimed to help:

- improve understanding of current and future local flood risk across Bath & North East Somerset;
- improve understanding of who is responsible for dealing with different types of flooding;
- encourage individuals and communities to understand their own responsibilities and be more aware of the range of actions that they can take themselves to address flooding;
- manage expectations (in terms of what can be done to address flood risk);
- create positive engagement, through which a wide range of ideas about flooding can be understood and fed into the strategy;
- share data and ensure that the data used to underpin the Local Flood Risk Management Strategy is as accurate as possible - ensuring that best use is made of local knowledge;
- maintain close liaison with flood risk management partners and pave the way for a smooth working relationship with them going forward;
- build awareness and positive support for the way in which the Council intend to manage local flooding going forward, and;
- ensure ultimately that the final Local Flood Risk Management Strategy can be readily supported and adopted by the Council's Cabinet.

## Key messages

There are a number of key messages that the stakeholder engagement and communication work undertaken has aimed to clearly and consistently convey, including the following.

- Bath & North East Somerset Council, as Lead Local Flood Authority, now has a responsibility to work with local partners to better manage local flooding.
- The Council's responsibility, and the focus of the Local Flood Risk Management Strategy, is on the management of local flooding. This includes flooding from surface runoff, groundwater and ordinary watercourses (small streams and rivers). The council will continue to work with the Environment Agency, who remain responsible for flooding from main rivers.
- It is not economically, technically, socially or environmentally feasible to wholly prevent flooding. However, we can reduce and mitigate the impacts of flooding through good planning and management and effective investment.
- Local communities have a key role to play and will themselves need to take action to help mitigate and manage local flood risk.

## Stage 1

### Development of a stakeholder engagement plan

At the start of the project, a stakeholder engagement plan was drawn up. This identified who would need to be consulted, how and when.

The stakeholder engagement plan recognised that successful delivery of the Local Flood Risk Management Strategy would require close working with a range of internal partners in various departments across the Council as well as with a number of key external partners. It also set out a consultation timeline, which was then evolved as the project progressed. The key activities mapped out in the timeline were:

- internal meetings with representatives from other Bath & North East Somerset Council departments;
- preparation of regular update sheets/newsletters which were distributed to stakeholders;
- a stakeholder workshop;
- a formal consultation, supported by publicity;
- iterative feedback, with the Local Flood Risk Management Strategy documents being updated to take account of comments raised, and;
- involvement of the Council's overview and scrutiny panel.

## Stage 2

### Set up of the Strategic Flood Board, Operational Flood Working Group and Local Flood Reps

At an early stage in the development of the Local Flood Risk Management Strategy the Council set up an overarching process of governance to apply to all of its duties as Lead Local Flood Authority.

A Strategic Flood Board was set up. This includes representatives from the Council, as well as the Environment Agency, Wessex Water, Bristol Water and the Canals and Rivers Trust. In addition, an Operational Flood Working Group has been set up. Going forwards this will discuss specific flooding or drainage issues with a view to coming up with practical measures to improve drainage or reduce flood risk. Both the Strategic Flood Board and the Operational Working Group have been involved in developing the Local Flood Risk Management Strategy from an early stage.

A network of Local Flood Representatives based in many of the Parishes has also been set up to act as an intermediary between the Council and the community and will feed information directly to the Operational Flood Working Group.

## Stage 3

### Stakeholder updates/briefing notes

At key stages throughout the project update sheets were prepared and circulated to key stakeholders. These gave information about the emerging objectives and the tasks undertaken and were also used to advertise the consultation.

## Stage 4

### Stakeholder workshop

The key phase of consultation focused around a stakeholder workshop. This was held on 17th June 2015. A wide range of stakeholders were invited to attend including:

- members of the Strategic Flood Board, Cabinet Members and Local Ward Councillors;
- representatives from Bath & North East Somerset Council as planning authority and highways authority and in relation to building control, emergency planning;
- Canals and River Trust;
- English Heritage;
- Environment Agency;
- Natural England;
- Wessex Water;
- Emergency Services (including Ambulance Civil Contingencies Unit, Avon Fire and Rescue and Avon and Somerset Constabulary);
- neighboring authorities (Bristol, Wiltshire, North Somerset and South Gloucestershire);

- residents associations;
- Town and Parish Councils;
- Chamber/s of Commerce;
- Network Rail;
- local bus and train operating companies;
- cycling groups (including Sustrans and Cycle Bath);
- river and flooding groups (including the Broadmead Lane Industrial Estate, Kennet and Avon Canal Trust, Chew Valley Flood Forum. River Corridor Group);
- wildlife and nature groups (including the Avon Wildlife Trust, Forest of Avon Trust, West of England Nature Partnership and RSPB);
- heritage groups (including Bath Preservation trust and Bath Heritage Watchdog);
- land owners, and;
- the Met office.

The session was attended by over 30 stakeholders from a wide cross section of backgrounds and disciplines.

The workshop comprised of a:

- briefing on the role of the Council as LLFA, the background and context for the Local Flood Risk Management Strategy and the Local Flood Risk Management Strategy objectives;
- more detailed presentation on the results of the Surface Water Management Plan (SWMP) and how these have been fed into the Local Flood Risk Management Strategy as well as on the Local Flood Risk Management Strategy Action Plan, and;
- break out session which gave attendees the opportunity to discuss the Local Flood Risk Management Strategy objectives and Action Plan in more detail.

A detailed summary of the workshop was produced and is available, on request, as a separate document. This documents all the comments and queries raised and shows how each has been responded to.

As a result of the workshop a number of changes were made to the emerging draft Local Flood Risk Management Strategy documents. The version that is currently out for consultation therefore incorporates these amendments. A summary of these amendments is presented below:

- The key feeling at the workshop was that raising awareness of flooding and of responsibilities for flooding was critical and that the Local Flood Risk Management Strategy should address this. The stakeholders felt strongly that encouraging individuals, communities and businesses to be aware of and manage their own flood risks was paramount, and that providing the right people with the right tools was key to doing this.

**Action taken** – The Local Flood Risk Management Strategy documents were amended to give greater emphasis to these issues.

- Stakeholders also expressed an opinion that the Local Flood Risk Management Strategy should reflect the stages of a flood – i.e. manage, plan, warn/respond.  
**Action taken** – a diagram was added to show how the Local Flood Risk Management Strategy objectives relate to the various stages of a flood.
- Stakeholders were keen to ensure that the Local Flood Risk Management Strategy took account of natural springs that can appear after heavy rain.  
**Action taken** – reference to this was added to the draft Local Flood Risk Management Strategy by outlining that flooding from natural springs would be considered as groundwater flooding.
- Stakeholders were keen to ensure that the Council continues to work in partnership with neighbouring authorities and that information should be freely shared between and within organisations.  
**Action taken** – actions about partnership working and sharing information have been added.

- The stakeholders felt that, at present, it is difficult to advise the public correctly about the actions to take when a flood occurs.  
**Action taken** – the Local Flood Risk Management Strategy now includes a section on who to report flooding to, and links to Environment Agency guidance (on the Gov.uk website) about preparing for a flood and what to do during a flood event.

- Stakeholders felt that maintenance and clearance works to culverts and watercourses should be prioritized.

**Action taken** – an action has been added.

- Stakeholders felt that the wording of an action ‘Support communities to manage their flood risks was misleading’

**Action taken** – this action has been rephrased for clarity.

- Stakeholders felt strongly that communities should be empowered to take control of local issues.

**Action taken** – action added.

## Stage 5

### Formal public consultation

The current consultation forms the 5th stage of engagement. The Local Flood Risk Management Strategy has been made available online and in libraries and one-stop-shops. A questionnaire is available on line, or via hard copy, to capture comments. When the consultation closes all the feedback will be reviewed and, where appropriate comments will be used to help shape the final version of the Local Flood Risk Management Strategy. This section of this Appendix will be updated at that stage and will document the key comments raised and the actions that have been taken in response.



# Appendix C

## Roles and responsibilities of Risk Management Authorities

# Contents

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## Introduction

The Risk Management Authorities identified under the Flood and Water Management Act 2010 (section 6, part 13) are:

- a Lead Local Flood Authority;
- the Environment Agency;
- a district council for an area for which there is no unitary authority;
- an internal drainage board;
- a water and sewerage company, and;
- a highway authority.

These organisations have a duty under the Flood and Water Management Act to act consistently with (or in the case of a water company to have regard to) the Local Flood Risk Management Strategy. They are required to co-operate with each other and share information in the exercise of their flood and coastal erosion risk management functions. They are also able to delegate flood and coastal erosion functions to each other by mutual consent (except for the Local Flood Risk Management Strategy which Bath & North East Somerset cannot delegate).

In the case of Bath & North East Somerset the Risk Management Authorities are:

- Bath & North East Somerset, as the Lead Local Flood Authority, Local Highways Authority, Local Planning Authority, and Emergency Planning Authority;
- the Environment Agency;
- Wessex Water;
- Bristol Water (noting that burst water mains are excluded from flooding in the Flood and Water Management Act), and;
- Highways England.

The Lead Local Flood Authority have established a number of working groups which enable partnership working with other organisations and

Risk Management Authorities. These include the Strategic Flood Board and Operational Flood Working Group, which hold regular meetings. The Strategic Flood Board provides oversight and partnership working for flood risk management in Bath and North East Somerset. The purpose of the Operational Flood Working Group is to discuss and agree ways to manage flood risk from local sources.

The Lead Local Flood Authority also attend meetings with the South West Flood Risk Managers and West of England Flood Risk Working Groups which aids communication with other Lead Local Flood Authorities in the South West of England.

## Powers and duties of Risk Management Authorities

Table C-1 provides an overview of the powers and duties of each Risk Management Authority, with respect to flood risk management.

**Table C-1** Roles, duties powers and responsibilities of Risk Management Authorities

Risk Management Authority	Overview of role	Duties, powers and responsibilities
Bath & North East Somerset Council , as Lead Local Flood Authority	Lead Local Flood Authority, responsible for managing and coordinating local flood risk management;	<p><b>Duties:</b></p> <ul style="list-style-type: none"> <li>• develop, maintain, apply and monitor a Local Flood Risk Management Strategy, which is consistent the national flood and coastal erosion management strategy;</li> <li>• act consistently with the Local Flood Risk Management Strategy and national flood and coastal erosion management strategy;</li> <li>• upon becoming aware of a flood, the Lead Local Flood Authority must, to the extent is considers necessary or appropriate, investigate which authority has flood risk management responsibilities and whether that authority has or is proposing to exercise those function;</li> <li>• co-operate with risk management authorities for the purposes of managing flood or coastal erosion risk;</li> <li>• maintain a register of structures or features which are considered to significantly affect flood risk;</li> <li>• responsible for consenting third party works on ordinary watercourses;</li> <li>• statutory consultee for surface water drainage proposals for major<sup>1</sup> planning applications, and;</li> <li>• contribute towards achievement of sustainable development;</li> </ul> <p><b>Powers:</b></p> <ul style="list-style-type: none"> <li>• to do works to manage flood risks from surface runoff and groundwater;</li> <li>• designate structures and features that affect flooding;</li> <li>• request information from any person with respect to flood and coastal erosion;</li> <li>• sanction persons who do not provide information following a request for information;</li> <li>• enforcement where works have been completed without a necessary consent for all districts/ boroughs, and;</li> <li>• enforcement to maintain a proper flow on ordinary watercourses.</li> </ul> <p><b>Other:</b></p> <ul style="list-style-type: none"> <li>• management and co-ordination of local flood risk, bringing together all relevant bodies to help manage local flood risk</li> </ul>

<sup>1</sup> Major development is defined as: a) Winning and working of mineral or the use of land for mineral working deposits, b) Waste development, c) The provision of dwellings where: i. The number of dwellings is 10 or more, ii. The site has an area of 0.5 hectares or greater, d) The provision of a building or buildings where the floor space to be created by the development is 1,000 square meters or more, or, e) A development carried out on a site having an area of 1 hectare or more. This is as defined in Article 2(1) of the Town and Country Planning (Development Management Procedure) (England) Order 2010.

**Table C-1** Roles, duties powers and responsibilities of Risk Management Authorities

Risk Management Authority	Overview of role	Duties, powers and responsibilities
Bath & North East Somerset Council, as the Local Highways Authority <sup>2</sup>	Responsible for highway drainage and roadside ditches	<p><b>Duties:</b></p> <ul style="list-style-type: none"> <li>responsible for the provision and management of highway drainage and roadside ditches under the Highways Act (1980). This excludes the roads that are the responsibility of the Highways Agency;</li> <li>contribute towards achievement of sustainable development, and;</li> <li>statutory consultee where a development proposal is likely to affect a local highway.</li> </ul>
Bath & North East Somerset Council, as the Local Planning Authority <sup>3</sup>	Responsible for plan making and decision taking for new development	<p><b>Duties:</b></p> <ul style="list-style-type: none"> <li>preparing a Local Plan for development;</li> <li>considering flood risk assessments submitted in support of applications, and;</li> <li>determination of planning applications, giving consideration for flood risk within the region.</li> </ul> <p><b>Other:</b></p> <ul style="list-style-type: none"> <li>working closely with the Drainage and Flooding team (who undertake most of the duties of the Lead Local Flood Authority) to ensure that planning applications take adequate account of drainage requirements.</li> </ul>
Bath & North East Somerset Council, as the Emergency Planning Authority	Prepare for, and respond to emergencies, including flooding	<p><b>Duties:</b></p> <ul style="list-style-type: none"> <li>assess the risk of emergencies occurring and use this to inform contingency planning;</li> <li>put in place emergency plans;</li> <li>put in place business continuity management arrangements;</li> <li>put in place arrangements to make information available to the public about civil protection matters and maintain arrangements to warn, inform and advise the public in the event of an emergency;</li> <li>share information with other local responders to enhance co-ordination;</li> <li>co-operate with other local responders to enhance co-ordination and efficiency, and;</li> <li>provide advice and assistance to businesses and voluntary organisations about business continuity management.<sup>4</sup></li> </ul>

<sup>2</sup> The Highways Agency have the same roles for runoff that is collected within the Highways Agency network

<sup>3</sup> This includes being the planning authority for minerals and waste

<sup>4</sup> From <https://www.gov.uk/preparation-and-planning-for-emergencies-responsibilities-of-responder-agencies-and-others>

**Table C-1** Roles, duties powers and responsibilities of Risk Management Authorities

Risk Management Authority	Overview of role	Duties, powers and responsibilities
The Environment Agency	Strategic overview of all sources of flood risk, and operational responsibility for flooding from Main Rivers, the Sea and Reservoirs	<p><b>Duties:</b></p> <ul style="list-style-type: none"> <li>• develop, maintain, apply and monitor a strategy for flood and coastal erosion risk management in England;</li> <li>• specific consultation body on the preparation of local plans;</li> <li>• statutory consultee for proposed developments in flood zones 2 and 3, and in areas with critical drainage problems in flood zone 1 where the Environment Agency has notified the local planning authority;</li> <li>• statutory consultee for work or operation conducted in the bed of, or within 20 meters of the top of a bank of a Main River.</li> <li>• responsible for consenting third party works on Main Rivers;</li> <li>• establish Regional Flood and Coastal Committees;</li> <li>• co-operate with risk management authorities for the purposes of managing flood or coastal erosion risk;</li> <li>• contribute towards achievement of sustainable development;</li> <li>• must report to the Minister about flood and coastal erosion risk management, and;</li> <li>• duty to be subject to scrutiny from Lead Local Flood Authority with respect to flood risk management functions.</li> </ul> <p><b>Powers:</b></p> <ul style="list-style-type: none"> <li>• designate structures and features that affect flooding;</li> <li>• request information from any person with respect to flood and coastal erosion;</li> <li>• sanction persons who do not provide information following a request for information;</li> <li>• manage flood risk from Main Rivers, the Sea and Reservoirs;</li> <li>• may make grants in respect of expenditure incurred or expected to be incurred in connection with flood or coastal erosion risk management in England;</li> <li>• may issue levies to the lead local flood authority for an area in respect of the Agency’s flood and coastal erosion risk management functions in that area, and;</li> <li>• arrange for a coastal erosion risk management function to be exercised on its behalf by a coast protection agency, Lead Local Flood Authority or Internal Drainage Board.</li> </ul> <p><b>Other:</b></p> <ul style="list-style-type: none"> <li>• provides fluvial and coastal flood warnings;</li> <li>• supports emergency responders when flooding occurs;</li> <li>• allocation of flood and coastal erosion risk management capital funding (Flood and Coastal Risk Management Grant in Aid<sup>5</sup>), and;</li> <li>• provides advice to local planning authorities in relation to development and flood risk.</li> </ul>

5 Formally known as Flood Defence Grant in Aid

**Table C-1** Roles, duties powers and responsibilities of Risk Management Authorities

Risk Management Authority	Overview of role	Duties, powers and responsibilities
Wessex Water	Responsible for draining foul water, and runoff from roof and yards	<p><b>Duties:</b></p> <ul style="list-style-type: none"> <li>• responsible for effectually draining foul water, and roof and yard runoff from their area;</li> <li>• duty to co-operate and may share information;</li> <li>• duty to be subject to scrutiny from Lead Local Flood Authority with respect to flood risk management functions;</li> <li>• adopt private sewers;</li> <li>• non-statutory consultee where a drainage proposal would interact with a public sewer, and;</li> <li>• need to have regard to the Local Flood Risk Management Strategy and the National Flood and Coastal Erosion Management Strategy.</li> </ul>
Bristol Water	Manage service reservoirs for which they are responsible	<p><b>Duties<sup>6</sup>:</b></p> <ul style="list-style-type: none"> <li>• responsible for managing service reservoirs under their ownership;</li> <li>• prepare on-site emergency plans for service reservoirs under their ownership;</li> <li>• duty to co-operate and may share information;</li> <li>• duty to be subject to scrutiny from Lead Local Flood Authority with respect to flood risk management functions, and;</li> <li>• need to have regard to the Local Flood Risk Management Strategy and the National Flood and Coastal Erosion Management Strategy.</li> </ul>

<sup>6</sup> Excluded burst water main flooding as this is not defined as a 'flood' in the Flood and Water Management Act (2010)



# Appendix D

## Location-specific action plan

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## Introduction

The regional Surface Water Management Plan is the most comprehensive source of information about location-specific actions. It contains at least one action for each of the wet-spots identified as being vulnerable to surface water flood risk based on historical flooding incidents and predicted flood risk. For the Local Flood Risk Management Strategy the location-specific action plan has been transposed from the Surface Water Management Plan because it is based on the most comprehensive and robust information available.

This location-specific action plan recommends measures to investigate, reduce or mitigate flood risk in Bath & North East Somerset, and developed so it can be delivered in a phased approach based on consideration of the frequency of flooding and vulnerability of receptors. In many locations the action plan recommends further investigation or survey in the first instance. This is necessary to fully understand flooding mechanisms and impacts prior to the development of flood mitigation schemes. This is a 'live' action plan which will be updated as measures are implemented or new information becomes available following further inspections or investigations. Its implementation will now form part of the Local Flood Risk Management Strategy as this is the overarching strategy for managing local flood risk in the region, and will be reviewed on an annual basis during preparation of the annual action plan.

A significant number of the wet-spots (42) identified in the Surface Water Management Plan had common actions around improvements to highway and/or land drainage, and have been grouped together in the Surface Water Management Plan and Local Flood Risk Management Strategy. For these wet-spots a five stage implementation plan was identified in the regional Surface Water Management Plan:

- monitor;
- check cyclic maintenance has been carried out;
- investigate performance of highway/land drainage system, identifying any maintenance or design requirements;
- carry out required maintenance or design and construct engineering scheme, and;
- implement continued maintenance programme.

In addition, a further 15 wet-spots identified in the regional Surface Water Management Plan have been assigned specific actions. In these wet-spots the actions are bespoke to each area, and range from inspection and investigation, through to scheme design and build. The following wet-spots have specific actions identified in the regional Surface Water Management Plan, and have been adopted for the Local Flood Risk Management Strategy:

- Bath City Centre;
- Batheaston and Bathford;
- Chew Magna;
- Chew Stoke;
- Clandown;
- West Harptree;
- Whitchurch;
- Keynsham;
- Lower Bristol Road;
- Timsbury;
- Midsomer Norton;
- Weston and Upper Weston;
- Weston Village;
- Weston Park, and;
- White Cross Farm (Bristol Road).

Across these wet-spots 21 specific actions have been identified. 17 of these actions are considered high priority in the regional Surface Water Management Plan, with a further four considered as medium priority.

The action plans are set out in subsequent tables. The column headings are listed below for reference:

- Wet-spot ID: to allow cross reference with the Interactive Flood History Maps;
- Location: providing location context;
- Driver: providing justification of the action;
- Action: an outline of the mitigation measure required;
- Implementation Plan: step by step plan of tasks required to complete the action, split into numbered phases (1-4);
- Plan Progress at April 2015: The step on the implementation plan that each action is at, at the time of publication of this report. This column will be updated by Bath & North East Somerset as actions progress;
- Action Owner: sets out which partner or stakeholder is responsible for implementing the actions;
- Action Supporter: sets out which partner or stakeholder will support the implementation of the action;
- Priority\*: sets out what order the actions should be undertaken.

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\* In the context of Priority, actions have been prioritised by considering frequency of flooding and vulnerability of receptors. There are four classifications of action priority:  
 High: indicating a recent flood events with a high frequency, affecting a more vulnerable receptor;  
 Medium: indicating high frequency flooding affecting less vulnerable receptors OR lower frequency flooding affecting more vulnerable receptors;  
 Low: indicating one off flood events affecting low vulnerability receptors;  
 Complete: indicating completed actions which have been added to include where work has already been undertaken, to avoid duplicating efforts and track progress.

## Location Specific Action Plan

<p>Wetspot ID: <b>DA02A</b> Location: <b>Chew Magna</b></p>	<p><b>Driver</b> Chew Magna suffers from significant flood risk. The local flood risk mechanisms are integrated with main river flooding. Investment has been made in PLP measures to reduce the damage caused by flooding in this area.</p> <p><b>Action</b> Maintenance of drainage assets to enable effective drainage and source control.</p> <p><b>Implementation Plan</b></p> <ol style="list-style-type: none"> <li>1. Asset inspection</li> <li>2. Undertake necessary maintenance</li> <li>3. Implement a continued asset maintenance programme</li> <li>4. Implement source control measures to reduce surface water runoff</li> </ol>	<p><b>Plan Progress at April 2015: 1</b></p> <p><b>Action Owner:</b> Lead Local Flood Authority</p> <p><b>Action Supporter:</b> Local Highway Authority</p> <p><b>Priority:</b> High</p>
<p>Wetspot ID: <b>DA02A</b> Location: <b>Chew Magna</b></p>	<p><b>Driver</b> Chew Magna suffers from significant flood risk. The local flood risk mechanisms are integrated with main river flooding. The Environment Agency has carried out extensive fluvial flood modelling for the catchment.</p> <p><b>Action</b> Monitor and record flood incidents and continue sharing of information between B&amp;NES and the Environment Agency</p> <p><b>Implementation Plan</b></p> <ol style="list-style-type: none"> <li>1. Monitor and record flood incidents</li> </ol>	<p><b>Plan Progress at April 2015: 1</b></p> <p><b>Action Owner:</b> Lead Local Flood Authority</p> <p><b>Action Supporter:</b> Environment Agency, Wessex Water</p> <p><b>Priority:</b> High</p>
<p>Wetspot ID: <b>DA02D</b> Location: <b>Chew Stoke</b></p>	<p><b>Driver</b> Properties on Wallycourt Road have experienced flooding from pluvial runoff.</p> <p><b>Action</b> Engineering scheme to improve capacity and conveyance route.</p> <p><b>Implementation Plan</b></p> <ol style="list-style-type: none"> <li>1. Implement drainage scheme</li> <li>2. Add upgraded highway gullies to Special Attention maintenance list</li> </ol>	<p><b>Plan Progress at April 2015: 2</b></p> <p><b>Action Owner:</b> Lead Local Flood Authority</p> <p><b>Action Supporter:</b> Local Highway Authority, Environment Agency</p> <p><b>Priority:</b> High</p>

**Location Specific Action Plan**

<p>Wetspot ID: <b>DA02D</b> Location: <b>Chew Stoke</b></p>	<p><b>Driver</b> Billie Close has experienced flooding from pluvial runoff. Curo (housing association managing properties) has made investment in Property Level Protection measures to reduce the damage caused by flooding in this area.</p> <p><b>Action</b> Property Level Protection to be installed</p> <p><b>Implementation Plan</b> 1. Curo (housing association) to install Property Level Protection for residents</p>	<p><b>Plan Progress at April 2015:</b> 1</p> <p><b>Action Owner:</b> Curo</p> <p><b>Action Supporter:</b> Lead Local Flood Authority</p> <p><b>Priority:</b> High</p>
<p>Wetspot ID: <b>DA03C</b> Location: <b>West Harptree</b></p>	<p><b>Driver</b> West Harptree has experienced flooding as a result of blocked highway gullies.</p> <p><b>Action</b> Maintenance of drainage assets to enable effective drainage.</p> <p><b>Implementation Plan</b> 1. Asset inspection: is the gully or pipework blocked 2. Undertake necessary maintenance 3. Implement a continued asset maintenance programme</p>	<p><b>Plan Progress at April 2015:</b> 1</p> <p><b>Action Owner:</b> Lead Local Flood Authority</p> <p><b>Action Supporter:</b> Local Highway Authority</p> <p><b>Priority:</b> High</p>
<p>Wetspot ID: <b>DA03C</b> Location: <b>West Harptree</b></p>	<p><b>Driver</b> West Harptree has experienced flooding as a result of surcharging surface water sewers and gullies.</p> <p><b>Action</b> Undertake scheme to improve capacity and conveyance of drainage system.</p> <p><b>Implementation Plan</b> 1. Engage community on potential scheme(s). 2. Implement drainage scheme. 3. Monitor performance of new systems.</p>	<p><b>Plan Progress at April 2015:</b> 2</p> <p><b>Action Owner:</b> Lead Local Flood Authority</p> <p><b>Action Supporter:</b> Local Highway Authority</p> <p><b>Priority:</b> High</p>

## Location Specific Action Plan

<p>Wetspot ID: <b>DA03C</b></p> <p>Location: <b>Ridge Lane and Cowleaze Lane, West Harptree</b></p>	<p><b>Driver</b> West Harptree has experienced flooding as a result of surcharging culverted watercourses and highway drains.</p> <p><b>Action</b> Undertake scheme to improve capacity and conveyance of drainage system.</p> <p><b>Implementation Plan</b></p> <ol style="list-style-type: none"> <li>1. Engage community and inform how they can contribute to managing flood risk.</li> <li>2. Source control measures are required to Ridge Lane and Cowleaze Lane</li> </ol>	<p><b>Plan Progress at April 2015:</b> 2</p> <p><b>Action Owner:</b> Lead Local Flood Authority</p> <p><b>Action Supporter:</b> Local Flood Reps, Wessex Water</p> <p><b>Priority:</b> High</p>
<p>Wetspot ID: <b>DA05A</b></p> <p>Location: <b>Whitchurch</b></p>	<p><b>Driver</b> Development is planned on the fringe of Whitchurch.</p> <p><b>Action</b> Upgrade Surface Water sewer system for the area.</p> <p><b>Implementation Plan</b></p> <ol style="list-style-type: none"> <li>1. Design a drainage scheme which will work within the current restrictions</li> </ol>	<p><b>Plan Progress at April 2015:</b> 1</p> <p><b>Action Owner:</b> Wessex Water, Developer</p> <p><b>Action Supporter:</b> Lead Local Flood Authority, Local Planning Authority</p> <p><b>Priority:</b> High</p>
<p>Wetspot ID: <b>DA05A</b></p> <p>Location: <b>Whitchurch</b></p>	<p><b>Driver</b> This area is defined as a Flood Risk Area and Bristol Lead Local Flood Authority is taking the lead on the Flood Risk Management Plan</p> <p><b>Action</b> Any proposed developments must consider the Flood Risk Management Plan for the area.</p> <p><b>Implementation Plan</b></p> <ol style="list-style-type: none"> <li>1. Inform developers of the Flood Risk status</li> </ol>	<p><b>Plan Progress at April 2015:</b> 1</p> <p><b>Action Owner:</b> Lead Local Flood Authority</p> <p><b>Action Supporter:</b> Bristol City Lead Local Flood Authority, Local Planning Authority</p>

**Location Specific Action Plan**

<p>Wetspot ID: <b>DA08B</b>                  Location: <b>Keynsham</b></p>	<p><b>Driver</b>                  East Keynsham (A4) has experienced flooding from a number of sources including fluvial interactions, pluvial runoff and highway gulley blockage.</p> <p><b>Action</b>                  Monitor future flood incidents in this area, if flooding continues to cause disruption, upgrade works to highway drainage may be required.</p> <p><b>Implementation Plan</b></p> <ol style="list-style-type: none"> <li>1. Monitor flooding at this location</li> <li>2. Understand the cause of flooding</li> <li>3. Assess the need for upgrade works to the drainage network</li> </ol>	<p><b>Plan Progress at April 2015:</b> 2</p> <p><b>Action Owner:</b> Lead Local Flood Authority</p> <p><b>Action Supporter:</b> Local Highway Authority, Environment Agency, Wessex Water</p> <p><b>Priority:</b> High</p>
<p>Wetspot ID: <b>DA10B</b>                  Location: <b>Timsbury</b></p>	<p><b>Driver</b>                  Bloomfield Road has experienced surface water flooding, particularly as a result of blocked highway gullies.</p> <p><b>Action</b>                  Maintenance of drainage assets to enable effective drainage.</p> <p><b>Implementation Plan</b></p> <ol style="list-style-type: none"> <li>1. Asset inspection: is the gulley or pipework blocked</li> <li>2. Undertake necessary maintenance</li> <li>3. Implement a continued asset maintenance programme</li> </ol>	<p><b>Plan Progress at April 2015:</b> 1</p> <p><b>Action Owner:</b> Local Highway Authority</p> <p><b>Action Supporter:</b> -</p> <p><b>Priority:</b> High</p>
<p>Wetspot ID: <b>DA11A</b>                  Location: <b>Midsomer Norton</b></p>	<p><b>Driver</b>                  Midsomer Norton has experienced flooding from a number of sources across the town.</p> <p><b>Action</b>                  Work with Environment Agency to better understand hydraulics and flood risk.</p> <p><b>Implementation Plan</b></p> <ol style="list-style-type: none"> <li>1. Undertake integrated hydraulic modelling</li> </ol>	<p><b>Plan Progress at April 2015:</b> 1</p> <p><b>Action Owner:</b> Lead Local Flood Authority</p> <p><b>Action Supporter:</b> Local Highway Authority, Environment Agency, Wessex Water</p> <p><b>Priority:</b> High</p>

**Location Specific Action Plan**Wetspot ID: **DA16A**Location: **Weston and Upper Weston****Driver**

Significant areas of development are planned on the fringes of Upper Weston and Weston.

**Action**

Manage the risk of exacerbating an existing surface water problem by considering drainage at master planning stage.

**Implementation Plan**

1. Establish the current status of the planning applications
2. Inform the developer of the wet-spot status
3. Design a drainage scheme which will work within the current restrictions

**Plan Progress at April 2015:** 1**Action Owner:** Lead Local Flood Authority, Developer**Action Supporter:** -**Priority:** HighWetspot ID: **DA16A**Location: **Weston Village****Driver**

This is a steep catchment. There is a potential flood risk stemming from maintenance of a culverted watercourse through the village.

**Action**

Undertake study of flooding issues and identify potential measures.

**Implementation Plan**

1. Engage local community
2. Commission study
3. Identify potential improvements
4. Identify funding opportunities

**Plan Progress at April 2015:** 1&2**Action Owner:** Lead Local Flood Authority**Action Supporter:** Wessex Water, Environment AgencyWetspot ID: **DA16D**Location: **Weston Park****Driver**

Weston Road has experienced flooding. The sources have not been well documented but includes highway gully blockage.

**Action**

Maintenance of drainage assets to enable effective drainage.

**Implementation Plan**

1. Asset inspection: is the gully or pipework blocked
2. Undertake necessary maintenance
3. Implement a continued asset maintenance programme

**Plan Progress at April 2015:** 3**Action Owner:** Lead Local Flood Authority**Action Supporter:** -**Priority:** High

**Location Specific Action Plan**

Wetspot ID: **DA16G**  
 Location: **Bath City Centre**

**Driver**

Bath City Centre has experienced flooding. The sources have not been well documented, however likely sources include fluvial, surface water / pluvial, groundwater and highway gully blockage.

**Action**

Continue to monitor flood incidents in this area, if flooding continues to cause disruption, upgrade works to highway drainage may be required.

**Implementation Plan**

1. Monitor flooding at this location
2. Understand the cause of flooding
3. Assess the need for upgrade works to the drainage network

**Plan Progress at April 2015: 1**

**Action Owner:** Lead Local Flood Authority

**Action Supporter:** Lead Local Flood Authority, Local Highway Authority, Environment Agency, Wessex Water

**Priority:** High

Wetspot ID: **DA16G**  
 Location: **Lower Bristol Road**

**Driver**

Surface water flooding and highway drainage issues known. Significant development and associated river Avon flood risk improvements planned.

**Action**

Ensure any development/ flood risk scheme appreciates surface water flood risk.

**Implementation Plan**

1. Ensure developer is aware of surface water flooding issues (and potential interaction with river Avon).

**Plan Progress at April 2015: 1**

**Action Owner:** B&NES Major projects

**Action Supporter:** Environment Agency, Lead Local Flood Authority



**Location Specific Action Plan**Wetspot ID: **DA02B**Location: **Chew Magna, Winford Road and Littleton Lane****Driver**

Winford Road has experienced flooding as a result of pluvial runoff and blockage on a highway structure. Investment has been made in PLP measures to reduce the damage caused by flooding in this area.

**Action**

The highway drainage assets require maintenance and an assessment of capacity.

**Implementation Plan**

1. Asset inspection: is the culvert blocked
2. Maintenance of culvert
3. Monitor future flooding incidents at this location
4. Assess the need for upgrade works to the drainage network

**Plan Progress at April 2015: 1**

**Action Owner:** Local Highway Authority

**Action Supporter:** Lead Local Flood Authority

**Priority:** Medium

Wetspot ID: **DA02C**Location: **Chew Stoke****Driver**

Chew Stoke has experienced surface water flooding, particularly from pluvial runoff. Investment has been made in PLP measures to reduce the damage caused by flooding in this area.

**Action**

Source control measures are required to mitigate the flood risk in this area.

**Implementation Plan**

1. Engage the community and inform how they can contribute to managing flood risk
2. Promote Wessex Water's save water scheme, providing discounts of the purchase of a water butt

**Plan Progress at April 2015: 1**

**Action Owner:** Bath & North East Somerset Council, Wessex Water

**Action Supporter:** Local Flood Representatives, Environment Agency

**Priority:** Medium

**Location Specific Action Plan**

Wetspot ID: **DA03B**  
 Location: **White Cross Farm**

**Driver**  
 Bristol Road has experienced flooding from blocked gullies and drainage ditches.

**Action**  
 Education of riparian owners on their rights and responsibility.

- Implementation Plan**
1. Engage the community and inform how they can contribute to managing flood risk
  2. Explain the importance of maintenance to ditches

**Plan Progress at April 2015: 1**  
**Action Owner:** Bath & North East Somerset Council

**Action Supporter:** Local Flood Representatives

**Priority:** Medium

Wetspot ID: **DA11C**  
 Location: **Clandown**

**Driver**  
 Springfield Place has experienced flooding from an ordinary watercourse.

**Action**  
 Education of riparian owners on their rights and responsibilities.

- Implementation Plan**
1. Engage the community and inform how they can contribute to managing flood risk
  2. Explain the importance of maintenance to ditches

**Plan Progress at April 2015: 1**  
**Action Owner:** Bath & North East Somerset Council

**Action Supporter:** Local Flood Representatives

**Priority:** Medium

# Appendix E

## Review of Funding Sources

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## Introduction

This section sets out the potential sources of funding available for flood risk management works in Bath and North East Somerset and has been split into a tiered approach as shown in Figure E-1 and described in the main Local Flood Risk Management Strategy document.

**Figure E-1** Options for funding of capital flood risk management works.



## Tier 1 – Dedicated Flood Risk Management Funding Sources

Funding from dedicated flood risk management sources will most likely make up the majority of the funding mix for delivering the Bath & North East Somerset Strategy measures, supported by other alternative sources. The following expands on current dedicated funding sources available for flood risk management purposes.

### Flood and Coastal Erosion Risk Management Grant in Aid

In relation to flood risk management, capital funding from Government is provided through Flood and Coastal Erosion Risk Management Grant-in-Aid<sup>1</sup>. This is provided by the Department for Environment, Food and Rural Affairs and administered and managed by the Environment Agency, although funding approvals are also subject to the consent of the relevant Regional Flood and Coastal Committee. Bath & North East Somerset Council falls within the Wessex Regional Flood and Coastal Committee and both Councillor Charles Gerrish and Councillor Brian Simmons sit on this committee. The Wessex Regional Flood and Coastal Committee area is shown here.

Flood and Coastal Erosion Risk Management Grant-in-Aid is available to projects relating to all sources of flooding, and has historically been the most important source of funding for flood risk management and coastal erosion schemes. Flood and Coastal Erosion Risk Management Grant-in-Aid is not used to fund studies that are not materially linked to a flood risk scheme (e.g. it will fund a Project Appraisal Report which can lead to the development of a scheme).

However, Flood and Coastal Erosion Risk Management Grant-in-Aid is unlikely to meet the full scheme costs in most cases (as outlined for the Bath Flood Risk Management Project). For the Bath Flood Risk Management Project a Flood and Coastal Erosion Risk Management Grant-in-Aid contribution of £0.6m for 2014/15 was made towards scheme costs (with a further £0.5m from Regional Flood and Coastal Committee Local Levy. This roughly equaled 12% of the scheme cost.

<sup>1</sup> This is formerly known as Flood Defence Grant in Aid

Detailed explanatory notes and a spreadsheet calculator tool are available to guide practitioners through the Flood and Coastal Erosion Risk Management Grant-in-Aid application process. Up to date information, including a full table of the outcome measures and benefits under each that will qualify for national funding is available at: <https://www.gov.uk/flood-and-coastal-defence-appraisal-of-projects>.

### Local Levy

Local Levy can be raised by Wessex Regional Flood and Coastal Committee by way of a levy precept on Bath & North East Somerset Council and other relevant local or unitary authorities. Local Levy funding can be used to support flood risk management projects that do not attract 100% national funding through Flood and Coastal Erosion Risk Management Grant-in-Aid, thus enabling locally important projects to be undertaken to reduce the risk of flooding within the RFCC area. Funds raised using this existing Regional Flood and Coastal Committee local levy will count as a local contribution in terms of the Flood and Coastal Erosion Risk Management Grant-in-Aid process, even though the levy is supported by funding through the Department of Communities and Local Government.

### Lead Local Flood Authority Grant for New Responsibilities

In December 2010 the Department for Environment, Food and Rural Affairs announced £21million worth of grants to provide additional funding specifically to support to councils with Lead Local Flood Authority status. This was in addition to existing Formula Grant arrangements, and was aimed to allow Lead Local Flood Authorities to perform new roles and duties under the Flood and Water Management Act and Flood Risk Regulations. In 2015/16 £37,000<sup>2</sup> was allocated to Bath & North East Somerset Council, but there is no certainty of funding from Central Government beyond 2015/16. Also, once allocated, these funds are not ring-fenced so in order to access them it is important to raise awareness of flood risk and keep it near the top of the local political agenda to ensure funding can be gained.

The Communities and Local Government Department published a New Burdens Assessment establishing the payment required to ensure that Lead Local Flood Authorities will have sufficient financial resources to meet the expectations of their new statutory consultee role on planning applications in relation to surface water drainage for major development, The Department for the Environment, Food and Rural Affairs have since provided funding to all Lead Local Flood Authorities for the first year (2015/16) of their new statutory consultee role and for one of costs to prepare IT, internal systems, train stakeholders, raise awareness and develop advice. A small contribution to fund the burden of providing technical advice and administration is also expected to be provided to Lead Local Flood Authorities for the first 3 years (up to 2017/18), but this has not yet been secured.

### One off grants

Government occasionally makes funding available through one-off grants and pilot projects. Working together, Risk Management Authorities within Bath & North East Somerset area should bear this in mind and be prepared to identify and apply for appropriate opportunities if and when they arise. Previous examples have included the Department for Environment, Food and Rural Affairs early action fund for surface water schemes in 2010, and the repair and renew grant following significant national flooding in 2013/14<sup>3</sup>.

<sup>2</sup> Further details are as outlined here.

<sup>3</sup> <https://www.gov.uk/government/publications/flooding-recovery-households-and-businesses-applying-for-the-repair-and-renew-grant-scheme>

## Tier 2 – Economic Growth and Beneficiaries funding sources

### Local Authority Revenue Funding

Local authorities have additional capital and revenue budgets which can be used to supplement investment in flood risk management. This is particularly relevant where measures or schemes, such as Sustainable Drainage Systems, can be identified which create multiple benefits across a number of Bath & North East Somerset Council's duties such as highways and public open space.

However, in the current economic times, there are budgetary constraints across Bath & North East Somerset Council area. This was highlighted in the Bath & North East Somerset Community Infrastructure Levy Funding Gap Evidence Paper<sup>4</sup> where it was identified that there is a total £234 million funding gap in order to deliver key and desirable infrastructure to support planned Core Strategy growth. This includes an estimated £6.8 million gap for the ongoing support of water and drainage infrastructure.

The two primary sources of income for Bath & North East Somerset are:

- council tax collected from local residents, and;
- settlement Funding Assessments which replaced Formula Grants. Each local authority's Settlement Funding Assessment is comprised of Revenue Support Grant and Baseline Funding Levels, which is their share of the local share of business rates<sup>5</sup>.

## Funding Sources Relating to Development and Regeneration

### Section 106 Agreements

Section 106 agreements can be used to support the provision of services and infrastructure, including flood risk management measures. The agreements provide a means to ensure that a proposed development contributes to the creation of a sustainable environment, particularly by securing contributions towards the provision of infrastructure and facilities. Between 2003 and 2013 £24.4m was collected in Bath & North East Somerset area through this method. Site viability is key to a developer's willingness to contribute to this type of agreement. The earlier any local flood risk management costs associated with a site are identified the better as developers can then factor these costs into the price of the land and make better informed decisions as to the overall viability of the site.

### Community Infrastructure Levy

The Community Infrastructure Levy is a 'tariff' style charge, which allows local authorities to charge developers to contribute to the cost of providing some of the infrastructure needed to support the development of the area where there is a demonstrable need and once this need has gone through a process of examination.

Bath & North East Somerset Council is consulting on the charging schedule for the implementation of a Community Infrastructure Levy as it has been identified that there is a funding gap to deliver Core Strategy growth for the area. Following the planned implementation of Community Infrastructure Levy in the Bath & North East Somerset area, Planning Obligations or Section 106 contributions will be replaced for many forms of infrastructure. However, Section 106 agreements will still be used for site-specific mitigation measures and for affordable housing provision.

<sup>4</sup> Available here

<sup>5</sup> <https://www.gov.uk/government/publications/breakdown-of-settlement-funding-assessment-final-local-government-finance-settlement-2015-to-2016>

Key to obtaining funding towards flood risk schemes from this source will be proactive infrastructure planning through the Infrastructure Delivery Plan process. This will provide a high level summary of anticipated major infrastructure funding requirements that the Council will be seeking to fund partially or fully through Community Infrastructure Levy. Schemes which are included in the Infrastructure Delivery Plan will be more likely to obtain Community Infrastructure Levy contributions.

### Local Enterprise Partnership Funding

Local Enterprise Partnerships have been set up to provide strategic leadership and set out local economic properties to help support the Government's Local Growth White Paper. The West of England (Local Enterprise) Partnership covers the Bath & North East Somerset area.

The roles of the Local Enterprise Partnership set out in the White Paper relating to funding include:

- working with Government to set out key investment priorities;
- coordinating approaches to leveraging funding from the private sector, and;
- coordinating proposals or bidding directly for the Regional Growth Fund (expanded in section 2.4).

In 2012 £11,579,541 was allocated to the West of England Partnership through the Growing Places Fund to tackle immediate infrastructure investment constraints. The main aim of this fund is to focus on housing and transport, but if for example solutions to reduce flood risk for homes are proposed these many be eligible.

From 2014 Local Enterprise Partnerships have been given responsibility for delivering part of the European Union Structural and Investment Fund, and the West of England Partnership has been allocated €68.6m to spend between 2014 and 2020. Guidance published in 2013 suggests that activities to support; innovation, research and technologic development; small businesses; employment; skills; social inclusion; or development of a low carbon economy are the main priorities of this fund. This could potential mean that if projects are correctly developed and targeted there could be funding available from

this source to support flood risk projects. However, as yet this has not been tested.

### Regional Growth Fund

The Regional Growth Fund is a £3.2 billion fund operating across England from 2011 to 2017, and aims to support eligible projects and programmes that are also raising private sector investment to create economic growth and sustainable employment. This funding source is unlikely to offer a realistic source of funding for local flood risk management schemes unless there are clear benefits to private business such as expansion and job growth through greater productivity or more available land.

### Private Beneficiary Funding

Funding can be levied from private sector beneficiaries of a flood risk management scheme in a number of ways, which are outlined below.

- Business rate supplement: Bath & North East Somerset Council has the power to levy a local Business Rate Supplement and to retain the proceeds for investment in that area. Proceeds must be spent on projects which contribute to the economic development of the local area.
- Business Improvement Districts: this is a defined area within which businesses pay an additional tax or fee in order to fund improvements within the council's boundaries. Flood risk management schemes could potentially access funding from this source if they could be demonstrated to provide specific benefits to businesses within the area.
- Direct Beneficiary Contributions: There are currently limited case study examples of beneficiary contributions from companies or corporate bodies. However, one such example is the Sandwich tidal flood defence scheme, where a private company provided significant funding towards the scheme .
- Utility providers may be willing to contribute towards a flood risk management scheme, if the applicant can demonstrate the long term benefits of flooding on their customer supply.



In addition, some corporate bodies may be persuaded to contribute to flood risk management measures. There are a number of ways to approach corporate giving. However, for every penny that they provide they need to see a clear commercial benefit be it in terms of marketing, promotion, training, or reduction in flood risk.

- Employee Volunteering: Brings in very little financial support but can provide good PR and will boost volunteer numbers.
- Sponsorship: Generally provides low level support, averaging around a few thousand pounds. It is normally used to raise the profile of the company in the local community so needs to be high profile.

## Tier 3 – Non Flood Risk Management Funding Sources

### European Union

European Union funding is a complex and specialist field. Some authorities have invested proactively in this area of fundraising and are experienced in obtaining funds through this route; for example Cornwall and the Isles of Scilly prepared a detailed evidence base to bid for Convergence status in 2005 and thereby gained access to funding through this European economic regeneration programme. Funding from the European Union generally needs to be for projects which are innovative. Applicants need to be in a partnership that includes at least four other projects spread across the European Union and they need to demonstrate the transference of learning across the areas.

Grants tend to be in the region of a few million pounds spread across all participants. The administrative burden on the main applicant can be considerable and needs to be considered when budgeting for European Union fundraising. Relevant funding sources to be investigated include the following:

- European Regional Development Fund;
- European Agricultural Fund for Rural Development, and;
- European Social Fund

The European Investment Bank has expressed a willingness to fund flood defence projects through loans at a competitive rate, but this is only generally provided for large scale multi million pound projects.

### Lottery

All the major lottery funding providers (Heritage Lottery Fund, Big Lottery, and Arts Council) have clear guidelines and funding streams. Each of these operates on slightly different timescales and has various specific requirements.

Grants ranging from a few hundred to several million (depending on the type and scale of project) are awarded to sport, heritage and community activities

and projects that make a positive contribution towards education, health and the environment in local communities. Flood risk management projects may be eligible if they can demonstrate that they do this, for example by improving social cohesion through volunteering to clean up local waterways. One example is Awards for All, which provides grants for projects that will help to improve the lives of individuals, boost creativity or encourage more people to get involved in local communities.

### Land management funding sources

Countryside Stewardship is a scheme under the European Union Common Agricultural Policy and provides incentives for land managers to look after their environment. From 2015 it was opened to all eligible farmers, woodland owners, foresters and other land managers.

Under this Countryside Stewardship, water capital grants are available for farmers and land managers in priority catchments, to fund infrastructure works to help reduce water pollution from agriculture. Through this initiative up to £10,000 per holding may be made available, but the scheme is competitive and applications will be scored and accepted subject to the budget available<sup>7</sup>. Applications are also only open for a limited period each year. Although this is targeted funding it may be a potential source of funding for local flood risk management where water quality improvement from agricultural land can also be demonstrated.

### Water Framework Directive Funding

If it can be demonstrated that local flood risk management projects can contribute towards ensuring ecological status of local waterbodies can be improved through measures to be implemented, then it may be possible to obtain funding from the Water Framework Directive. An example of this could be that through controlling soil erosion of land upstream in a catchment in an attempt to reduce local flood risk, sediment loads to a river are also controlled which would improve water quality and thus ecological status.

However, it should be noted that funding through the Water Framework Directive is assessed on a case by case basis and not guaranteed.

### Non-Government Organisations and Charitable Trusts

Many local flood risk management projects are on a fairly small, localised scale and may struggle to access, or attract funding from, sources outlined here. In these instances grants or donations from sources such as Non-Government Organisations or charities can provide an additional/alternative route for funding.

A Non-Government Organisation or charitable trust could consist, for example, of local residents with a common interest in protecting their town against flood risk to undertake necessary works such as implementation of Sustainable Drainage System measures to reduce surface water flooding, or ongoing maintenance of local flood defenses.

Another route that can be utilised to drive down operation & management costs is through the establishment of partnerships that take responsibility for schemes after their completion. Schemes with a particular wildlife interest could for example be packaged to attract the support of the local Wildlife Trust or the RSPB.

### Community Fundraising and Events

Community fundraising means raising money via a series of volunteer run events, sponsorship, and from established local groups. It is a time consuming way of raising small sums of money, but a great way to deliver community engagement and ownership which can in itself help a project to qualify for other sources of funding.

The connection for participant and donor needs to be immediate, obvious and usually selfless. In Cockermouth, Cumbria, the local community raised £215,000 towards the flood alleviation scheme, with contributions coming from local residents and businesses<sup>8</sup>.

<sup>7</sup> Further details are available at: <https://www.gov.uk/government/publications/guide-to-countryside-stewardship-water-capital-grants-2015/guide-to-countryside-stewardship-water-capital-grants-2015>

<sup>8</sup> <http://www.cumbriacrack.com/2013/03/18/cockermouth-flood-alleviation-scheme-funded-by-a-partnership-approach/>

## Public Appeals and Volunteering

Closely allied with community fundraising, public appeals tend to be cost heavy, but can generate reasonable returns if aimed at the right target audience.

The best public appeals tap into an established community need or awareness and can be run via the local media and the internet. A ‘friends of’ scheme is often a good way to get this type of mechanism kick-started. Well run, high quality volunteering actually costs money, but by incorporating structured volunteering opportunities the project increases its community engagement and develops a sense of ownership in both the problem and solution.

Volunteering can be used to bring in funding by counting as match funding. By enhancing a volunteer project with structured training funding can be obtained from back to work schemes and government initiatives to tackle the growing number of people not in education, employment or training.

## Trusts

There are thousands of grant making trusts across the country. Most, but not all, favour outcome led projects so this needs to be borne in mind when packaging up projects. Trusts are unlikely to fund large scale infrastructure projects, but they may want to fund a programme of education about the causes and prevention of flooding for example.

Potential trusts in Bath & North East Somerset who may be willing to provide sources of funding could include the National Trust, Canals and Rivers Trust, Primary Care Trust or Bath Preservation Trust. Although not technically a trust, Bath University may also be willing to provide support in the form of research for example, but this would need to be discussed based on individual project needs.

## Landfill Communities Fund

If the project site is within a certain distance of a landfill site funding can be sought from a range of landfill operators.

The Landfill Communities Fund (formerly the Landfill Tax Credit Scheme) enables landfill site operators to claim tax credit for contributions they make to approved environmental bodies for spending on projects that benefit the environment. The environmental bodies are those enrolled by Entrust, the regulatory body for the scheme. Further details are available at: <http://www.entrust.org.uk/landfill-community-fund>.



# Appendix F

## Glossary

### **Catchment Flood Management Plan**

A Catchment Flood Management Plan is a high-level strategic plan through which the Environment Agency seeks to work with other key-decision makers within a river catchment to identify and agree long-term policies for sustainable flood risk management.

### **Civil Contingencies Act (2004)**

Legislation that aims to deliver a single framework for civil protection in the United Kingdom and sets out the actions that need to be taken in the event of a flood

### **Climate Change**

A long-term change in the statistical distribution of weather patterns over periods of time that range from decades to millions of years. It may be a change in the average weather conditions or a change in the distribution of weather events with respect to an average, for example, greater or fewer extreme weather events. Climate change may be limited to a specific region, or may occur across the whole Earth.

### **Combined sewer**

A sewer through which surface and foul water passes.

### **Conservation of Habitats and Species Regulations (2010)**

An Act which transposed the Habitats Directive into United Kingdom law. The regulations aim to help maintain and enhance biodiversity throughout the European Union, by conserving natural habitats, flora and fauna. The main way it does this is by establishing a coherent network of protected areas and strict protection measures for particularly rare and threatened species.

### **Critical Infrastructure**

A term used to describe the assets that are essential for the functioning of a society and economy. Most commonly associated with the term are facilities for: electricity generation, transmission and distribution; gas production, transport and distribution; oil and oil products production, transport and distribution; telecommunication; water supply (drinking water, waste water/ sewage, stemming of surface water (e.g. dikes and sluices)); agriculture, food production and distribution; heating (e.g. natural gas, fuel oil, district heating); public health (hospitals, ambulances); transportation systems (fuel supply, railway network, airports, harbours, inland shipping); financial services (banking, clearing); and security services (police, military).

### **Elected Members**

Local councillors are elected by the Bath & North East Somerset community to decide how the council should carry out its various activities.

### **Flood**

Flooding is caused when land not normally covered by water becomes covered by water. A road or property can be flooded when:

- there is exceptional rainfall, which is greater than the capacity of drainage systems;
- drainage systems are not well maintained, or there are blockages/collapses in the drainage network;
- there is increased runoff from adjoining fields or hard standing areas, or
- a river or watercourse overflows

### **Flood and Water Management Act (2010)**

The Act brings together the recommendations of the Pitt report and previous policies, to improve the management of water resources and create a more comprehensive and risk based regime for managing the risk of flooding from all sources. The Act states that its purpose is to “make provision about water, including provision about the management of risks in connection with flooding and coastal erosion.”

**Flood Risk**

Flood risk is a combination of two components: the chance (or probability) of a particular flood event and the impact (or consequence) that the event would cause if it occurred

**Fluvial**

The processes associated with rivers and streams and the deposits and landforms created by them

**Flood Risk Regulations (2009)**

Transposes the European Commission Floods Directive (Directive 2007/60/EC on the assessment and management of flood risks) into domestic law and implements its provisions. The regulations outline the roles and responsibilities of the various authorities consistent with the Flood and Water Management Act (2010) and provide for the delivery of the outputs required by the directive. The Directive requires Member States to develop and update a series of tools for managing all sources of flood risk.

**Flood Zones**

Nationally consistent delineation of 'high' and 'medium' flood risk, published on a quarterly basis by the Environment Agency.

**Foul sewer**

A sewer that is designed to carry contaminated wastewater to a sewage works for treatment.

**Green belt**

Protected areas of reserved open land, mainly around large cities, for the purpose of preventing urban sprawl by keeping land permanently open. Policy CP8 of our Core Strategy, adopted in 2014, details our Green Belt policy.

**Groundwater flooding**

Groundwater flooding occurs where the water levels in rock and soil become high enough for the water to appear near to or above the ground surface. This may happen, for example, where there are underlying gravels, or porous or fractured rocks, allowing water to pass through

**Lead Local Flood Authority**

Lead Local Flood Authorities are county councils and unitary authorities. Under the Flood and Water Management Act (2010), Lead Local Flood Authorities are required to:

- Prepare and maintain a strategy for local flood risk management in their areas, coordinating views and activity with other local bodies and communities through public consultation and scrutiny, and delivery planning.
- Maintain a register of assets – these are physical features that have a significant effect on flooding in their area.
- Investigate significant local flooding incidents and publish the results of such investigations
- Consult on planning applications for major development.
- Issue consents for altering, removing or replacing certain structures or features on Ordinary Watercourses.
- Play a lead role in emergency planning and recovery after a flood event.

**Local Flood Risk**

Defined in the Flood and Water Management Act (2010) as flooding from surface water runoff, ordinary watercourses and groundwater

### **Local Flood Risk Management Strategy**

A strategy which must be completed by a Lead Local Flood Authority and must:

- Assess the local flood risk.
- Set out objectives for managing local flooding.
- List the costs and benefits of measures proposed to meet these objectives, and how the measures will be paid for.

### **Local Flood Representatives**

An individual nominated by their Parish Council or Federation of Bath Residents' Associations Group to liaise with Bath & North East Somerset Council's Drainage & Flooding team. They provide an important communication link between residents in the Parish and the Council and other Flood Risk Management stakeholders on issues of land drainage, surface water flooding, groundwater flooding and watercourse flooding.

### **Local Planning Authority**

Body that is responsible for controlling planning and development through the planning system.

### **Main River**

All watercourses shown on the statutory main river maps held by the Environment Agency and the Department for Environment, Food and Rural Affairs. This can include any structure or appliance for controlling or regulating the flow of water into, in or out of the channel. The Environment Agency has permissive power to carry out works of maintenance and improvement on these rivers.

### **National Planning Policy Framework**

Framework which sets out the Government's planning policies for England and how these are expected to be applied. It acts as guidance for local planning authorities and decision-takers, both in drawing up plans and making decisions about planning applications.

National Flood and Coastal Erosion Risk Management Strategy National strategy which provides the overarching framework for future action by all risk management authorities to tackle flooding and coastal erosion in England.

### **Operational Flood Working Group**

The purpose of the Operational Flood Working Group is to discuss and agree ways to manage flood risk from local sources. The Operational Flood Working Group will discuss specific flooding or drainage issues with a view to coming up with practical measures to improve drainage or reduce flood risk. The group consists of technical officers from the Drainage and Flooding team, the Environment Agency and Wessex Water, as well as other invited Council officers and Local Flood Representatives as required.

### **Ordinary Watercourse**

Any section of watercourse not designated as a Main River.

### **Our Partners**

Include: Risk Management Authorities, the West of England Local Enterprise Partnership, members of the Strategic Flood Board, Operational Flood Working Group, internal departments with Bath & North East Somerset Council, Elected Members, Local Communities and Local Flood Representatives.

### **Pluvial**

Flows that relate to or are characterised by rainfall.



**Preliminary Flood Risk Assessment**

High level screening exercise to identify areas of significant local flood risk from sources including surface water, groundwater, ordinary watercourses and manmade structures such as canals or sewers but excluding of main rivers.

**Return period**

The probability of a flood of a given magnitude occurring within any one year e.g. a 1% AEP (1 in 100 year) event has a 1 in 100 chance of occurring in any one year, or a 1% chance in any one year. However, a 1% AEP (1 in 100 year) event could occur twice or more within 100 years, or not at all.

**Riparian Owner**

All landowners whose property is adjoining to a body of water have the right to make reasonable use of it and suitably maintain it.

**Risk Management Authority**

Defined in the Flood and Water Management Act (2010), they all have some responsibility for managing flood risk

**Section 19 Investigations**

Flood investigations which must be undertaken by Lead Local Flood Authorities in accordance with Section 19 of the Flood and Water Management Act (2010).

**Sequential Test** Informed by a Strategic Flood Risk Assessment, a planning authority applies the Sequential Test to demonstrate that there are no reasonably available sites in areas with less risk of flooding that would be appropriate to the type of development or land use proposed.

**Sewer flooding** The consequence of sewer systems exceeding their capacity during a rainfall event.

**Strategic Flood Risk Assessment**

A Strategic Flood Risk Assessment is used as a tool by a planning authority to assess flood risk for spatial planning, producing development briefs, setting constraints, informing sustainability appraisals and identifying locations of emergency planning measures and requirements for flood risk assessments.

**Statutory Consultee**

An organisation who must provide a substantive response to the local planning authority, within a set deadline, prior to a decision being made on a planning application.

**Strategic Flood Board**

The Strategic Flood Board provides oversight and partnership working for flood risk management in Bath & North East Somerset. It includes representatives from Bath & North East Somerset, the Environment Agency, Wessex Water, Canal and Rivers Trust, Bristol Water, and Avon Fire and Rescue.

**Sustainable Drainage Systems**

Sustainable drainage systems are approaches that manage surface water by taking into account water quantity (flooding), water quality (pollution) and amenity issues.

**Surface water runoff**

Rainwater (including snow and other precipitation) which: is on the surface of the ground (whether or not it is moving); and has not entered a watercourse, draining system or public sewer.

**Surface Water Management Plan**

A Surface Water Management Plan (Surface Water Management Plan) is a framework through which key local partners work together to understand the causes of surface water, groundwater and/or ordinary watercourse flooding and agree the most cost effective way of managing that risk.

### **UK Climate Projections 2009**

UK Climate Projections 2009 (UKCP09) is a climate analysis tool, funded by the Department of Environment, Food and Rural Affairs, which features the most current comprehensive climate projections. Projections are broken down to a regional level across the UK and are shown in probabilistic form, illustrating the potential range of changes and the level of confidence in each predictions.

### **Updated Flood Map for Surface Water**

National surface water mapping produced by the Environment Agency to facilitate analysis of areas naturally vulnerable to surface water flooding

### **West of England Partnership**

A partnership group established comprising of Bristol, Bath & North East Somerset, North Somerset, and South Gloucestershire Councils, with the purpose of producing consistent Sustainable Drainage Systems guidance across the region

### **West of England Local Enterprise Partnership**

A partnership group set up to support business growth across Bristol, Bath & North East Somerset, North Somerset, Somerset County Council and South Gloucestershire. Includes: business organisations, local authorities, education and training organisations, Government departments and agencies.

### **Wet-spots**

Areas which are considered vulnerable to flooding from surface water, groundwater, and/ or Ordinary Watercourses (taken from the area-wide Surface Water Management Plan)



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# Summary of the Bath & North East Somerset Draft Local Flood Risk Management Strategy

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## Introduction

The management of flooding is an important issue across Bath & North East Somerset. Flooding can affect communities, businesses, the environment, and the economy. However, until recently there has been limited understanding about who is responsible for different types of flooding.

Under the Flood and Water Management Act (2010)<sup>1</sup>, Bath & North East Somerset Council has been designated as a Lead Local Flood Authority and is now responsible for managing flood risk from local sources including surface runoff, ordinary watercourses and groundwater. This is collectively known as local flood risk. This Lead Local Flood Authority role is in addition to the responsibility the Council already have to manage drainage from the highway network, act as the local planning authority, and act as the emergency planning authority. The majority of the functions of the Lead Local Flood Authority role are to be carried out by the Council's Drainage and Flooding Team who will act as the single point of contact on all local flood risk matters.

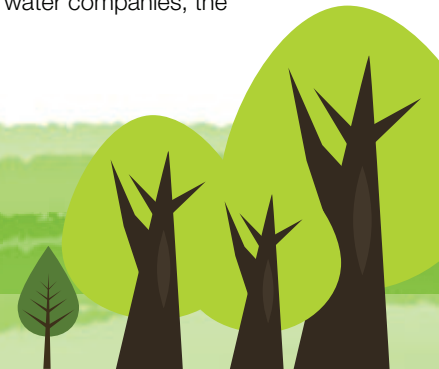
One of the primary responsibilities for the Lead Local Flood Authority under the Flood and Water Management Act is to produce a Local Flood Risk Management Strategy. The Local Flood Risk Management Strategy seeks to clarify roles and responsibilities for flood risk management, help inform all relevant authorities and communities about local flood risk, outline how it can be managed, and identify who is responsible for doing so. The Local Flood Risk Management Strategy also sets out the objectives for managing local flood risk, and identifies the key actions the Council will take to manage local flood risk. Flooding cannot be completely prevented, though its impacts can be reduced and managed through investment and good planning. Therefore, expectations about what can be done to manage local flood risk

should be managed to ensure communities are aware of what actions can be undertaken, and the timeframe for doing so.

Given Bath & North East Somerset's legislative responsibilities, the Local Flood Risk Management Strategy focuses on local flood risk. It also outlines the roles of other Risk Management Authorities<sup>2</sup> including the Environment Agency, Wessex Water, Highways England (formerly the Highways Agency) and Bristol Water. The Local Flood Risk Management Strategy identifies how the Council will work in partnership with these Risk Management Authorities. The responsibilities of Risk Management Authorities are summarised in Figure 1.

<sup>1</sup> Further details on the Flood and Water Management Act, 2010, are available at: <http://www.legislation.gov.uk/ukpga/2010/29/contents>

<sup>2</sup> Risk Management Authorities are defined in the Flood and Water Management Act as the Lead Local Flood Authority, the Environment Agency, water companies, the highways authority and internal drainage boards.



## Objectives of the Local Flood Risk Management Strategy

The purpose of the Bath & North East Somerset Local Flood Risk Management Strategy is to ensure:

- local flood risk is managed through a coordinated approach, and;
- that communities, businesses and individuals are more aware of the risks of flooding, understand who is responsible for dealing with flooding, and are clear about the actions they can take to manage the risk of flooding.

It is helpful to describe local flood risk management in Bath & North East Somerset in three phases, which are illustrated in Figure 2. The majority of actions arising from the Local Flood Risk Management Strategy are related to managing the risks of local flooding, although there are some actions to support the planning for, warning of, and response to, flooding. The warning and responding to flooding incidents is primarily undertaken by the emergency planning authority<sup>1</sup> with the support of the emergency services, including Bristol & Avon Fire and Rescue and the Police.

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<sup>1</sup> This role is undertaken by the Emergency Planning and Business Continuity department within Bath & North East Somerset Council.



**Figure 1** Organisations with responsibilities for flood risk management

Flood Source	Responsible Risk Management Authority				
	Environment Agency	Bath & North East Somerset Council	Bristol Water	Wessex Water	Highways England
Main River					
The Sea					
Surface Water					
Surface Water (on or coming from the highway)					
Sewer Flooding					
Ordinary Watercourse		✓			
Ground Water					
Reservoirs			✓		
Burst Water Main					





**Figure 2** Three phases of flood risk management in Bath & North East Somerset

Emergency response undertaken by the emergency planning authority and emergency service (Note: this is outside of the remit of the LFRMS)

### Warn and respond to flooding

- Promote community awareness and build capability for appropriate action (Objective 2)
- Improve flood preparedness, warning and ability to recover (Objective 5)

### Manage the risks

- Improve understanding of local flood risk (Objective 1)
- Promote community awareness and build capability for appropriate action (Objective 2)
- Manage local flood risk through capital and maintenance investment (Objective 3)
- Prevent inappropriate development that creates or increases flood risk (Objective 4)

### Plan for flooding

- Promote community awareness and build capability for appropriate action (Objective 2)
- Improve flood preparedness, warning and ability to recover (Objective 5)



A series of objectives have been defined to help structure and govern the implementation of the Local Flood Risk Management Strategy. These objectives are to:

1. improve understanding of local flood risk;
2. promote community awareness and build capability for appropriate action;
3. manage local flood risk through capital and maintenance investment;
4. prevent inappropriate development that creates or increases flood risk, and;
5. improve flood preparedness, warning and ability to recover.

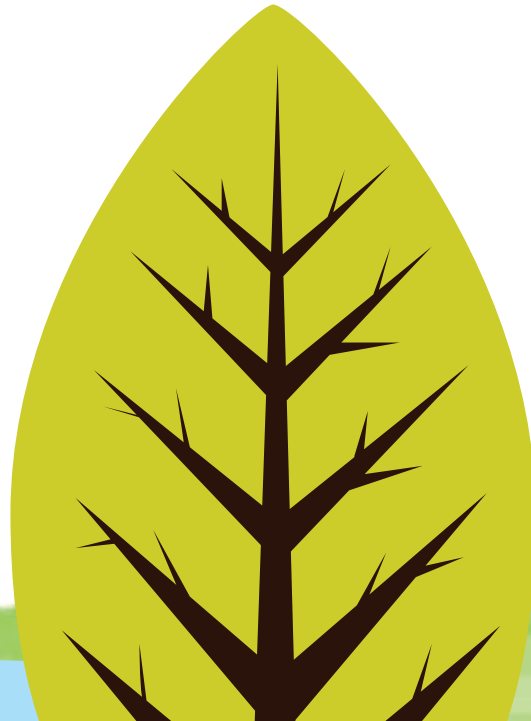
Figure 2 identifies how each of these objectives are linked to the three phases of flood risk management. Objective 2 is an over-arching objective which needs to be promoted during all phases of local flood risk management. It is vital that local communities are aware of local flood risks, know how to prepare and respond to flooding, are empowered to take ownership of local flood risk issues, and understand the roles and responsibilities of Risk Management Authorities.

## Partnership Working

A number of partnership groups have been established to help co-ordinate flood risk management in Bath & North East Somerset. These include the West of England Partnership Flood Risk Working Group, the South West Flood Risk Managers Group, the Strategic Flood Board and Operational Flood Working Group. These groups hold regular meetings, and have established lines of communication to facilitate partnership working.

It is critical to work with local communities through Local Flood Representatives. The Local Flood Representatives act as a point of contact between local communities and the Council's Drainage & Flooding Team. They provide an important communication link between residents, the Council, and other Risk Management Authorities.

All residents of Bath & North East Somerset have a role to play in helping to manage flooding. These roles include reporting flood incidents to the relevant Risk Management Authority, understanding the risks they face, ensuring property at risk has been adequately prepared for a flood incident, and helping to reduce the causes of flooding where possible (through clearance of watercourses, for example).



## Flood risk in Bath & North East Somerset

The regional Surface Water Management Plan has been used to inform the Local Flood Risk Management Strategy. Over 990 reports of recent and relevant flooding from 2009 to 2014 were collated and analysed. The recent and relevant flooding data were used to develop a Recorded Flood Incident Register and Interactive Maps of Local Flood Incidents to visualise the data. As demonstrated in Figure 3, recent and relevant flooding is widespread across the region. There are notable clusters of flooding in Bath, Keysham, Whitchurch, Chew Magna, Chew Stoke, West Harptree, Midsomer Norton and Radstock.

The Local Flood Risk Management Strategy also considers potential flood risk from a range of sources including surface runoff, ordinary watercourses, main rivers, highway drainage, reservoirs, sewers, and canals<sup>3</sup>. The regional Surface Water Management Plan identified nearly 750 residential properties estimated to be at risk of surface water flooding during a very severe rainfall event<sup>4</sup>, with 22 critical infrastructure<sup>5</sup> also being at risk. The Local Flood Risk Management Strategy has also identified how local flood risk may change across Bath & North East Somerset in the future. These include climate change, new development, and deterioration or blockage of assets which help to manage flood risk. For example, due to the impact of climate change the number of residential properties at risk of surface water flooding could increase by up to 90%, by 2085<sup>6</sup>.

3 It should be noted that it is not the Council's legal duty to investigate or assess flooding from main rivers, reservoirs, sewers or canals, but the interaction between local flood risk and these has been considered.

4 In this case this is defined as a rainfall event with a 1% chance of happening in any given year.

5 Critical infrastructure could include an educational building, health centre/ building, power station, sewerage or water facility, or building where vulnerable people are located, such as a shelters and nursing home.

6 Based on evidence in the regional Surface Water Management Plan

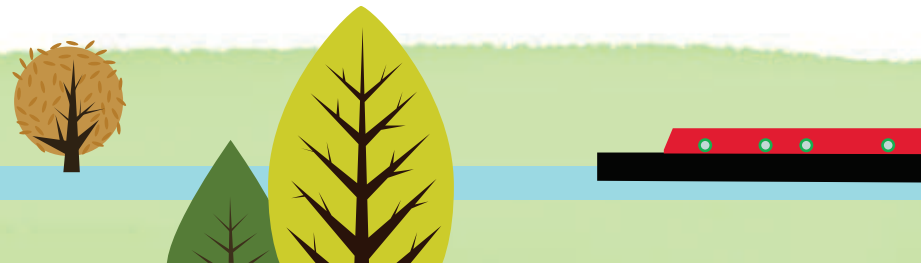
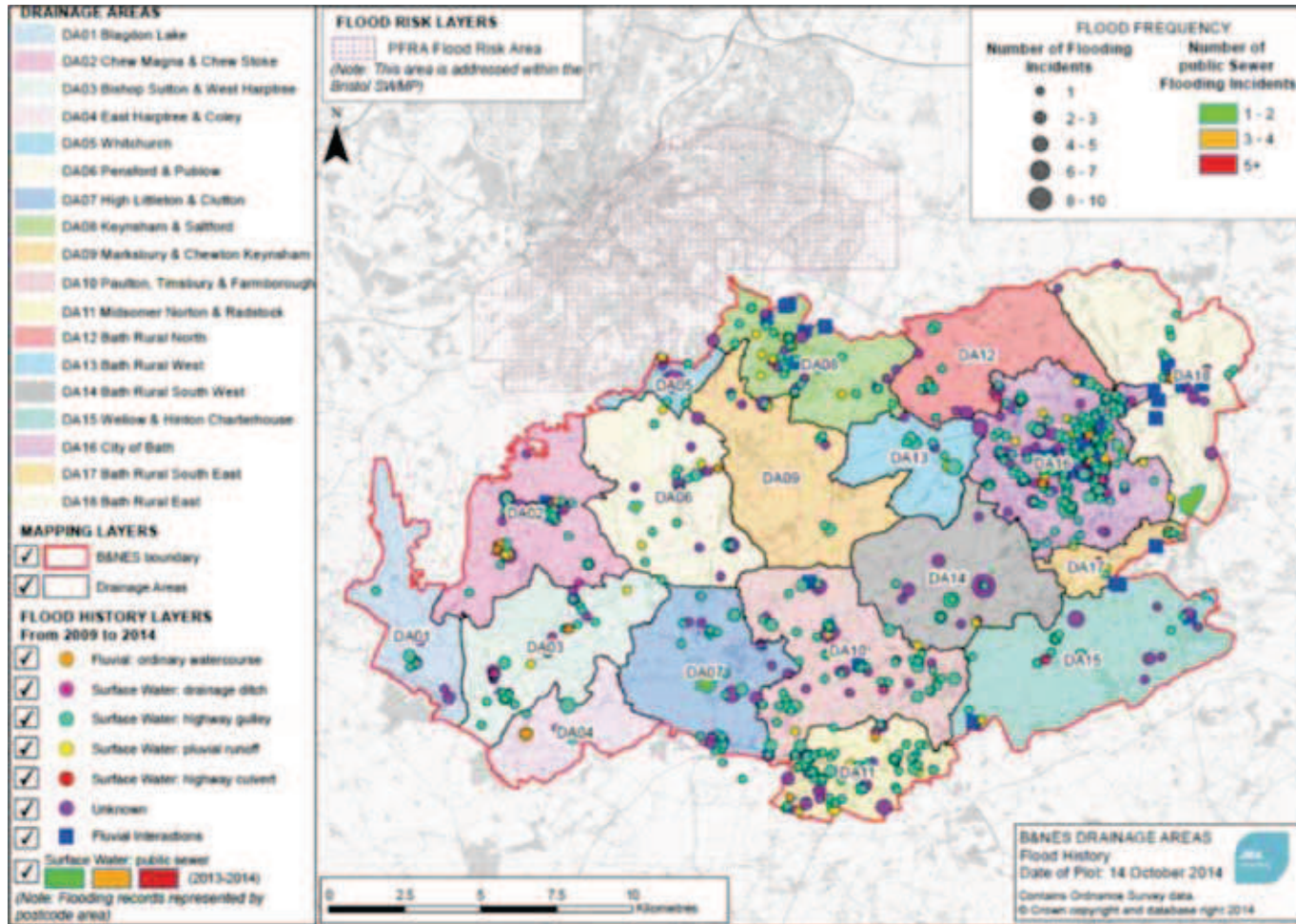
The areas most at risk of local flooding have been identified in the regional Surface Water Management Plan, and included within the Local Flood Risk Management Strategy. These are known as 'wet-spots'. These were derived from analysis of historical flood incident data. In total 53 individual wet-spots were identified. Please refer to the regional Surface Water Management Plan for further details.

## Actions to manage local flood risk

As part of the Local Flood Risk Management Strategy an over-arching action plan (the 'Strategy Action Plan') has been developed which sets out the measures the Council will take, in partnership with others, to manage local flood risk and achieve the objectives of the Local Flood Risk Management Strategy. The actions proposed as part of this Strategy Action Plan are outlined in Table 1. It should be noted that actions identified in grey have already been completed and those assigned with an asterisk are a statutory duty under the Flood and Water Management Act.



**Figure 3** Interactive Map of Local Flood Incidents in Bath & North East Somerset mapped as part of the regional Surface Water Management Plan and used to inform the Local Flood Risk Management Strategy



**Table 1 Strategy Action Plan**

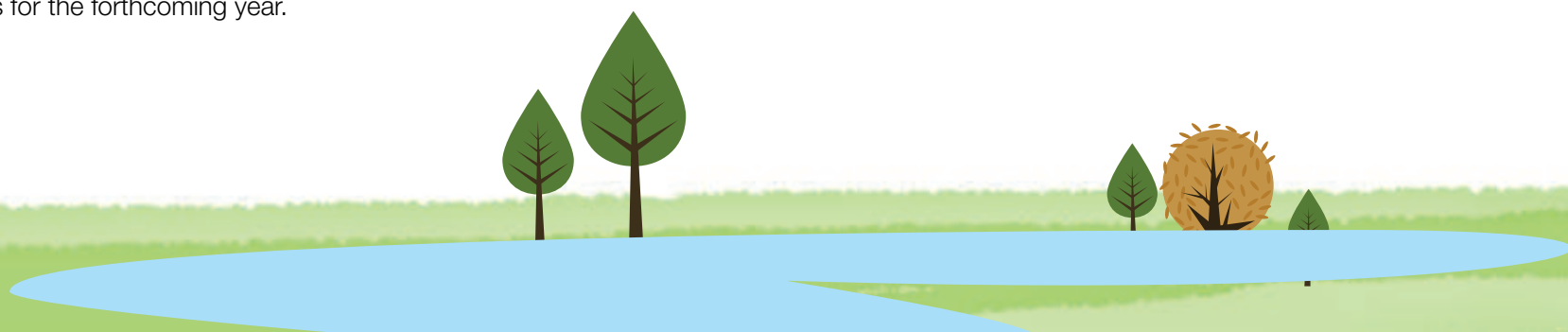
Phase of Local Flood Risk Management (See Figure 2)	Link to Objective	Action Title (including reference no.)
All phases	<p><b>Objective 2</b> Promote community awareness and build capability for appropriate action</p>	<p><b>2a</b> Establish clearer routes for communicating with communities and businesses about the roles and responsibilities for flood risk</p> <p><b>2b</b> Help communities understand their own flood risk and their responsibilities for managing flooding</p> <p><b>2c</b> Raise awareness of land drainage and riparian responsibilities</p> <p><b>2d</b> Develop a network of Local Flood Representatives to act as a point of contact in the community on flooding issues</p> <p><b>2e</b> Ensure communities know what to do in the event of a flood</p>
Manage the risks of local flooding	<p><b>Objective 1</b> Improve understanding of local flood risk</p>	<p><b>1a</b> Complete a regional Surface Water Management Plan</p> <p><b>1b</b> Continue to develop an updated flood reporting system</p> <p><b>1c</b> Improve the use of visual tools (e.g. GIS) to record and analyse flooding incidents</p> <p><b>1d</b> Continue to complete investigations of flood incidents, where the appropriate criteria is met*</p> <p><b>1e</b> Ensure that appropriate data on flooding is shared between organisations, and between organisations and communities</p>
	<p><b>Objective 3</b> Manage local flood risk through capital and maintenance investment</p>	<p><b>3a</b> Continue to work with partners, including adjacent authorities, to develop long term approaches to manage flood risk</p> <p><b>3b</b> Deliver the actions in the regional Surface Water Management Plan</p> <p><b>3c</b> Continue to develop a register of assets which significantly affect local flood risk*</p> <p><b>3d</b> Designate structures that effect local flood risk, to protect them from alteration or removal</p> <p><b>3e</b> Continue to assess applications for works on ordinary watercourses, through the land drainage consent process*</p> <p><b>3f</b> Identify catchments where improved land management could reduce flood risk and/or improve the wider environment</p> <p><b>3g</b> Identify critical highway drainage assets, in order to undertake targeted maintenance and respond to issues as the Local Highways Authority</p> <p><b>3h</b> Prioritise maintenance and clearance works to culverts and watercourses</p> <p><b>3i</b> Evaluate flood reports to identify where drainage improvements or other mitigation works are possible</p>



**Table 1** Strategy Action Plan

Phase of Local Flood Risk Management (See Figure 2)	Link to Objective	Action Title (including reference no.)
	<p><b>Objective 4</b> Prevent inappropriate development that creates or increases flood risk</p>	<p><b>4a</b> Continue to review planning applications to make recommendations for surface water drainage and managing flood risk*</p> <p><b>4b</b> Publish the West of England Sustainable Drainage Systems Guidance for developers, and work across the West of England to co-ordinate sustainable drainage system implementation</p> <p><b>4c</b> Include SuDS planning policy within the Council's Placemaking Plan/ Core Strategy</p> <p><b>4d</b> Continue to provide guidance at the pre-application stage on flooding issues</p> <p><b>4e</b> Consider the need for additional planning guidance on flooding specific to Bath &amp; North East Somerset</p> <p><b>4f</b> Identify areas that are sensitive to surface water flood risk and develop appropriate surface water drainage and flood risk requirements for any proposed development in these areas</p>
<p>Plan for flooding / Warn &amp; respond to flooding</p>	<p><b>Objective 5</b> Improve flood preparedness, warning and ability to recover</p>	<p><b>5a</b> Help develop a multi-agency flood plan for high risk areas in Bath &amp; North East Somerset</p> <p><b>5b</b> Communicate information to communities, businesses and individuals on flood preparedness and recovery</p> <p><b>5c</b> Promote uptake of the Environment Agency's Floodline Warnings Direct service</p> <p><b>5d</b> Improve warnings and proactive mitigation in response to predicted rainfall</p>

In addition, the regional Surface Water Management Plan has identified location specific actions for each wet-spot. These will be taken forward as part of the action plan, which will set out the actions the Council will take to manage local flood risk. The action plan will be updated annually to reflect progress, and any additional actions for the forthcoming year.



## How will the Council fund measures in the action plan

In most cases small drainage works can be funded from the Council's revenue and capital funding streams. However, the Council may also seek to secure other dedicated flood risk management funding from Government<sup>7</sup> where a project is of sufficient magnitude to justify additional funding or it is likely to qualify for funding.

Even with these funding sources in place there may still be a funding gap for some flood risk management projects. Where this is the case, other funding sources may need to be considered depending on the direct beneficiaries of investment, or the wider economic growth opportunities a flood risk management project could bring. Relevant funding sources could include, for example:

- West of England Local Enterprise Partnership where a scheme can directly contribute towards economic growth;
- Section 106 agreements can be used to support provision of infrastructure where they are directly related to development, necessary to make the development acceptable, and relevant to planning;
- Bath & North East Somerset Community Infrastructure Levy, and;
- Beneficiaries of the scheme (e.g. homeowners, businesses or utility providers).

The Council will engage with relevant organisations early to identify potential funding based on the benefits of flood risk management investment.

Wider, non-flood risk management funding sources may also need to be considered to contribute towards a project. To access these will require thinking about the wider benefits such as biodiversity, amenity, health/wellbeing, recreation, and education. Sources could include Lottery funding, money raised by the community, and from potential European Union funding sources.

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<sup>7</sup> This could include Flood and Coastal Erosion Risk Management Grant in Aid funding from Central Government, or funding from the Regional Flood and Coastal Committee



## Monitoring the Local Flood Risk Management Strategy

The Local Flood Risk Management Strategy will remain live for a 10 year period to 2025, after which it will be reviewed and updated where necessary. A mid-term update of the Local Flood Risk Management Strategy will take place after five years, in 2020, to check progress against the strategy objectives and update the document where required. The update of the Local Flood Risk Management Strategy in 2020 will be reviewed by the Flood Risk Scrutiny Panel.

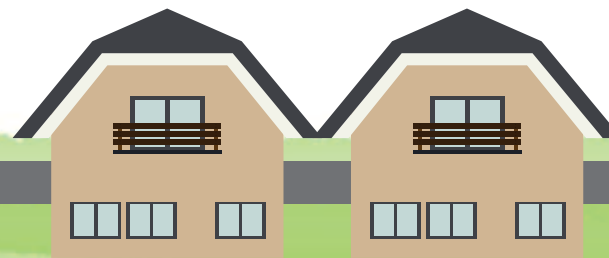
In the interim Bath & North East Somerset will monitor the progress of the Local Flood Risk Management Strategy on an annual basis through preparation of the annual action plan, which will be presented to, and agreed by, the Strategic Flood Board. The annual action plan will identify:

- progress against strategy objectives;
- whether actions have been delivered and can therefore be removed from the action plan;
- any changes to legislation or understanding of flood risk, and the implications of this, and;
- set the actions for the forthcoming year.

Prior to 2020, the Local Flood Risk Management Strategy will only be updated if the objectives are not being met, significant flooding occurs, there are significant updates to available data, there are regulatory changes which affect the roles and responsibilities, or there are changes to the funding landscape.

## Contact

For further information on how we are managing flood risk in Bath & North East Somerset please visit our website at <http://www.bathnes.gov.uk/services/environment/land-drainage>.







# Tackling flood risk together

Community involvement is vital for an effective flood risk strategy

Plans are being made for managing local flooding and your views can make a valuable contribution to the decision-making process

**F**looding can affect individuals, communities, businesses, the environment and the economy, which is why effective flood management is vital for the Bath and North East Somerset area. As part of the Council's commitment to taking action to reduce the risk and manage flooding, it is set to launch a new Local Flood Risk Management Strategy, with a draft version being published this autumn.

The Strategy is a first for the Council as part of its role as the Lead Local Flood Authority and deals with the management of flood risk and flooding from local sources – surface water, groundwater and small streams and ditches (known as ordinary watercourses). Responsibility for flooding from main rivers, including the River Avon and the River Chew, remains with the Environment Agency and water companies are responsible for dealing with sewer flooding.

## Joined up thinking

This important new document will help ensure a comprehensive and co-ordinated approach to local flood risk across the area for the next ten years and beyond. It gives greater insight into local flooding issues, considers how these may change, such as through urban development and climate change, and outlines what the Council and its partners need to do to tackle flood risk more effectively – now and in the future.

The Strategy explains the roles and responsibilities of those involved in managing flood risk, and aims to raise awareness of land drainage and the responsibilities of those who own land or property next to a river, stream or ditch (known as riparian responsibilities). It includes an assessment of current local flood risks, and outlines how the Council will guide new development to ensure that flood risk and drainage are fully considered and

that development which creates or increases flood risk is prevented.

It also incorporates an overarching action plan setting out the measures that will be taken by the Council and its partners to manage local flood risk and ensure that the Strategy's aims are achieved. These include promoting community awareness and building capability for action, such as by developing a network of local flood representatives to act as a point of contact in the community on flooding issues.



Do not drive through flood water

## How to help shape the Strategy

Your comments on the Strategy are a vital part of making local flood risk management as effective as possible. Here's how to get involved:

- You can read the Strategy document online, in One Stop Shops and in libraries, and you can give your views by completing an online feedback questionnaire or a paper version.
- Paper versions of the questionnaire are available at One Stop Shops and in libraries, and you can also hand them back there

Please give your feedback by **26 October 2015**



Review the Strategy and give your feedback at

[www.bathnes.gov.uk/consultations/](http://www.bathnes.gov.uk/consultations/)



Be prepared!

## Your views really matter

One of the aims of the Strategy is to ensure that communities, businesses and individuals are more aware of the risks of flooding, are clear about the steps they can take to manage flood risks and know what to do in the event of a flood.

With everyone affected, the Council wants local people to have their say. "We are very enthusiastic about local people being involved and their input will play a key role in helping to shape the new Local Flood Risk Management Strategy", said Jim Collings, the Council's Flood Authority Manager. "Part of the Strategy is to help local people help themselves by understanding their own risk from surface water run-off and flooding. We will also support local communities by working with them to create local flood plans. People's views and local knowledge can make a big difference to the final document, which is why it's so important to get feedback on the draft version from as many people as possible."

Public consultation on the Council's Local Flood Risk Management Strategy takes place throughout September and October.



Effective flood management is key

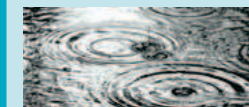
## Find out more



For more info about the Council's role and responsibilities as Lead Local Flood Authority and the Local Flood Risk Management Strategy, please visit the website [www.bathnes.gov.uk/services/environment/land-drainage](http://www.bathnes.gov.uk/services/environment/land-drainage)

## Winter is on the way: Are you ready?

Top tips for preparing and coping with floods



### BE PREPARED

Find your own flood risk by visiting the Environment Agency's website at [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk). You can also check live flood warnings, sign up for flood alerts and create your own personal flood plan.

Make sure you know where the water, gas and electricity isolation points are in your property so that you can act quickly if you need to.

Buy appropriate bags and sand from builders' merchants ready for making sandbags if you need them.

If you think your property is at risk, remove important documents and belongings and store them at a safe location.

### IF FLOODING STRIKES

Turn off utilities if flood water is about to enter your home, but don't touch electricity sources if you are standing in water.

Flood water can rise rapidly so move people and pets upstairs where there is a means of escape.

Do not drive through flood water on the highway

If you are in danger, call 999.

### USEFUL CONTACTS

Call Floodline for help and advice on 0345 988 1188.

To report flooding on roads or properties in your area, call the Council on 01225 394041 or email [councilconnect@bathnes.gov.uk](mailto:councilconnect@bathnes.gov.uk). For out of hours emergencies, call 01225 477477.

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**Bath and North East Somerset Council  
Surface Water Management Plan**

**Final Report**

**July 2015**

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## Revision History

Revision Ref / Date Issued	Amendments	Issued to
V1.0 23/10/2014	Draft Preliminary Report – Main SWMP sections only	Stella Davies
V2.0 15/04/2015	Draft report including all sections	Stella Davies / Jim McEwen
V3.0 22/06/2015	Final report including Strategic Flood Board Comments	Stella Davies
V3.1 15/07/2015	Final report incorporating B&NES final comments and amended section 9.0	Jim McEwen
V4.0 03/08/2015	Final amendments approved	Jim McEwen

## Contract

This report describes work commissioned by Stella Davies, on behalf of Bath and North East Somerset Council, by an email dated 07/05/2014. B&NES Council representatives for the contract were Stella Davies and Jim McEwen. Peter May, Lucy Nicholson, Georgina Willis and Jenny Hill of JBA Consulting carried out this work.

Prepared by ..... Gina Willis / Jenny Hill / Lucy Nicholson

Reviewed by ..... Peter May

## Purpose

This document has been prepared as an Area-wide Surface Water Management Plan for Bath and North East Somerset Council. JBA Consulting accepts no responsibility or liability for any use that is made of this document other than by the Client for the purposes for which it was originally commissioned and prepared.

## Acknowledgements

JBA would like to acknowledge and thank, Wessex Water, the Canal and River Trust the Environment Agency and Bath and North East Somerset Council for all their assistance during this project.

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# Executive Summary

Bath and North East Somerset (B&NES) Council has identified the need for an Area wide Surface Water Management Plan (SWMP) to be used as an overarching framework to assist with the identification and management of flood risk from local sources within the B&NES area boundary.

This report has been prepared in accordance with the Department for Environment Food and Rural Affairs (DEFRA) Surface Water Management Plan (SWMP) Technical Guidance<sup>2</sup> and forms the strategic stages of the SWMP process.

A Surface Water Management Plan is a study to understand the flood risk that arises from local flooding, which is defined by the Flood and Water Management Act 2010<sup>7</sup> as flooding from surface runoff, groundwater, and Ordinary Watercourses.

SWMPs are led by a partnership of flood risk management authorities (RMAs) who have responsibilities for aspects of local flooding, including the Council, Sewerage undertaker, Environment Agency and other relevant authorities.

The SWMP Technical Guidance outlines three levels of SWMP, Strategic Assessment, Intermediate Assessment and Detailed Assessment. This Area wide SWMP forms a Strategic Level Assessment.

The main aim of the SWMP is to produce a long term, area wide high level Action Plan to manage local sources of flooding within the Bath and North East Somerset area.

As part of this SWMP study, it has been essential to identify the links to other local and regional delivery plans which may influence or be influenced by the SWMP. The SWMP will seek to integrate and support these plans and processes to provide a clear and robust path to delivering flood risk management objectives throughout Bath and North East Somerset.

The Local Flood Risk Management Strategy (LFRMS) for the B&NES area is currently being prepared. The B&NES area wide SWMP will feed into the LFRMS by providing an improved understanding of the risk of flooding from local sources and from interactions with Main River flooding. The SWMP will be used as a basis for identifying priorities and affordability of measures which will be included in the Local Flood Risk Management Strategy.

Within the B&NES area, flood risk is managed by multiple agencies, including the Council, the Environment Agency and the Sewerage Undertaker, Wessex Water. Often surface water flooding is caused by multiple mechanisms, which fall under the jurisdiction of different agencies.

To fully understand flood risk in the B&NES area the SWMP has strived to collate all the available data related to flood incident records and modelled flood risk. This data has been collected from the RMA project partners. Understanding the uncertainty associated with flood data is an important part of the SWMP process, as decisions are made based on the findings. Flood incident data collected through the SWMP process has been scored according to its quality.

Source-Pathway-Receptor modelling has been applied and the data has been mapped to identify key flooding locations or 'wet-spots'. Using the flood incident data, an Action Plan has been drawn up which attributes specific project partners as owners of the action.

The B&NES area wide SWMP has also highlighted a number of drainage areas where further investigation is required to provide a better understanding of flood risk.

The Bath and North East Somerset Strategic Flood Board and Operational Flood Working Group, consisting of B&NES Council, the Environment Agency, Wessex Water, Bristol Water and the Emergency Services is well placed to lead on the delivery of the SWMP Action Plan. Co-ordination of the Action Plan requires action owners to ensure that the Plan is undertaken in a timely and cost effective manner and that the tables are 'live' documents which are updated when actions are complete and / or reviewed as and when new or more up to date information becomes available.

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## Abbreviations and Terms

<b>AONB</b> .....	Area of Outstanding Natural Beauty
<b>AStGWF</b> .....	Areas Susceptible to Groundwater Flooding
<b>AStSWF</b> .....	Areas Susceptible to Surface Water Flooding
<b>AutoFEH</b> .....	JBA automated generation of statistical flow estimates used in JFlow
<b>B&amp;NES</b> .....	Bath and North East Somerset
<b>BGS</b> .....	British Geological Society
<b>CAM</b> .....	Condition Assessment Manual
<b>CFMP</b> .....	Catchment Flood Management Plan
<b>CIL</b> .....	Community Infrastructure Levy
<b>DAP</b> .....	Drainage Area Plan
<b>DRN</b> .....	Digital River Network
<b>DTM</b> .....	Digital Terrain Model
<b>FRA</b> .....	Flood Risk Assessment
<b>FRIS</b> .....	Flood Reconnaissance Information System
<b>FRISM</b> .....	Flood Risk Metrics
<b>FMfSW</b> .....	Flood Map for Surface Water
<b>JFes</b> .....	JBA Flood Estimation System
<b>JFlush</b> .....	JBA tool to apply urban ReFH method
<b>JFlow</b> .....	JBA broad scale two dimensional flood modelling software
<b>LLFA</b> .....	Lead Local Flood Authority
<b>LFRMS</b> .....	Local Flood Risk Management Strategy
<b>NLPG</b> .....	National Land and Property Gazetteer
<b>NPPF</b> .....	National Planning Policy Framework
<b>NRD</b> .....	National Receptors Database
<b>ReFH</b> .....	Revitalised Flood Hydrograph method
<b>RFCC</b> .....	Regional Flood and Coastal Committee
<b>RMA</b> .....	Risk Management Authority
<b>SFRA</b> .....	Strategic Flood Risk Assessment
<b>SuDS</b> .....	Sustainable Drainage Systems
<b>SWMP</b> .....	Surface Water Management Plan
<b>uFMfSW</b> .....	updated Flood Map for Surface Water
<b>Exception Test</b> .....	A test applied under National Planning Policy in Flood Risk Assessment when it is not possible to the development to be located in areas with a low probability of flooding.
<b>Flood Risk</b> .....	A combination of the probability (likelihood) and consequences of flooding
<b>Flood Frequency</b> .....	There are several different terms which can be used to describe the likelihood and magnitude of flood events. All of these terms are based on probabilities derived from recorded flood records and the fact that larger, more frequent flood events occur less frequently than

smaller ones. The three main terms used within the Flood Risk Management industry are:

- Return period.....The average number of years between events of similar magnitude
- Chance of Occurrence.....The likelihood, expressed as odds, of a flood event of a particular magnitude occurring in any one year. e.g. there is a 1 in 100 chance of flooding in any one year; OR each year there is a 1 in 100 chance of flooding
- Annual Exceedance Probability (AEP)..... The chance of a flood greater than a certain magnitude happening in any one year, expressed as a %.

The table below shows how Return Period, Chance of Occurrence and % Annual Exceedance Probability relate to each other for three different magnitudes of flooding

Return Period	Chance of Occurrence	% Annual Exceedance Probability
2 year	1 in 2	50
30 year	1 in 30	3.33
75 year	1 in 75	1.33
100 year	1 in 100	1.0
1000 year	1 in 1000	0.1

### National Receptor

**Database** ..... A spatial dataset which contains information on land use, including types of buildings, transport and utilities.

**Pluvial Runoff** ..... Surface water runoff

**Riparian Owner** ..... The owner of the land which a watercourse flows through. The rights and responsibilities of riparian owners are detailed in the Environment Agency’s document “living on the Edge”

**Sequential Test** ..... Sequential approach applied under the National Planning Policy Framework to steer new development to areas with the lowest probability of flooding.

**Wet Spot** ..... Areas which include clusters of reported local flood incidents and are therefore considered vulnerable to flooding from Ordinary Watercourses, surface water or groundwater.

# 1 Introduction

## 1.1 Terms of Reference

Bath and North East Somerset Council (B&NES) has identified the need for an Area wide Surface Water Management Plan (SWMP) to be used as an overarching framework to assist with the identification and management of flood risk from surface water within the B&NES boundary.

JBA Consulting was appointed to produce the B&NES Area-wide SWMP in May 2014. This SWMP study forms the strategic stages of the SWMP process for the whole of the B&NES area as described in section 2 below.

## 1.2 Surface Water Management Plan

A Surface Water Management Plan is a study to understand the flood risk that arises from local flooding, which is defined by the Flood and Water Management Act 2010<sup>7</sup> as flooding from surface runoff, groundwater, and ordinary watercourses.

SWMPs are led by a partnership of Risk Management Authorities who have responsibilities for aspects of local flooding, including the Council, Sewerage undertaker, and other relevant authorities.

Table 1.1 lists the various flood risk management authorities and summarises their responsibilities

Table 1.1 Flood risk management authorities and their responsibilities

Flood Risk Management Authority	Responsibilities
The Environment Agency	Responsible for taking a strategic overview of the management of all sources of flooding and coastal erosion.  The Agency also has operational responsibility for managing the risk of flooding from Main Rivers, reservoirs, estuaries and the sea, as well as being a coastal erosion risk management authority
Lead Local Flood Authorities (Unitary Authorities or District Councils)	Responsible for developing, maintaining and applying a strategy for local flood risk management in their areas and for maintaining a register of flood risk assets.  LLFAs also have lead responsibility for managing the risk of flooding from surface water, groundwater and ordinary watercourses.
District Councils (None within the B&NES area)	Key partners in planning local flood risk management and can carry out flood risk management works on minor watercourses, working with Lead Local Flood Authorities and others, including through taking decisions on development in their area which ensure that risks are effectively managed. Districts and Unitary Councils in coastal areas also act as coastal erosion risk management authorities.
Internal Drainage Boards (None within the B&NES area)	Independent public bodies responsible for water level management in low lying areas, also play an important role in the areas they cover (approximately 10% of England at present), working in partnership with other authorities to actively manage and reduce the

	risk of flooding.
Highways Authorities	Responsible for providing and managing highway drainage and roadside ditches, and must ensure that road projects for not increase flood risk.
Water and Sewerage Companies	Responsible for managing the risks of flooding from water and foul or combined sewer systems providing drainage from buildings and yards.

Under the Flood and Water Management Act 2010 all Risk Management Authorities in the table above have a duty to co-operate with each other and to share data. A key theme of the Pitt Review was for flood risk management authorities to work in partnership to deliver flood risk management better to the benefit of their communities.

Within the study are Bath and North East Somerset Council, which is a Unitary Authority, fulfil the roles of Lead Local Flood Authority, District Council and Highways Authority. There are no Internal Drainage Boards within the B&NES area. The Water and Sewerage Companies are Bristol Water and Wessex Water. Wessex Water is a Water and Sewerage Company and Bristol Water is a Water Company operating within the Wessex Water Area.

The purpose of a SWMP is to identify what the local flood risk issues are, what options there may be to prevent them or limit the damage they cause and who should take these options forward. This is presented in an Action Plan which lists the partners who are responsible for taking the various options forward. The Action Plan, which will be reviewed periodically, is agreed by all project partners to tackle the flood risks that are identified.

The Local Flood Risk Management Strategy (LFRMS) for the B&NES area is currently being prepared. The B&NES area wide SWMP will feed into the LFRMS by providing an improved understanding of the risk of flooding from local sources and from interactions with Main River flooding. The SWMP prioritised Action Plan together with the LFRMS Action Plan will form an overarching flood risk management Action Plan for the B&NES area.

The framework for undertaking a SWMP study is illustrated using a wheel diagram, reproduced from the Defra guidance<sup>2</sup> as shown in Figure 1.1.



## 1.3 Surface Water Flooding

### 1.3.1 Surface Water

The SWMP technical guidance<sup>2</sup> states that surface water flooding includes:

- surface water runoff; runoff as a result of high intensity rainfall when water is ponding or flowing over the ground surface before it enters the underground drainage network or watercourse, or cannot enter it because the network is full to capacity, thus causing flooding (known as pluvial flooding);
- flooding from groundwater where groundwater is defined as all water which is below the surface of the ground and in direct contact with the ground or subsoil;
- sewer flooding; flooding which occurs when the capacity of underground systems is exceeded due to heavy rainfall, resulting in flooding inside and outside of buildings. Note that the normal discharge of sewers and drains through outfalls may be impeded by high water levels in receiving waters as a result of wet weather or tidal conditions;
- flooding from any Ordinary Watercourse not designated a "Main River", including culverted watercourses which receive most of their flow from inside an urban area and perform an urban drainage function;
- overland flows from the urban/rural fringe entering the built-up areas; and
- overland flows resulting from groundwater sources.

This SWMP aims to consider surface water flooding issues in the B&NES area. Section 6 of this report summarises local flood risk issues. However it should be noted that flood risk can arise from a number of different sources, and often flooding originates from a combination of flood mechanisms. Although Main River flooding will feature within section 6, further investigation of flooding from Main River only is outside of the remit of this report.

Information on Main River flooding within the B&NES area is covered under other strategic planning documents such as the Strategic Flood Risk Assessment Level 1 for Bath and North East Somerset<sup>9</sup>.

## 1.4 Policy Framework

Guidance on the preparation of Surface Water Management Plans was prepared by Defra in 2010<sup>2</sup>. Since the publication of this guidance the following institutional policy and responses have been influential:

- The Flood and Water Management Act 2010<sup>7</sup>
- The Preliminary Flood Risk Assessment (PFRA) Guidance, 2011<sup>6</sup>
- The introduction of Resilience Partnership Funding, 2011
- The updated Flood Map for Surface Water (uFMfSW), 2013
- The National Planning Policy Framework (NPPF), 2012<sup>4</sup>
- The web-based Planning Practice Guidance on Flood Risk and Coastal Management, March 2014.

In addition to these National documents, the following local documents are also taken into consideration during this SWMP:

- Avon Catchment Flood Management Plan (CFMP), June 2012<sup>15, 16</sup>
- The Severn District River Basin Management Plan, 2009
- B&NES Level 1 and Level 2 Strategic Flood Risk Assessments (SFRA), 2008 – 2009<sup>9-12</sup>
- B&NES Flood Risk Management Strategy, June 2010<sup>14</sup>
- B&NES Preliminary Flood Risk Assessment (PFRA), 2011<sup>18</sup>
- Section 19 Investigation Reports (various dates)



#### 1.4.1 Flood Risk Regulations 2009

The Flood Risk Regulations 2009 (FRR) transpose the European Floods Directive 2007/60EC into English and Welsh law and bring together key partners to manage flood risk from all sources and in doing so reduce the consequences of flooding on key receptors. Local Authorities are assigned responsibility for management of surface water flooding.

As part of the ongoing cycle of assessments, mapping and planning, the FRR requires the undertaking of a PFRA. National guidance was published by the Environment Agency in 2011.

#### 1.4.2 Flood and Water Management Act 2010

The Flood and Water Management Act places the responsibility for managing the risk of local floods on the Upper Tier or Unitary Authorities, in their role as Lead Local Flood Authorities (LLFAs), but allows for the delegation of Flood Risk Management functions to other Statutory Authorities.

The Act also seeks to encourage the uptake of Sustainable Drainage Systems (SuDS) by agreeing new approaches to the management of drainage systems and allowing, where delegated, for District Councils and Internal Drainage Boards (IDBs) to adopt SuDS for new developments and redevelopments.

##### Sustainable Drainage Systems (SuDS)

Sustainable Drainage Systems are used to manage rainfall runoff from impermeable surfaces. SuDS encompass a range of techniques which aim to mimic the natural processes of runoff and infiltration as closely as possible. These techniques can include green roofs, permeable paving, soakaways swales and ponds. Any SuDS scheme should integrate with existing drainage systems and be easily maintainable. SuDS schemes should be based on a hierarchy of methods termed “the SuDS treatment train”. Guidance recommends that the management of surface water should use a combination of site specific and strategic SuDS measures, encouraging source control where possible to reduce flood risk and improve water quality.

#### 1.4.3 National Planning Policy Framework

The National Planning Policy Framework and associated Technical Guidance require that new development should not increase flood risk and requires developers to prioritise the use of sustainable surface water drainage systems (SuDS).

The National Planning Policy Framework states that “When determining planning applications, local planning authorities should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding where, informed by a site-specific flood risk assessment, following the Sequential Test, and if required the Exception Test it can be demonstrated that:

- Within the site, the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location; and
- Development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed, including by emergency planning; and it gives priority to the use of sustainable drainage systems”.

A SWMP will support this by informing the Local Planning Authority (LPA) of areas at risk of surface water flooding and by providing an evidence base to aid the consideration of future development options.

#### 1.4.4 Local Planning Policy Framework

The current Planning Policy Framework for the B&NES area stated that applications for planning permission must be determined in accordance with the development plan unless material considerations indicate otherwise. This gives considerable weight to Development Plan documents

The Development Plan for Bath and North East Somerset comprises:

- Bath and North East Somerset Adopted Core Strategy – Core policies include CP5 Flood Risk Management which states that “Development in the district will follow a sequential approach to flood risk management, avoiding inappropriate development in areas at risk

from flooding and directing development away from areas at highest risk in line with Government Policy (NPPF). Any development in areas at risk of flooding will be expected to be made safe throughout its lifetime, by incorporating mitigation measures, which may take the form of on-site flood defence works and / or a contribution towards or a commitment to undertake such off-site measures as may be necessary. All development will be expected to incorporate sustainable drainage systems to reduce surface water run-off and minimise its contribution to flood risks elsewhere. All development should be informed by the information and recommendations of the B&NES Strategic Flood Risk Assessments and Flood Risk Management Strategy.

- Saved Policies from the Bath and North East Somerset Local Plan (2007)
- West of England joint Waste Core Strategy (2011)

### Placemaking Plan

The purpose of the placemaking<sup>19</sup> plan is to complement the strategic framework in the Core Strategy by setting out detailed development principles for identified development sites and other policies for managing development across Bath and North East Somerset.

The Core Strategy forms Part One of the Local Plan and the Placemaking Plan forms Part Two of the Local Plan.

The Bath and North East Somerset Placemaking Plan<sup>19</sup> Sustainable Drainage Systems Policy, SU.1 links with the Core Strategy Key Policy CP5 Flood Risk Management and CP7 Green Infrastructure and requires that all sites are expected to incorporate sustainable drainage systems to reduce surface water runoff and minimise its contribution to flooding.

In addition, there are site specific requirements for the Core Strategy Strategic Sites allocations and for the site allocations proposed within the Placemaking Plan.

The aims of the Placemaking Plan Sustainable Drainage System Policy are to:

- Set out the high level principles for drainage designs incorporating SuDS features and the SuDS hierarchy that will be used in the B&NES area.
- Provide a basis for the incorporation of SuDS in development schemes through the planning system, ensuring that SuDS features are considered at an early stage and incorporated into a scheme design.
- Identify key considerations and requirements for developers which should be addressed via development management.

### West of England Sustainable Drainage Developers Guide

The West of England Sustainable Drainage Developers Guide (available on the B&NES Council website) provides information for developers, planners, designers and consultants on the requirements for design, approval and adoption of SuDS in the West of England and Somerset. The guidance provides information on the planning, design and delivery of attractive, high quality and well integrated SuDS schemes, promotes the need for early consideration of SuDS, and introduces the use of a “proof of concept” process to gain agreement in principle at an early stage from the approving authority

## 1.5 Drivers for Change

Bath & North East Somerset Council are undertaking this SWMP in order to:

Better understand the risks and consequences of surface water flooding in Bath and North East Somerset so this can be shared and used as part of an evidence base for Local Development Frameworks and the Local Flood Risk Management Strategy;

To assist in meeting some of the requirements on B&NES Council as Lead Local Flood Authority under the Flood Risk Regulations 2009 and the Flood and Water Management Act 2010.

The implementation of the SWMP and Action Plan can help to provide significant economic and environmental benefits to the community through better preparation against extreme rainfall events and surface water flooding. The SWMP process also allows the opportunity to enhance the condition of urbanised catchments helping to improve water quality.

## 2 Scope of the Bath and North East Somerset SWMP

### 2.1 Aims and Objectives

The main aim of the SWMP is to produce a long term, area wide high level plan to manage surface water for Bath and North East Somerset Council. The SWMP will be used as a basis for identifying priorities and affordability of measures which will be included in the Local Flood Risk Management Strategy.

The main objectives of this assessment are to:

1. Engage with partners and stakeholders;
2. Collect, collate and map all available flood data and its availability for future use, including an assessment of the reliability of the data
3. Identify, where possible from the available data, flood-prone areas to inform spatial and emergency planning functions
4. Identify areas where flood risk originates from a combination of sources
5. Prepare a source-pathway-receptor model for all the risks and sources that have been identified in objective 3 and 4
6. Identify locations where there may be opportunities for 'quick wins' without the need for further more detailed analysis
7. Provide data which will support the development of a Local Flood Risk Management Strategy
8. Identify any proposed or allocated developments within the study area and the likely impact on flood risk that they may have
9. Identify opportunities for SuDS and WSUD (Water Sensitive Urban Design)
10. Make recommendations for the next steps

### 2.2 Geographic Extent

This SWMP has been undertaken for the whole of the Bath and North East Somerset area as shown in Figure 2.1.

Bath and North East Somerset covers an area of approximately 35,000 hectares and includes the urban centres of Bath, Keynsham, Midsomer Norton and Radstock as well as numerous villages and hamlets spread across 49 rural parishes.

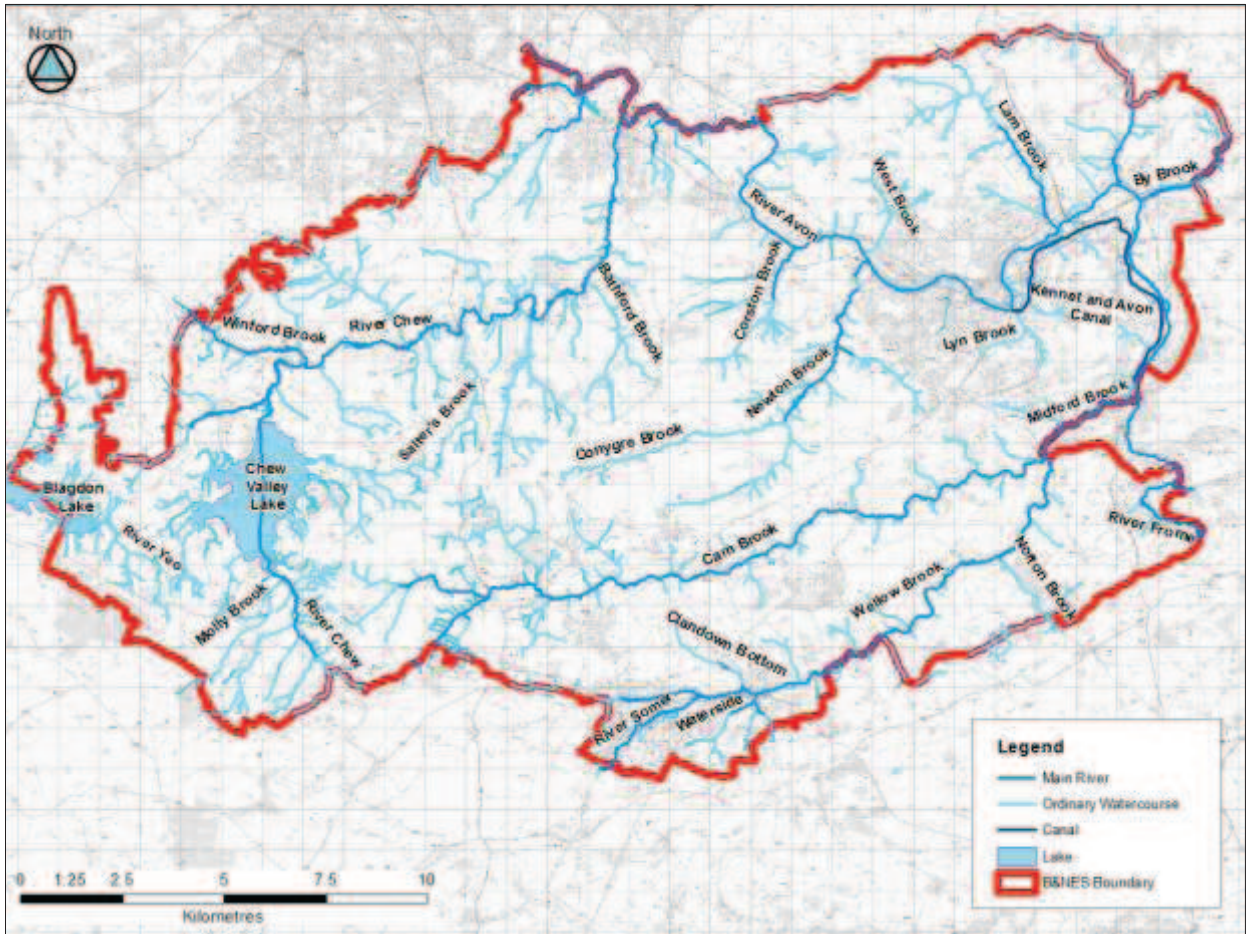


Figure 2.1: Bath and North East Somerset Area

## 3 Partnership Engagement

### 3.1 Partnership Working

The formation of partnerships has an important role in the undertaking of a SWMP, and is required under Defra's SWMP technical guidance. This guidance gives details of those partners and/or organisations which should be involved and what their roles and responsibilities should be. The following sections describe the partners involved in the B&NES area wide SWMP, their roles and responsibilities.

Within the B&NES area, flood risk is managed by multiple agencies, including the Council, the Environment Agency and the Sewerage Undertaker, Wessex Water. Often surface water flooding is caused by multiple mechanisms, which fall under the jurisdiction of different agencies. Therefore, a holistic approach is required to solve a flooding issue. As such, partnership working is a key emphasis in the B&NES SWMP process.

To fully understand flood risk in the B&NES area the SWMP has strived to collate all the available data related to flood incident records and modelled flood risk. This data has been collected from the project partners. Data collection and collation is discussed further in Section 5 of this report.

Using the flood incident data, an Action Plan has been drawn up which attributes specific project partners as owners of the action. Again, the importance of partner engagement is crucial here so that agreed actions are followed through to completion. The Action Plan is discussed further in Section 8 of this report.

The partnership approach embodied by the Strategic Flood Board and the Operational Flood Working Group, also enables effective resource allocation and efficiencies to be achieved by sharing common duties between co-operating agencies.

### 3.2 Partnership Approach

For the purpose of this project, partners are defined as organisations with responsibility for the decision that needs to be taken to manage flood risk. The partners involved in the B&NES SWMP are listed in Table 3.1.

Table 3.1 Partners involved in the SWMP process

Organisation	Representative(s)
Bath and North East Somerset Council	Stella Davies, Alison Szajdzicka, Jim McEwen, Jim Collings and Daniel Parr
Environment Agency	Nigel Smith, Jody Grabham and Tracy Walton
Wessex Water	Dave Ogborne

The project partners have supplied the data to inform this SWMP and have been identified as action owners in the SWMP Action Plan where appropriate.

### 3.3 Stakeholders

In addition, we have involved some key stakeholders in the SWMP. These parties are not responsible for managing flood risk but do hold information useful to the SWMP process. These stakeholders are listed in Table 3.2.

Table 3.2 Stakeholders involved in the SWMP process

Organisation	Representative
Canal and River Trust	John Kearsey

### 3.4 Data Sharing and Licensing

A number of specific agreements have been put in place for the SWMP to facilitate the sharing of data between partners:

- GIS licences for mapping and data supplied by B&NES Council;
- Environment Agency standard data

## 4 Need for a Bath and North East Somerset SWMP

### 4.1 Previous documents and reports

As part of this study, it has been essential to identify the links to other local and regional delivery plans which may influence or be influenced by the SWMP. The SWMP will seek to integrate and support these plans and processes to provide a clear and robust path to delivering flood risk management objectives throughout Bath and North East Somerset.

#### 4.1.1 Bath and North East Somerset Core Strategy<sup>8</sup>

The Core Strategy was published in October 2009 and has undergone a period of consultation which ended in January 2010. Following on from this a summary report was produced in December 2010.

The Strategy identifies flooding as a key issue for B&NES Council, which also takes into account the effects of climate change. The Core Strategy prioritises the management of flood risk and will therefore be supported by evidence of Strategic Flood Risk Assessments (SFRAs) (Level 1 & 2), which are detailed in later sections, as well as a Flood Risk Management Strategy, detailed later in Section 4.1.6.

#### 4.1.2 SFRA of Bath and North East Somerset - Level 1<sup>9</sup>

The SFRA Level 1 for Bath and North East Somerset was completed in April 2008. The aim of the study was to provide an assessment of the extent of flood risk and its application to planning as the study would help inform the formation of the Local Development Framework.

The study investigated flooding from Main Rivers, sewers, surface water, groundwater and artificial sources.

The main findings of this report were that surface water flooding is the second largest source of flooding, with flooding incidents occurring in the impermeable upland areas of the B&NES area, and in particular along roads. The main areas affected by surface water flooding include Chew Magna, West Harptree, Compton Martin, Priston and Midsomer Norton.

#### 4.1.3 SFRAs for Bath and North East Somerset - Level 2 for Bath (July 2009)<sup>10</sup>, Keynsham (May 2009)<sup>11</sup>, Midsomer Norton and Radstock (July 2009)<sup>12</sup>.

The Level 2 SFRAs were completed in 2009, building upon the technical information and methodology in the Level 1 SFRA. The Level 2 SFRAs investigated 'critical areas' at risk from flooding in Bath, Keynsham, Midsomer Norton and Radstock from Main Rivers, sewers, surface water, groundwater and artificial sources. These reports investigate flood hazards in potential development areas where it may be necessary to apply the NPPF Exception Test.

In Bath, the incidents of surface water flooding are located close to watercourses, particularly the River Avon, indicating that Main River flooding may also contribute to these incidents. Sewer flooding incidents also occur in relatively high numbers within the city centre and near the River Avon, indicating the sewer infrastructure plays an important role in surface water flooding in Bath. Locations of sewer flooding include; central Bath, Larkhall, Walcot, Locksbrook, Weston Park and Southdown.

Keynsham and Midsomer Norton / Radstock are both considered to be prone to surface water flooding based on topography and soil characteristics, however there are no recorded incidents of surface water flooding in these areas. This may be due to a lack of reporting rather than a lack of surface water flooding. Sewer flooding also represents a higher than average number of recorded incidents.

#### 4.1.4 Bath and North East Somerset: Flood Risk Management Strategy- Scoping Study<sup>13</sup>

In May 2009, B&NES Council commissioned a Scoping Study for the preparation of a Flood Risk Management Strategy (Section 4.1.6) in support of the Local Development Framework. The Scoping Study is a high level assessment which identifies potential flood risk management (FRM) options for 'critical areas' of Bath, Keynsham and Midsomer Norton / Radstock. These options provide an initial assessment and recommendations for the next stages of Strategy development.

The report describes the sources of flooding such as Main River, surface water and sewer flooding. Surface water and sewer flooding are significant in Bath, Keynsham, Midsomer Norton, Radstock and Chew Magna. However the report notes that there is less certainty in assessing surface water and sewer flooding risk at a strategic level. The three main options for these areas included increasing the standard of protection of existing flood walls and embankments, as well as building regulations and developing a Surface Water Management Plan.

#### 4.1.5 Place Making Plan

The purpose of the placemaking<sup>19</sup> plan is to complement the strategic framework in the Core Strategy by setting out detailed development principles for identified development sites and other policies for managing development across Bath and North East Somerset.

The Core Strategy forms Part One of the Local Plan and the Placemaking Plan forms Part Two of the Local Plan.

The Bath and North East Somerset Placemaking Plan<sup>19</sup> Sustainable Drainage Systems Policy, SU.1 links with the Core Strategy Key Policy CP5 Flood Risk Management and CP7 Green Infrastructure and requires that all sites are expected to incorporate sustainable drainage systems to reduce surface water runoff and minimise its contribution to flooding.

In addition, there are site specific requirements for the Core Strategy Strategic Sites allocations and for the site allocations proposed within the Placemaking Plan.

The aims of the Placemaking Plan Sustainable Drainage System Policy are to:

- Set out the high level principles for drainage designs incorporating SuDS features and the SuDS hierarchy that will be used in the B&NES area.
- Provide a basis for the incorporation of SuDS in development schemes through the planning system, ensuring that SuDS features are considered at an early stage and incorporated into a scheme design.
- Identify key considerations and requirements for developers which should be addressed via development management.

#### 4.1.6 Bath and North East Somerset Flood Risk Management Strategy<sup>14</sup>

In June 2012, Atkins completed the B&NES Flood Risk Management Strategy report. This report builds upon previous work carried out such as those reports discussed in previous sections, as well as the Scoping Report, detailed in Section 4.1.4. The FRM Strategy also contributes towards the Infrastructure Delivery Plan for B&NES Council and should inform the allocation of strategic development sites, providing an approach to manage flood risk. The options of FRM were assessed, and opportunities for the implementation for SUDS were identified.

#### 4.1.7 Bristol Avon CFMP<sup>15, 16</sup>

The Bristol Avon Catchment Flood Management Plan (CFMP) was published by the Environment Agency in December 2009, with a summary report published later in June 2012. The River Avon catchment covers 2200km<sup>2</sup> and is predominantly rural, with major urban areas such as Bristol and Bath. There are also other smaller urban areas such as Chippenham, Frome and Keynsham.

In the B&NES area, the main sources of flood risk were identified as:

- River flooding from the River Avon and its tributaries, particularly in Bristol, Bath, Chew Magna and Midsomer Norton.
- Surface water flooding in Bath and other towns
- Sewer flooding in Bath, Keynsham, Radstock and Midsomer Norton.
- Groundwater flooding is unlikely to be a significant issue

A number of flood risk management policy options were identified across the whole catchment, and those options covering areas within the B&NES area are listed in Table 4.1.

Table 4.1 Findings of Bristol Avon CFMP related to B&NES area

Area	Recommendations
Bath	Policy 5 - Areas of moderate to high flood risk where we can generally take further action to reduce flood risk
Lower Avon	Policy 3 - Areas of low to moderate flood risk where we are generally managing existing flood risk effectively
Mendip Slopes and Long Ashton (partially within the B&NES area)	Policy 4 - Areas of low, moderate or high flood risk where we are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change

#### 4.1.8 Bath and North East Somerset Preliminary Flood Risk Assessment (PFRA)<sup>18</sup>

The Flood Risk Regulations 2009 implement the requirements of the Floods Directive and came into force in England and Wales on 10<sup>th</sup> December 2009. Part 2 of the Regulations sets out provisions in relation to the preparation of Preliminary Flood Risk Assessments (PFRA) and sets out the responsibilities for both the Environment Agency and Lead Local Flood Authorities.

The PFRA is designed as a high level screening exercise and for LLFAs includes all local flood risk from surface water, groundwater, Ordinary Watercourses and manmade structures such as canals or sewers. The purpose of the report is to provide evidence for identifying significant Flood Risk Areas.

The PFRA will aid in the development of a Local Flood Risk Management Strategy (LFRMS).

A map of published Significant Flood Risk Areas within England and Wales was produced by the Environment Agency. These are areas where significant harmful consequences are expected to occur in a flooding event. Bath and North East Somerset is not identified as one of the 10 significant Flood Risk Areas and does not meet the National criteria for creating new areas, therefore no amendments to the indicative Flood Risk Areas are proposed and as a result no Flood Risk Areas have been recorded in Annex 3 of the PFRA. There are 10 of these areas within England although no stand-alone Flood Risk Area falls within the B&NES area. The closest Flood Risk Area to B&NES is Bristol, a small portion of which extends within the westernmost extent of the B&NES administrative boundary. B&NES Council has discussed this area with Bristol City Council and it has been agreed that Bristol will take the lead on reviewing this Flood Risk Area on the basis that the area falls predominantly within the Bristol City Council administrative boundary.

A number of local flood risk areas within the B&NES area have been identified as being at risk of surface water flooding. It is recommended that those sites will be addressed within the LFRMS. It is also recommended that these areas should also be investigated further to determine whether any improvement works can be implemented to manage or to reduce the risk in the future.

The PFRA highlights the importance of establishing data recording and sharing protocols between the different authorities and partners and promotes the recording of all flooding incidents from local sources.

#### 4.1.9 Section 19 Investigation reports – Chew Stoke, Chew Magna and Broadmead Lane Industrial Estate

Under the Flood and Water Management Act 2012, Lead Local Flood Authorities have a duty to investigate flood events that occur within its area. As Lead Local Flood Authority, B&NES Council has established it will carry out a Section 19 flood investigation when either five or more properties suffer internal flooding at any urban location, or when two or more properties suffer internal flooding at any rural location.



### Chew Magna Flood Investigation Report 2013

In February 2013, B&NES Council commissioned a Section 19 Flood Investigation Report following the multiple flooding incidents in 2012 in Chew Magna.

The main findings of the flood investigation report are:

- During the floods of 2012, the prime source of flooding in Chew Magna was from the Winford Brook and the River Chew;
- Flooding was exacerbated by saturated conditions for much of 2012 leading to an excess of surface water on the roads as there was insufficient drainage capacity to cope with the heavy rainfall and runoff from agricultural land;
- Flooding was also exacerbated by flooding from the smaller tributary Ordinary Watercourses, surface water and groundwater.
- Flooding involves a number of different sources that cannot be easily distinguished from each other. As such a number of risk management authorities are involved in addressing flood risk. This requires a continuation of the close partnership working and collaboration to manage this risk in the future;
- A number of actions are proposed to mitigate the impacts and flood risk in the future.
- It is recommended that B&NES Council maintain their coordinating role and responsibility as the LLFA and establish a flood risk management partnership group to take a strategic view of the whole catchment system.

### Chew Stoke Flood Investigation Report

In August 2013, a Section 19 report was produced following the 2012 flooding in Chew Stoke.

The main findings of the flood investigation report are:

- The source of flooding was from a combination of surface water, groundwater and fluvial sources
- Flooding was exacerbated by saturated conditions for much of 2012 leading to an excess of surface water on the roads as there was insufficient drainage capacity to cope with the heavy rainfall and runoff from agricultural land;
- There was little lead time for flood warnings
- A number of actions are proposed to mitigate the impacts and flood risk in the future.
- It is recommended that B&NES Council maintain their coordinating role and responsibility as the LLFA and establish a flood risk management partnership group to take a strategic view of the whole catchment system.

### Broadmead Lane Industrial Estate, Keynsham Flood Investigation Report

In June 2014, B&NES Council produced a Section 19 report for Broadmead Lane Industrial Estate, Keynsham, following flooding in December 2013 and January 2014.

Broadmead Land Industrial Estate is situated approximately 1km North of Keynsham and lies adjacent to the River Avon. The Industrial Estate is within the functional floodplain of the River Avon and is described by the Environment Agency as being at 'High risk', having a greater than 1 in 30 chance of flooding each year.

The industrial Estate has been affected by fluvial flooding over many years and there are reports that flooding events have been more frequent in recent years.

The main findings of the Section 19 report were:

- Flooding of the Industrial Estate occurred as a consequence of the River Avon exceeding bank-full capacity;
- The Industrial Estate became inundated by flood plain water ponding on surrounding land as opposed to direct bank overtopping;
- The access road to the site became impassable, resulting in a high level of risk to people and properties in the Industrial Estate;

- Flood warnings were issued to the Industrial Estate units, however the Christmas holidays meant that response by property owners / occupiers was limited.

The Section 19 report has been passed to the Environment Agency as the Flood Risk Management Authority responsible for Main River flooding.

## 4.2 Local Flood Risk Management Strategy (2014)

The B&NES Local Flood Risk Management Strategy (LFRMS) is currently being produced. The B&NES area wide SWMP will feed into the LFRMS by providing an improved understanding of the risk of flooding from local sources and from interactions with Main River flooding. The SWMP prioritised Action Plan will also feed into the LFRMS Action Plan.

The LFRMS will explore the following themes:

- Improve the understanding of the risk of flooding from local sources, with a consideration of main rivers, canals and reservoirs;
- Manage local flood risk;
- Help local communities, individuals and businesses to better understand and manage their flood risks;
- Prevent inappropriate development that creates or increases flood risk;
- Improve flood prediction, warning, post flood recovery and resilience.

The LFRMS will involve significant consultation with the B&NES Strategic Flood Board and Operational Flood Working Group. As these groups include the same Partners and Stakeholders as those involved in the SWMP, and the LFRMS will be the format in which local flood risk management is taken forward, it was decided that, to avoid 'consultation overload', consultation for the SWMP would be limited to data collection and Action Plan sign off with the key Risk Management Authorities.

## 5 Evidence Base

### 5.1 Recorded flooding in Bath and North East Somerset

One of the purposes of a SWMP is to identify what the local flood risk issues are, and to summarise the recorded local flood incidents and predicted flood risk to the area. Flood risk can arise from a variety of different sources, as listed in this section. Often however, flooding originates from a combination of sources as flood mechanisms are integrated.

The following sections outline the flooding incidents recorded within the Bath and North East Somerset area within the context of the definition given in Section 1.3.1. This outline of recorded flood incidents should be read in conjunction with the Flood Incident Register (see Chapter 6). The recorded flooding within this report is based on the information supplied by the partners and stakeholders involved in this SWMP up to January 2014; the occurrence of flooding is not static and therefore the recorded flooding represents incidents up to this date only.

The flood incident records have been analysed and rationalised so that only recent and relevant records are included. Records of flooding prior to 2009 have been removed to prevent any misrepresentation of recorded flood incidents which may now have been actioned.

There have been over 990 reports of flooding with various sources and receptors from 2009 to 2014 within the B&NES area. All the affected locations have been grouped into a number of 'wet-spots', these are detailed in Section 6 and 7. These wet-spots can also be viewed using the interactive Map of Local Flood Incidents in Appendix B.

#### 5.1.1 Surface Water Runoff

Surface water runoff occurs when rainfall fails to infiltrate to the ground or enter the drainage system, causing water to pond or flow over the ground surface. The likelihood of flooding is dependent on the rate of runoff and the condition of the surface water drainage system.

Locations of recorded surface water runoff incidences were provided by a number of sources, including B&NES Council and the Environment Agency.

#### 5.1.2 Main River

A Main River is any watercourse which is designated as such on the Environment Agency's Main River Map (available online as at <http://maps.environment-agency.gov.uk/wiyby/>) and for which the Environment Agency has responsibilities and powers. Main Rivers are generally the larger arterial watercourses but smaller watercourses can be designated if they pose a significant flood risk. Where fluvial flooding from main rivers is the sole source of flooding, it is the responsibility of the Environment Agency.

Actions to mitigate fluvial flooding from Main River are outside the scope of a SWMP, and are addressed in a Catchment Flood Management Plan, or other more detailed local studies. However, interactions between Main River and Surface Water flooding has been included as an additional consideration to this SWMP to highlight where fluvial flooding interacts with and influences the other local flood sources.

#### 5.1.3 Ordinary Watercourses

An Ordinary Watercourse is a statutory watercourse type in England and Wales. They include rivers, streams, ditches and drains which do not form part of a Main River. B&NES Council have permissive powers to carry out works on Ordinary Watercourses and also have responsibilities in relation to consenting and enforcement.

Within the B&NES catchment there are a number of Ordinary Watercourses which drain into the Main Rivers, see Figure 5.1 below.

#### 5.1.4 Groundwater

In the context of surface water management plans is defined as all water which is below the surface of the ground and in direct contact with the ground or subsoil. This includes flooding from groundwater rising up from aquifers as well as sub surface flow and interflow through soils.



## 5.2 Indicators of Potential Surface Water Flood Risk

### 5.2.1 EA updated Flood Map for Surface Water

In 2013 the Environment Agency produced and published the updated Flood Map for Surface Water (uFMfSW). This is the third national surface water map following on from the Areas Susceptible to Surface Water Flooding (first generation) and the Flood Maps for Surface Water (second generation). The uFMfSW assesses flood scenarios as a result of rainfall with the following chance of occurring in any given year: 1 in 30 (high risk), 1 in 100 (medium risk) and 1 in 1000 (low risk). The uFMfSW only indicates flooding caused by local rainfall and does not account for flooding that occurs from overflowing watercourses, drainage systems or public sewers.

## 5.3 Assets

Information on assets has been provided by stakeholders which can also be used as potential indicators of flood risk:

- Culverts and trash screens which may be susceptible to blockage;
- Watercourses which can become blocked and full of debris;
- Highway assets such as gullies, manholes etc. which may have insufficient capacity during storm events or can become blocked and full of debris;
- Sewers which may have insufficient capacity during storm events.

## 5.4 Maintenance Regimes

### Bath and North East Somerset Council<sup>21</sup>

B&NES Council Highways department are responsible for routine maintenance of the highway drainage system. Gullies and their immediate pipe connection are emptied and cleansed as part of an annual proactive maintenance programme. Highway drainage with persistent problems are programmed for a greater cleansing frequency.

B&NES Council Drainage and Flooding team carry out a programme of annual watercourse maintenance on Ordinary Watercourses that are deemed to be critical in terms of flood risk (normally due to their proximity to property or infrastructure). This involves the removal of debris or vegetation that may have an impact on flow capacity and flood risk. Trash screens on these watercourses are also cleared and any build-up of trash is removed reactively.

### Environment Agency

The Environment Agency carries out maintenance on rivers and streams designated as Main Rivers. Their annual maintenance programme can be found on the Environment Agency's website.

### Wessex Water (sewers)

Wessex Water carries out maintenance on public sewers. More details on sewer maintenance can be sourced through the Wessex Water website [www.wessexwater.co.uk](http://www.wessexwater.co.uk)

### Role of Riparian Owners

If a property is adjacent to or backs onto a river, stream or other watercourse, then it is likely that the land owner will be the riparian owner and as such own the land up to the centre of the watercourse.

Riparian owners have a right to protect their property from flooding and erosion, but will need to discuss the method of doing this with the Lead Local Flood Authority within B&NES or the Environment Agency depending on the classification of the watercourse. Where the watercourse is classified as a Main River, any potential works should be discussed with the Environment Agency. Where the watercourse is classified as an Ordinary Watercourse, any potential works should be discussed with the Lead Local Flood. Riparian Owners also have responsibility for maintaining the bed and banks of the watercourse and ensuring there is no obstruction, diversion or pollution to the flow of the watercourse.

More information on Riparian Ownership responsibilities can be found in the EA document 'Living on the edge' available at:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/403435/LIT\\_7114.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/403435/LIT_7114.pdf)

## 6 Data Collection and Collation

### 6.1 Data Collection for the study

A full list of all the data received during the B&NES area SWMP is available in Appendix A - Data Register. The data is separated into:

- Data held by the Local Authority (B&NES Council)
- Data held by Partner Organisations
- Environment Agency National Data Sets

#### 6.1.1 Sources:

Data was provided by:

- Bath and North East Somerset Council
- Environment Agency
- Wessex Water
- Canal and River Trust

#### 6.1.2 Data Quality and Restrictions

The SWMP technical guidance emphasises the importance of understanding the quality of the data used to inform the SWMP. Data uncertainty can arise throughout any risk assessment and risk management process. Types of uncertainty can include:

- Model - models may not be accurate or complete;
- Environmental - natural variability may not be represented by conceptual model assumptions;
- Knowledge – scientific data may be incomplete;
- Sample - sample measurements may be inaccurate or the validity may be queried;
- Data - data may be extrapolated or interpolated from other sources;
- Scenario - scenarios might not fully describe the problem.

Understanding the uncertainty is an important part of the SWMP process, as decisions are made based on the findings. It is important that all project partners and stakeholders are clear about what the limitations of the findings are before making decisions on the level of investment (resources and funding) that may be needed in the future.

The SWMP guidance therefore presents a scoring system to rank the data according to its quality. For the B&NES area SWMP, this scoring system has been modified. The modified scoring system (in Table 6.1) was required because the majority of the data received a quality score of 2 and assumptions made with the data scored 3. The result was that there was nothing to distinguish between the value of the data sources. Therefore, a refined scoring system was developed to provide a more informative data score.

Table 6.1 Data quality scoring system

Data Quality Score	Description	Sub-category	Example
1	Best possible, no better data available	N/A	LIDAR Rain gauge data Surveyed data
2	Data with known deficiencies	2a) the known deficiencies are missing <b>or</b> duplicated data	
		2b) the known deficiencies are missing <b>and</b> duplicated data	
3	Assumption based on available data	3a) Assumptions confirmed with local data	
		3b) Assumed data confirmed by cross referencing with other records	
		3c) Assumed data based on a single dataset	
4	Educated guess based on experience	N/A	Ground roughness for a 2D model

Under this scoring system all supplied data receive a data quality score of 1 or 2. Information that has been assumed from the data received scored a 3 or 4. The sub-categorisation of the data score into the categories a) and b) distinguishes the relative quality of the data.

This confidence scoring system can be applied to the received data, the source-pathway-receptor model and the selected wet-spot areas (Wet-spot area are areas which are considered more vulnerable to surface water flooding, these are discussed further in section 7).

The flood incident data used to inform this SWMP has been scored according to the data which was provided, and that which was missing. Table 6.2 lists the data provided for the B&NES area SWMP and the data quality scored associated with it.

Table 6.2 Received data and allocated quality score

Data	Data Quality Score
Environment Agency	2a
Bath and North East Somerset Council	3b
Wessex Water	1

### 6.1.3 Data Format

#### Existing

Data was supplied for the study in a variety of formats, and these are also detailed in Appendix A - Data Register and Quality Score. Data was obtained in the following formats:

- GIS (both ArcGIS and MapInfo)
- ASCII
- PDF
- Excel

All data was supplied both electronically and hard copy format, this data was collated and stored. The majority of data supplied was in GIS format, this was advantageous when it came to communicating the risk as data could be geospatially displayed. Mapping the flood incidents spatially allowed the identification of key themes such as repeat flood mechanisms and interactions between flood sources. Furthermore, mapping is an effective method for



communication as it puts the risk into some context. This helps create a useful product for communication with the project partners.

#### 6.1.4 Data Gaps and Limitations

One key limitation that has been recognised is the differing formats of the data which was received between the partners and stakeholders. This was most apparent when data was provided in PDF format, resulting in the need for increased processing to digitise the information into a GIS format.

In addition to this, the databases also needed extensive processing and cleaning before the source-pathway-receptor model could be applied. Some datasets had duplicated and/or inappropriate data, with one dataset containing maintenance incidents rather than flood incidents. Many flooding incidents did not contain co-ordinates so this data needed geo-referencing before converting to GIS. Some flooding incidents contained complete addresses and geo-references which made the source-pathway-receptor model easy to apply. Others contained incomplete and/or missing information in terms of flood source or location so it was difficult to determine the Source-Pathway-Receptor model. Those incidents that were too vague to process were removed to avoid assumptions.

#### Future Data Management

The relevant flood risk and incident data will be supplied to B&NES Council as part of the SWMP; it is recommended that B&NES Council remain the curator of this data and through this role is responsible for coordinating the maintenance of the databases.

It is recommended that, alongside the information already collected by flood risk management partners in order to carry out their individual roles, a common database format is to record flood incident data for the purposes of reporting to B&NES Council and updating the SWMP. This will ensure that updates to the source-pathway-receptor model and SWMP can be made efficiently in the future.

A recommended table of fields to be populated when recording flood incident data to report to B&NES Council is provided in Appendix E – Flood Incident Data Collection Fields. This data should ideally be provided to B&NES Council within a GIS database, or a Microsoft Excel table.

## 6.2 Flood Incident Register

As part of the SWMP, a Flood Incident Register was developed to show the recorded flood events within the B&NES area. The Source-Pathway-Receptor model concept was used to standardise the flood incident data. The Source-Pathway-Receptor model is a concept that can provide an understanding of all sources of flood hazard and is illustrated in Figure 6.1 below. It is particularly useful in this context as it can be used to generalise the data gathered from numerous sources.

- Source - the origin of flood water
- Pathway - a route or means by which a receptor can be affected by flooding
- Receptor - something that can be adversely affected by flooding

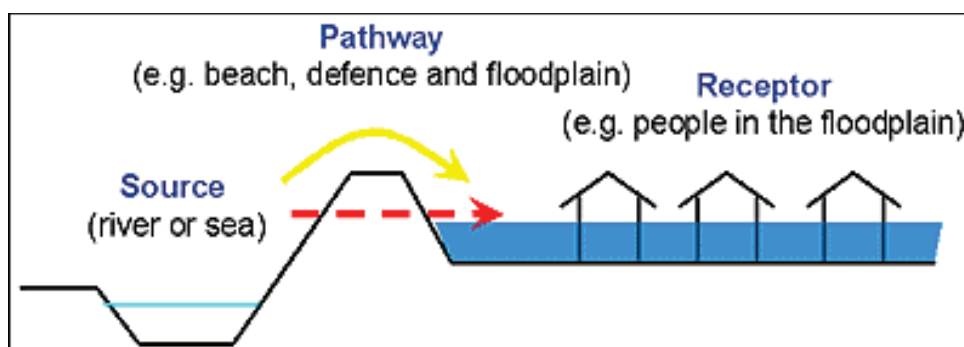


Figure 6.1 Source Pathway Receptor Model

Having applied the Source-Pathway-Receptor model it is possible to mitigate the flood risk by addressing the source (often very difficult), blocking or altering the pathway and even removing the receptor e.g. steering development away from flood risk areas.

### 6.2.1 Applying the source-pathway-receptor model

As mentioned previously, the information contained within each flood incident table varies between sources of data. Data from the Environment Agency and Wessex Water contained specific details on the flood source, pathway and the receptor, so in these instances the source-pathway-receptor model could be informed wholly from the recorded data and requires no assumptions. However, data provided from B&NES Council required an element of assumption. In the case where flood incidents had been fully recorded in terms of source of flooding, the pathway, and the location which was affected, no assumptions have been made. Where exact locations were missing, flood incidents were geo-referenced indicatively or based on postcodes. Therefore, the flood incident register contains approximate grid references that may not be the exact location of the flood incident. Those records with no information regarding the source of flooding were classified as 'unknown'. Data which was provided with little or no useful information was completely disregarded and removed due to low confidence in the data.

## 6.3 Interactive Map of Local Flood Incidents

For the SWMP to be an effective document, the risk needs to be clearly communicated.

As mentioned in Section 6.1.3, the majority of the flood incident data was supplied in database format which could be easily converted into a GIS format. The flood incidents were processed so they could be geospatially displayed.

Mapping the flood incidents spatially allowed key themes to be identified, such as repeat flood mechanisms and interactions between flood sources. Furthermore, mapping is an effective method for communication as it puts the risk into context.

Interactive Maps of Local Flood Incidents have been produced using the GeoPDF format to communicate this risk and recorded flood incidents. The advantage of using maps is that a lot of data can be displayed in a manner which is easily viewed. The advantage of using a PDF is that it cannot be edited. A GeoPDF embodies both advantages and in addition, enables some basic GIS software functionality. A GeoPDF can be opened in any PDF viewer, software which is freely available.

### 6.3.1 Data displayed

#### Recorded Local Flood Incidents

The flood incident points have been compiled from all the data received. The source-pathway-receptor model was applied to each point and the total number of repeated flood incidents was tallied. The database of flood incident points was reduced to only include flood incidents from the past 5 years, rather than the full data set which dated back to the 1960s. This prevented misrepresentation of recorded flood incidents which may now have been actioned.

The flood incident points were then thematically mapped. The colour of the flood point was dependent on the flood source, whereas the size of the flood point was dependent on the frequency of the flood incidents recorded at that location, from the same source. The colour coding and scaling allows a lot of data to be communicated simultaneously, in a clear and decipherable way. The flood points in clusters of different colours indicate flood risk from combined sources, whereas the scaling of flood incident points by frequency indicates flood prone areas.

The flood sources are descriptive of both the type of flooding (e.g. surface water) and the type of asset (e.g. highway culvert). This sub division has been made so that the Risk Management Authority (RMA) responsible for the flooding incidents is easily identified.

All the flood sources used in the B&NES area SWMP are listed in Table 6.3. This also includes the colour coding system used in each of the Interactive Maps of Local Flood Incidents.

Table 6.3 Sources of flooding colour coding system

Flood Source	Symbol	Colour
Fluvial Flooding: ordinary watercourse	○	Orange
Surface Water: drainage ditch	○	Pink
Surface Water: highway gully	○	Teal
Surface Water: pluvial runoff	○	Yellow
Surface Water: highway culvert	○	Red
Unknown	○	Purple
Fluvial Interactions	□	Dark Blue

The size of the points depends on the number of instances. The number of recorded incidents has been divided into five categories. This scaling system has been added to the Interactive Map of Local Flood Incidents to instantly show re-occurring flood mechanisms, which can help prioritise actions.

Incidents of flooding that were recorded by the Environment Agency and attributed to interactions between Main River flooding and local sources, were also included within the analysis. These incidents are shown as blue squares on the Interactive Map of Local Flood Incidents. The inclusion of these incidents ensures that locations where several Risk Management Authorities, including the Environment Agency, need to be involved are included within the wet-spot identification and action plan in sections 7 and 8 of this report.

Sewer flooding incidents are represented by polygons of the postcode area in which flooding took place, rather than points at the affected properties. This is an approach taken by Wessex Water to protect their customers' confidentiality. It is important to note that these polygons are not representative of the extent of flooding.

The same colour and scaling system cannot be used for sewer flooding as the flood point data. Instead, the regions have been colour coded by source of flooding and number of occurrences. The polygon outline is coloured by flood source, with blue representing surface water flooding. The polygon interior colour is based on number of recorded incidents following a traffic light system.

- A low frequency event with only one or two incidents is green;
- A mid frequency event with three to four incidents recorded is amber;
- A high frequency event with five plus incidents is red.

This colour coding system is shown in Table 6.4.

It should be noted that Wessex Water report on incidents relating to hydraulic capacity, this dataset therefore excludes incidents related to blockage which are managed by Wessex Water.

Table 6.4 Sewer flooding incidents, colour coding system

Flood Source	Number of recorded incidents	Symbol
Surface Water: sewer flooding	1 – 2	Green
	3 – 4	Yellow
	5+	Red

Figure 6.2 shows an example of the Interactive Map of Local Flood Incidents with the different symbols used.

Note there were no flood incidents attributed to groundwater flooding within the flood incident records, however it is likely that interactions between ordinary watercourses, pluvial runoff and

sub-surface flows do take place for a number of flood incidents. This is believed to be the case in Chew Magna.

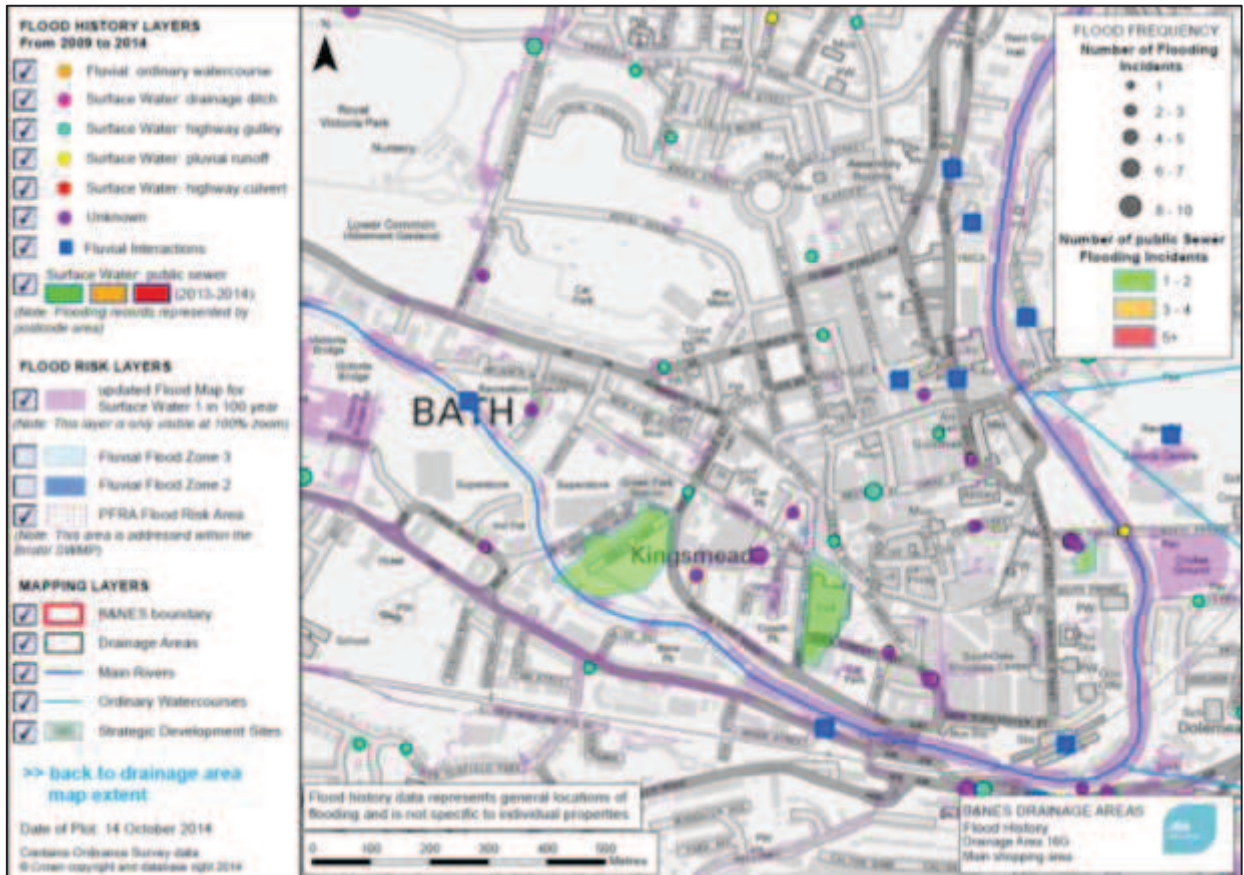


Figure 6.2 Extract from the Interactive Map of Local Flood Incidents

### Flood Risk Data and Catchment mapping layers

Additional mapping layers have been added for context. These include the updated Flood Map for Surface Water, Fluvial Flood Zones, Main Rivers and Ordinary Watercourses derived from the Digital River Network (DRN), the study boundary of the B&NES area as well as boundaries for each of the drainage areas. In addition, areas allocated for strategic development and the PFRA Flood Risk Area have also been marked.

## 6.4 Drainage Areas and Wet Spot Selection

The principal purpose of the strategic assessment is to identify areas which are considered more vulnerable to surface water flooding. These areas are termed ‘wet-spots’ and the most vulnerable wet-spots will be taken through for further investigation and assessment.

The B&NES area has been split into 18 drainage areas based on hydrological catchments and the distribution of flood incidents within the Interactive Map of Local Flood Incidents. Each drainage area has then been further split into ‘wet-spot’ areas according to the clustering patterns of flood incidents.

As part of the Action Plan process described further in section 8.0, the flood sources and frequencies of each in the ‘wet-spot’ areas have then been analysed to identify appropriate actions to reduce flood risk.

## 7 Wet-spot Verification and Prioritisation

### 7.1 Approach

Wet-spots have been identified through the analysis of flood incident data described in section 6.0. These wet-spots, which are derived from analysis of recorded flood incident data, have been verified and prioritised through an analysis of the predicted surface water flood risk areas identified by the updated Flood Map for Surface Water and information on flood receptors held within the National Receptors Database. This section details the verification and prioritisation process of the wet-spots.

### 7.2 Quantifying surface water flood risk

The national scale updated Flood Map for Surface Water (uFMfSW) has been used in conjunction with the National Receptor Database (NRD) to produce a count of receptors which would intercept overland flow routes. This analysis has been carried out using JBA's Flood Risk Metrics (FRISM) tool which produces results in excel and GIS formats.

FRISM is an in-house software package developed by JBA as a cost effective tool to measure flood risk and summarise key statistics such as the number of properties flooded and flood damages. The damage calculations are based on the latest MCM2013 depth-damage curves. For this project, the capability of FRISM was used to automate and accelerate the process of identifying the number of properties within flood extents. A property is defined as "within the flood extent" as soon as the building footprint intersects in any way with the flood extent in question. National Receptor Dataset information correlating to the building footprints was used to divide the properties at risk into the three groups: dwellings (residential properties); critical infrastructure; and emergency services.

The analysis includes flood extents from all available return periods, 1 in 30 year, 1 in 100 year and 1 in 1000 year and includes dwellings, vulnerable receptors and emergency receptors.

It should be noted that the updated Flood Map for Surface Water does not include flood risk from groundwater.

#### 7.2.1 Quantifying surface water flood risk in B&NES

The area analysed covers all of the B&NES area as illustrated in Figure 7.1. The outputs have been produced at a 250 m grid size.

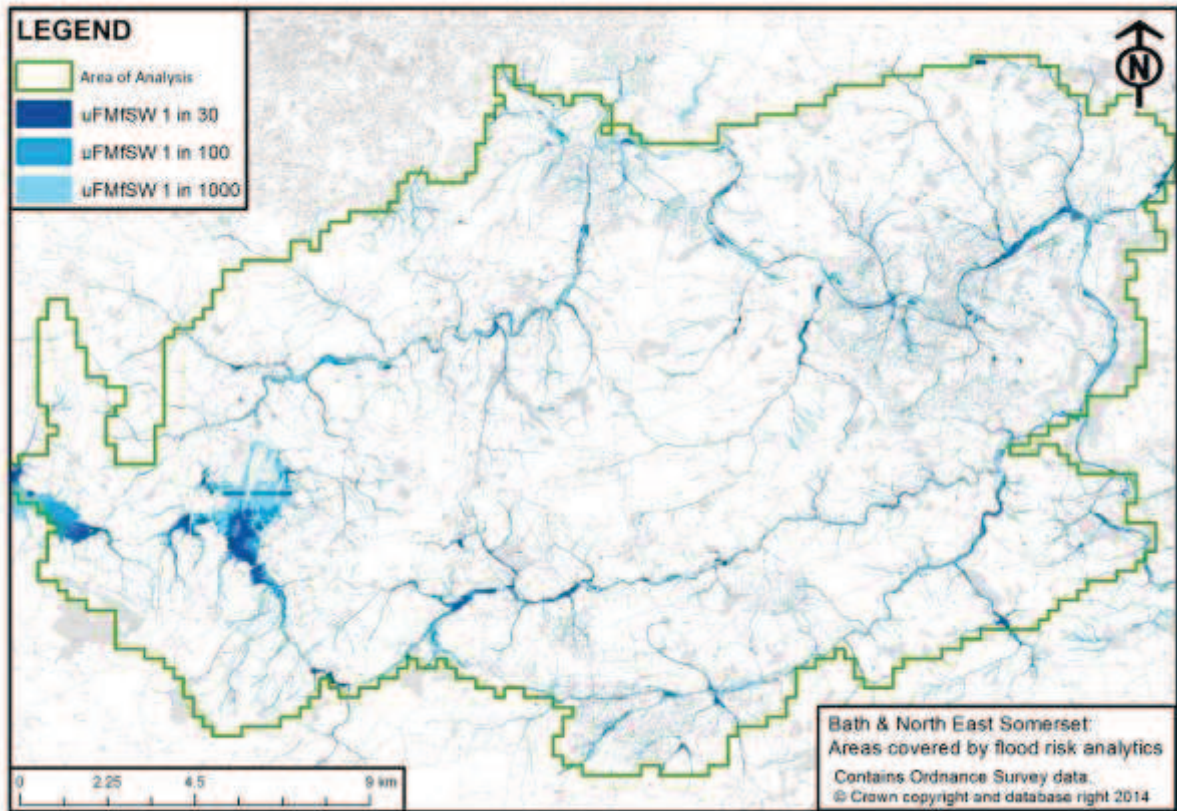


Figure 7.1: A map of area covered by the surface water flood risk quantification analysis

The receptors were extracted from the Environment Agency’s National Receptor Database (NRD). All property points with type ‘dwelling’ have been selected to count the flood risk to homes. Dwellings at risk to surface water flooding have been counted as they are vulnerable receptors and represent the greatest potential risk to people. Furthermore, the number of receptors which are classified as "critical infrastructure" and "emergency responders" at risk to surface water flooding have also been counted (receptors considered for these categories have been listed below in Table 7.1). This will help B&NES Council understand where the greatest risk is and prioritise their emergency planning.

Table 7.1 Receptors considered as critical infrastructure and emergency responders

Critical Infrastructure	Sub-class
Education	Nursery
	Infant school
	Pre-school
	School
	Special school
	Primary school
	Private primary school
	High school
	Sixth form college
	Education
	Higher education
	University
	Health
Hospice	
Surgery	
Power	Electricity sub-station
Sewage	Sewage treatment
	Sewage storage
	Sewage pumping
	Sewage filtration
Water	Water treatment
	Water storage
	Water filtration
	Water distribution
	Reservoir
Vulnerable people	Nursing home
	Shelter
<b>Emergency Responders</b>	<b>Sub-class</b>
Police service	Police station
Fire service	Fire tower
Health service	Ambulance station

Table 7.2 displays the receptor count at risk from surface water for all of the B&NES area

Table 7.2 Estimated number of receptors in the B&NES area at risk from surface water flooding

Return Period	Residential Properties (NRD)	Critical infrastructure (NRD)	Emergency responders (NRD)
30	302	11	0
100	737	24	0
1000	3039	77	2

The figures show that the number of dwellings at risk from surface water flooding at a 1 in 30 year return period is relatively low as only 302 properties are predicted to be at risk. However, at a 1 in 100 year return period this value increases, with flooding is predicted to affect 737 properties. For 1 in 1000 year return period the values increase significantly with 3039 residential properties potentially at risk.

The number of critical infrastructure sites at risk from surface water flooding also increases with return period. The number of critical infrastructure sites at a 1 in 30 year event is low (11) considering the B&NES area wide scale of the analysis. However, at a 1000 year event this increases to 77 critical infrastructure sites at risk.

The locations of the emergency blue-light responders are outside the surface water flood map extent on the 30 and 100 year return periods. However, at a 1 in 1000 year return period there is surface water flood risk to 2 emergency responders across the B&NES area.

To illustrate where flood risk is most significant, the results from the dwelling receptor counts are shown in Figure 7.2 **Error! Reference source not found.** – Figure 7.4 where darker blue colours represent a greater concentration of properties predicted to be at risk of surface water flooding.

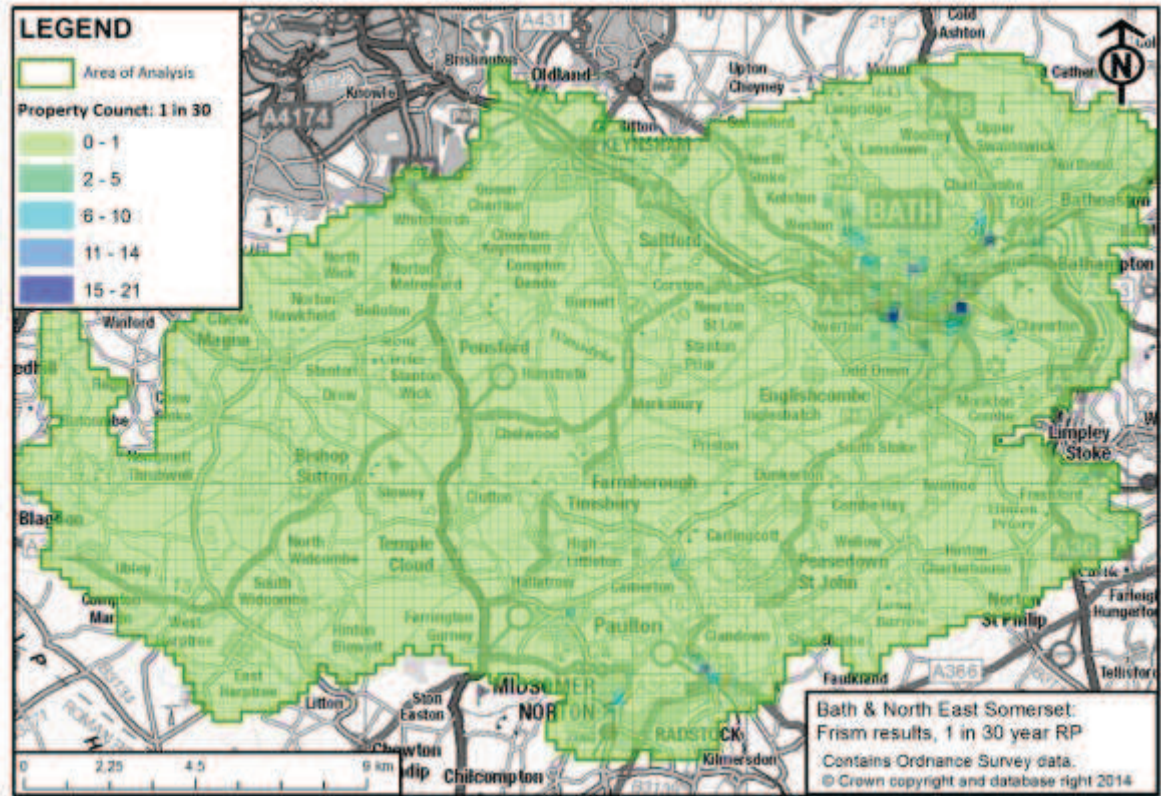


Figure 7.2 FRISM dwelling count results for the 1 in 30 year return period

The FRISM results for each return period display a consistent trend. The predominant cluster of surface water flood risk to dwellings is in Bath. In addition, there are also clusters of surface water flood risk to dwellings in Keynsham, Radstock, Midsomer Norton, Paulton and some surface water flood risk in Chew Magna.

The locations of these ‘wet spot’ areas are consistent with the areas identified within the Interactive Map of Local Flood Incidents discussed in section 6.0 above.



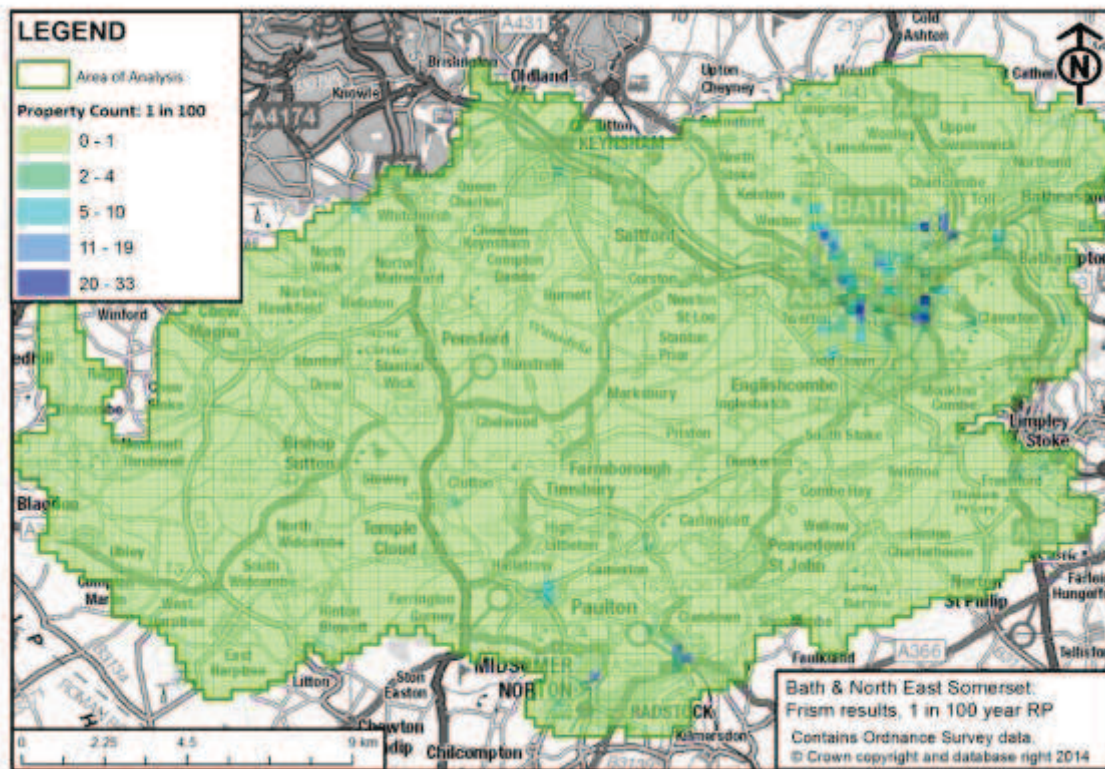


Figure 7.3: FRISM dwelling count results for the 1 in 100 year return period

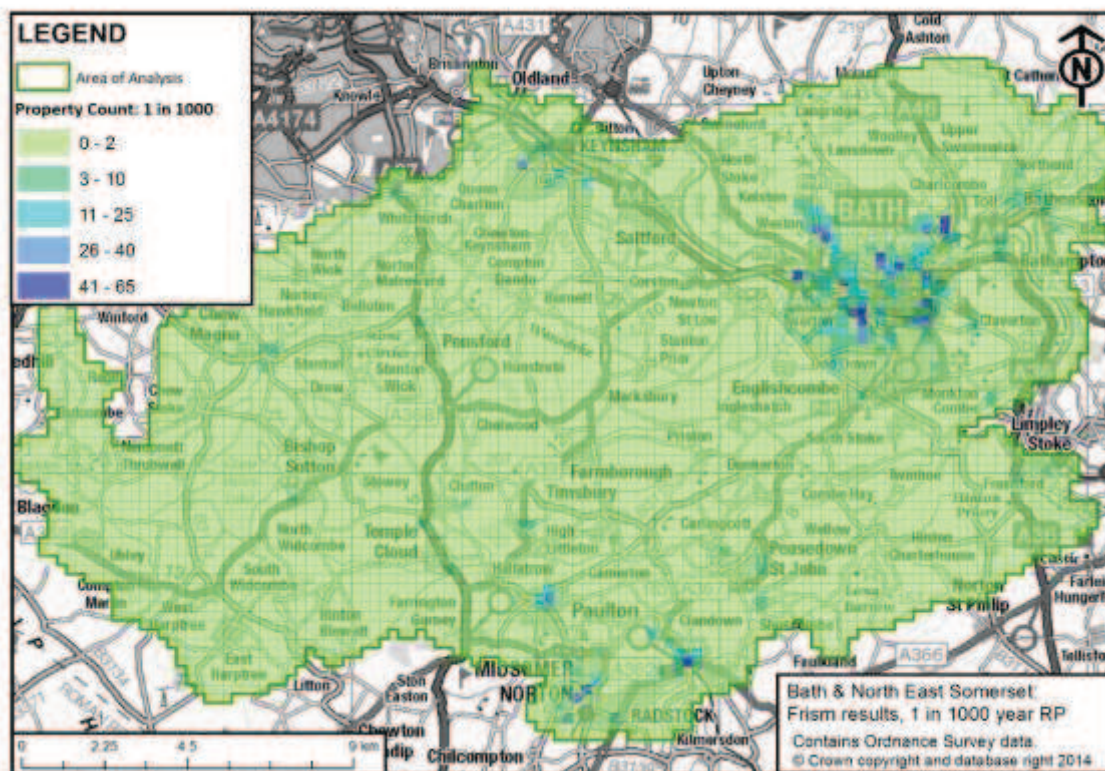


Figure 7.4: FRISM dwelling count results for the 1 in 1000 year return period

### 7.3 Updated Flood Map for Surface Water with Climate Change Allowance

An additional exercise carried out for this SWMP was to re-run the updated Flood Map for Surface Water (uFMfSW) modelling for the B&NES area with a 30% increase in rainfall to allow for climate change.

The results show that climate change is likely to have a notable impact on flood risk across the B&NES area. Flood outlines for the 1 in 100 year return period rainfall event are slightly larger than present day outlines in all of the flooding wet-spot locations. Increases in flood extents are generally more pronounced in flatter valleys where water would spread further at lower depths. In steep-sided valleys, flood extents do not increase significantly, however flooding becomes deeper.

Figure 7.5 shows the difference between the present day and the climate change outline for the Bath area.

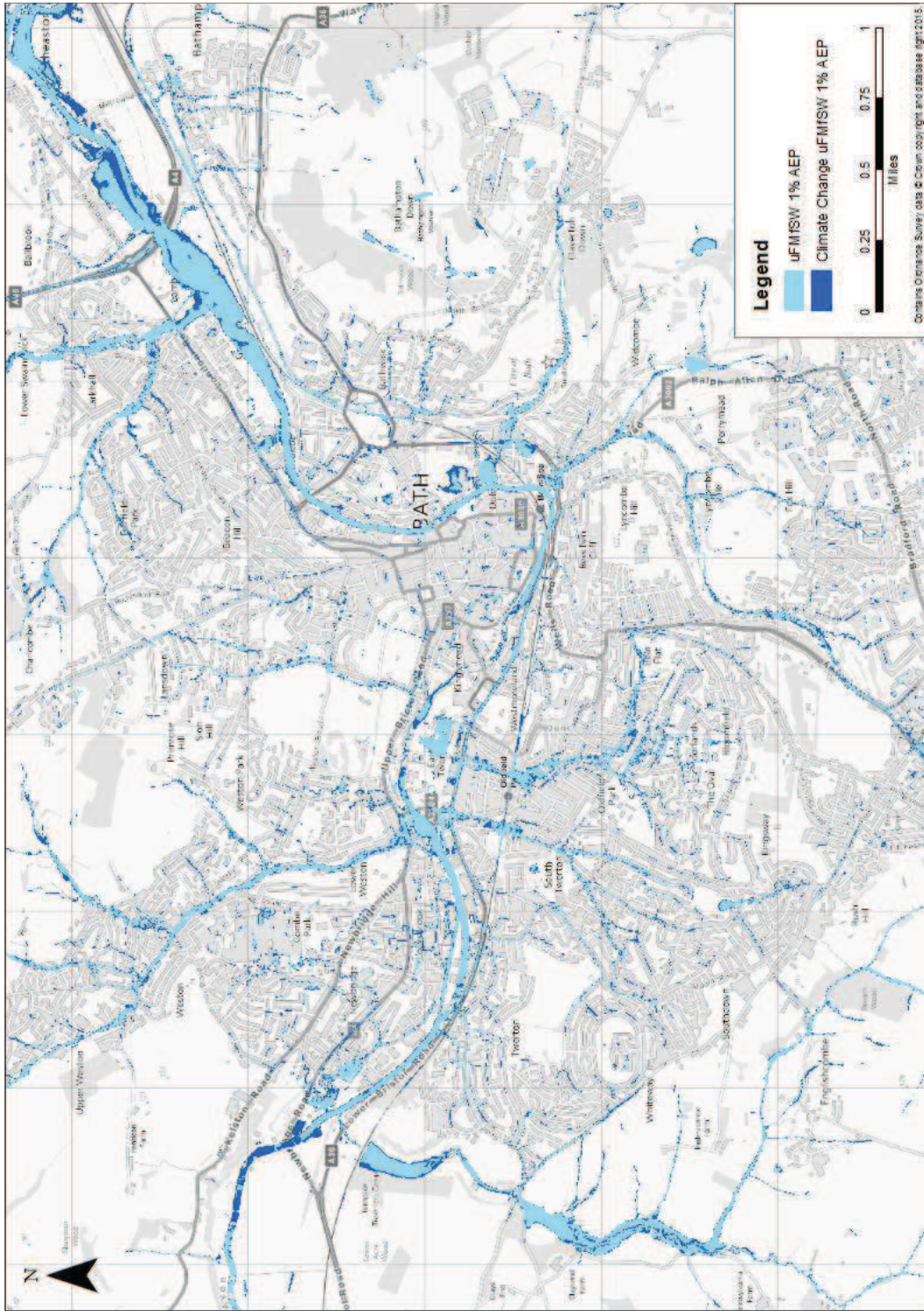


Figure 7.5 Present day and climate change updated Flood Map for Surface Water extents

The climate change outlines have been used, in conjunction with the National Receptor Database ((Version NRD 2011) to establish the additional number of properties, critical infrastructure and emergency responders across the B&NES area that may be at risk from flooding when taking climate change into account. The results of the analysis, compared with the present day numbers of properties at risk, are presented in **Error! Reference source not found.**

Table 7.3 Increase in numbers of properties at risk from surface water flooding taking climate change into account

Return Period	Residential Properties (NRD)	Critical infrastructure (NRD)	Emergency responders (NRD)
<b>100</b>	737	24	0
<b>100 + Climate Change</b>	1393	46	2
<b>Additional properties potentially at risk</b>	<b>656</b>	<b>22</b>	<b>2</b>

Due to climate change, by 2085 an additional 656 residential properties within the B&NES area may potentially be at risk from surface water flooding. Flood risk to critical infrastructure and emergency responders within the area will also increase with an additional 22 critical infrastructures and two emergency responders at risk from flooding following a 1 in 100 year return period rainfall event.

## 8 Next Steps - Action Plan

The Action Plan uses all the information collated during the SWMP process, together with information and knowledge held within B&NES Council's Drainage and Flooding Team, to recommend measures to investigate, reduce or mitigate the flood risk in the B&NES area that can be delivered in a phased programme. The actions have been developed according to the flood source (where known).

### 8.1 Co-ordinating the Action Plan

The Operational Flood Working Group, consisting of B&NES Council, the Environment Agency and Wessex Water, are well placed to lead on the delivery of the SWMP action plan. Each individual Action in the Plan identifies an Action Owner whose responsibility it is to ensure that the Action is undertaken in a timely and cost effective manner. The Action Plan is a 'live' document which is updated by B&NES Council when actions are complete and / or reviewed as and when new or more up to date information becomes available.

### 8.2 Action criteria

Any actions included on the Plan will have met the following criteria:

- The Action must relate to a specific known flooding problem (unless a Strategic or Operational Action)
- If the flooding source includes an interaction between surface water and fluvial (river) flooding then a single Action Owner must be identified
- The Action must be specific and achievable in terms of resource, practicality and time
- The Action Plan includes two types of Action:
  1. Investigative Actions that will lead to a greater understanding of the flood mechanism.
  2. Works Actions that will directly reduce flood risk at that locality

### 8.3 Communicating the Action Plan

The action plan has been produced as a table (Appendix D). The details specified are:

- Wet-spot ID: to allow cross reference with the Interactive Map of Local Flood Incidents;
- Location: providing location context;
- Driver: providing justification of the action;
- Action: an outline of the mitigation measure required;
- Implementation Plan: step by step plan of tasks required to complete the action, split into numbered phases (1-4)
- Plan Progress at April 2015: The step on the implementation plan that each action is at, at the time of publication of this report. This column will be updated by B&NES Council as actions progress.
- Action Owner: sets out which partner or stakeholder is responsible for implementing the actions;
- Action Supporter: sets out which partner or stakeholder will support the implementation of the action;
- Indicative Costs: sets out the approximate price band of the action;
- Identifies priorities: sets out what order the actions should be undertaken.

Note: In the context of Action Owner, departments within B&NES Council have been distinguished from one another. The B&NES Council Drainage and Flooding team, who undertake Lead Local Flood Authority duties, have been referred to as LLFA. The Highways department within B&NES Council has been referred to Highways Mtc.

### 8.3.1 Prioritising the actions

A suitable action has been set for every wet-spot on the B&NES area Interactive Flood Incident Record Maps. However, to enable effective delivery of the action plan, it has been prioritised by considering frequency of flooding and vulnerability of receptors. There are four classifications of action priority: high, medium, low and complete:

- **High:** Recent flood events with a high frequency, affecting a More Vulnerable receptor
- **Medium:** high frequency flooding affecting Less Vulnerable receptors OR lower frequency flooding affecting More Vulnerable receptors
- **Low:** One off flood events affecting Low Vulnerability receptors
- **Complete:** The completed actions had been added to include where work has already been undertaken, to avoid duplicating efforts and track progress.

The vulnerability classifications are based on the definitions within the National Planning Policy Framework Technical Guidance and Planning Policy Statement 25

### 8.3.2 Indicative costs

Indicative costs have been included to give an approximate, potential cost band for each of the actions. The indicative costs are broad range estimates of how much an action could cost the action owner and are divided into three categories, Low Medium and High where:

- Low: £0 - £5,000
- Medium: £5,001 - £10,000
- High: > £10,001

## 8.4 Strategic and Operational Action Plan

Strategic and Operational actions have been identified which can be applied in general to address flood risk. These are detailed in Table 8.1 below.

Table 8.1 B&NES Area Generic Action Plan

Ref	Action	Informer	Implementation Plan		Plan Progress at April 2015	Action Owner	Supporter	Priority*	Indicative Cost (£)**
			1.	2.					
SOAP01	<p>Improve Flood Reporting and Recording. Take key information from callers when they report a flood incident. Information to include; date, location, duration, an idea of the flood source, description of the flood extent and depth.</p>	<p><i>There are a number of areas where flooding has been recorded, but there are limited details describing the incidents.</i></p>	1. Review the JBA database summarising flooding understand key information	2. Review B&NES Council flood incident reporting system	4	LLFA	Highway Mtc Council Connect, EA, WW	High	Low
			3. Update reporting system to include prompts for key information.	4. Undergo annual review of flood reporting and update as appropriate					
SOAP02	<p>Consider the impact of development on flood risk at planning stage.</p>	<p><i>Development is planned within the B&amp;NES area. Further development could exacerbate the existing surface water problems as the drainage networks receive more flows from areas of hard standing.</i></p>	1. Ensure new developments consider all flood risk. Promote SuDS in accordance with the NPPF, the B&NES Council Place Making Plan, West of England SuDS Guidance and other relevant sustainable drainage requirements.	2. Work with developers and Planning departments to implement the most appropriate drainage strategy.	1	LPA	LLFA	High	Medium

Ref	Action	Informer	Implementation Plan	Plan Progress at April 2015	Action Owner	Supporter	Priority*	Indicative Cost (£)**
SOAP03	Strategic Flood Board	<i>A strategic Flood Board has been established in line with the responsibilities of the Lead Local Flood Authority.</i>	1. Schedule regular meetings of the Flood Board	1	LLFA	EA, WW, Highways Mtc. LPA	HIGH	Low
SOAP04	Operational Flood Working Group		1. Schedule regular meetings of the Operational Flood Working Group	1	LLFA	EA, WW, Highways Mtc.	HIGH	
SOAP05	Improve understanding of flood risk assets		1. B&NES Council to produce an updated Flood Risk Asset Register and Record. Iterative process.	1	LLFA	EA, WW, Highways Mtc.	Medium	High
SOAP06	Establish method of identifying critical highway drainage assets, in order to undertake cost-effective targeted maintenance.		1. Investigate highway drainage flooding events to identify the critical assets. 2. Develop a revised maintenance regime for these critical assets; OR Identify assets that require replacement or improvement	1	LLFA	Highways Mtc.	High	Low
SOAP07	Flood and weather warnings		1. Develop a timely and appropriate response to flood and severe weather warnings.	1	LLFA	Highway Mtc.	HIGH	Low





Ref	Action	Informer			Plan Progress at April 2015	Action Owner	Supporter	Priority*	Indicative Cost (£)**
		Implementation Plan							
SOAP08	Community Engagement				1	LLFA	Parish council network	Medium	Low
		1. Invite Parish's and Federation of Bath Residents Associations (FOBRA) to nominate Local Flood Representatives as a communication channel between the Operational Flood Working Group and communities. Work with Local Flood Representatives							

LLFA: Bath and North East Somerset Drainage and Flooding team	EA: Environment Agency	WW: Wessex Water	Highways Mtc: Bath and North East Somerset Highways
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## 8.5 Joint Action Plan

Analysis of the information collated for the SWMP has identified a number of 'Wet Spots' where appropriate actions are common to all. These actions have been grouped to form a Joint Action Plan.

There are a total of 42 Joint actions listed on the Action Plan, 13 of these are high priority; 15 are medium priority and 14 are low priority actions.

The full joint Action Plan is shown in Appendix D, Table 8.2 below summarises the high priority Joint Actions.

Table 8-2 Joint Action Plan – Summary of High Priority Actions

Wet -spot ID	Location	Action	Implementation Plan	Implementation Phase	Action Owner	Supporter	Priority	Indicative cost
DA06A	Publow Lane and Pensford Hill	<b>Improve highway / land drainage</b>	<ol style="list-style-type: none"> <li>1. Monitor</li> <li>2. Check cyclic maintenance has been carried out</li> <li>3. Investigate performance of highway / land drainage system, identifying any maintenance or design requirements.</li> <li>4. Carry out required maintenance OR design and construct engineering scheme</li> <li>5. Implement continued maintenance programme</li> </ol>	2	LLFA	Highways Mtc	Low	High
DA07B	Wells Road, Hallatrow			2	LLFA		Low	
DA07C	Rush Hill, Farrington Gurney			4	LLFA			
DA10C	Durcott Lane, Camerton and Radford			2 and 3	LLFA			
DA10D	Brookside, Paulton			2	LLFA		Low	
DA11A	Hayes Park area, Midsomer Norton			3	LLFA			
DA14A	Vicinity of Crossways, Dunkerton			1	LLFA			
DA11D	Fortescue Road, Radstock Regeneration area				(Radstock Regen) LLFA			
DA16B	Charlcombe Lane and Landon Road, Larkhall and Fairfield			1	LLFA			
DA16E	Camden Crescent, Walcot			1	LLFA			
DA16F	Bathwick Street, Bathwick	1	LLFA					
DA16H	Lymore Avenue, South Twerton	1	LLFA					
DA16J	Wellsway, Bloomfield	1	LLFA					

LLFA: Bath and North East Somerset Drainage and Flooding team	EA: Environment Agency	WW: Wessex Water	Highways Mtc: Bath and North East Somerset Highways
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## 8.6 Location specific Action Plan

The location specific Action Plan describes the action plan for specific locations. The full site specific Action Plan is shown in Appendix D. The Action Plan has been divided by those actions which can be undertaken in the short term and those that are recommended for future plans of work, and can be undertaken in the longer term.

There are a total of 21 location specific actions listed on the Action Plan, 17 of these are high priority and 4 are medium priority actions.

Table 8.3 summarises the location specific actions for the B&NES area.

Table 8-3 Location Specific Action Plan

Wet-spot ID	Location	Driver	Action	Implementation Plan	Plan Progress at April 2015	Action Owner	Action Supporter	Indicative Cost*	Priority**
DA02A	Chew Magna	Chew Magna suffers from significant flood risk. The local flood risk mechanisms are integrated with main river flooding. Investment has been made in PLP measures to reduce the damage caused by flooding in this area.	Maintenance of drainage assets to enable effective drainage and source control.	<ol style="list-style-type: none"> <li>Asset inspection: is the gully or pipework blocked</li> <li>Undertake necessary maintenance</li> <li>Implement a continued asset maintenance programme</li> <li>Implement source control measures to reduce surface water runoff</li> </ol>	1	LLFA	Highway Mtc	Medium	High
DA02A	Chew Magna	Chew Magna suffers from significant flood risk. The local flood risk mechanisms are integrated with main river flooding. The Environment Agency has carried out extensive fluvial flood modelling for the catchment.	Use EA modelling to inform potential surface water schemes.	<ol style="list-style-type: none"> <li>Analyse fluvial model in relation to surface water</li> <li>Identify potential schemes to reduce surface water flood risk</li> </ol>	1	LLFA	EA, WW	Low	High

Wet-spot ID	Location	Driver	Action	Implementation Plan	Plan Progress at April 2015	Action Owner	Action Supporter	Indicative Cost*	Priority**
DA02D	Chew Stoke	Properties on Wallycourt Road have experienced flooding from pluvial runoff.	Engineering scheme to improve capacity and conveyance route.	<ol style="list-style-type: none"> <li>1. Implement drainage scheme.</li> <li>2. Add upgraded highway gullies to Special Attention maintenance list.</li> </ol>	2	LLFA	Highway Mtc, EA,	Low	High
DA02D	Chew Stoke	Billie Close has experienced flooding from pluvial runoff. Curo (housing association managing properties) has made investment in PLP measures to reduce the damage caused by flooding in this area.	PLP to be installed	<ol style="list-style-type: none"> <li>1 Curo (housing association) to install PLP for residents</li> </ol>	1	Curo	LLFA		
DA03C	West Harptree	West Harptree has experienced flooding as a result of blocked highway gullies.	Maintenance of drainage assets to enable effective drainage.	<ol style="list-style-type: none"> <li>1. Asset inspection: is the gully or pipework blocked</li> <li>2. Undertake necessary maintenance</li> <li>3. Implement a continued asset maintenance programme</li> </ol>	1	LLFA	Highway Mtc	Medium	High

Wet-spot ID	Location	Driver	Action	Implementation Plan	Plan Progress at April 2015	Action Owner	Action Supporter	Indicative Cost*	Priority**
DA03C	West Harptree	West Harptree has experienced flooding as a result of surcharging surface water sewers and gullies.	Undertake scheme to improve capacity and conveyance of drainage system.	<ol style="list-style-type: none"> <li>Engage community on potential scheme(s).</li> <li>Implement drainage scheme.</li> <li>Monitor performance of new systems.</li> </ol>	1	LLFA	Highway Mtc	High	High
DA03C	Ridge Lane and Cowleaze Lane, West Harptree	West Harptree has experienced flooding as a result of surcharging culverted watercourses and highway drains.	Undertake scheme to improve capacity and conveyance of existing system.	<ol style="list-style-type: none"> <li>Engage the community and inform how they can contribute to managing flood risk</li> <li>Source control measures are required to Ridge Lane and Cowleaze Lane.</li> </ol>	2	LLFA,	Local Flood Reps, WW	Low	High
DA05A	Whitchurch	Development is planned on the fringe of Whitchurch.	Upgrade surface water sewer system for the area	<ol style="list-style-type: none"> <li>Design a drainage scheme which will work within the current restrictions</li> </ol>	1	WW Developer	LLFA, LPA	Low High	High

Wet-spot ID	Location	Driver	Action	Implementation Plan	Plan Progress at April 2015	Action Owner	Action Supporter	Indicative Cost*	Priority**
DA05A	Whitchurch	This area is defined as a Flood Risk area (FAWMA) and Bristol LLFA is taking the lead on the Flood Risk Management Plan.	Any proposed developments must consider the Flood Risk Management Plan for the area.	1. Inform developers of the Flood Risk status	1	LLFA	Bristol City LLFA, LPA	Low	High
DA08B	Keynsham	East Keynsham (A4) has experienced flooding from a number of sources including pluvial runoff and highway gully blockage.	Monitor future flood incidents in this area, if flooding continues to cause disruption, upgrade works to highway drainage may be required.	1. Monitor flooding at this location 2. Understand the cause of flooding 3. Assess the need for upgrade works to the drainage network	1	LLFA	Highway Mtc, EA, WW	Low	High
DA10B	Timsbury	Bloomfield Road has experienced surface water flooding, particularly as a result of blocked highway gullies.	Maintenance of drainage assets to enable effective drainage.	1. Asset inspection: is the gully or pipework blocked 2. Undertake necessary maintenance 3. Implement a continued asset maintenance programme	1	B&NES Council Highways		Medium	High



Wet-spot ID	Location	Driver	Action	Implementation Plan	Plan Progress at April 2015	Action Owner	Action Supporter	Indicative Cost*	Priority**
DA11A	Midsomer Norton	Midsomer Norton has experienced flooding from a number of sources across the town.	Undertake detailed SWMP to understand interactions in the flood mechanisms.	<ol style="list-style-type: none"> <li>1. Commission detailed SWMP</li> <li>2. Undertake integrated hydraulic modelling</li> </ol>	1	LLFA	Highway Mtc., EA, WW	High	High
DA16A	Weston and Upper Weston	Significant areas of development are planned on the fringes of Upper Weston and Weston.	Manage the risk of exacerbating an existing surface water problem by considering drainage at master planning stage.	<ol style="list-style-type: none"> <li>1. Establish the current status of the planning applications</li> <li>2. Inform the developers of the wetspot status</li> <li>3. Design a drainage scheme which will work within the current restrictions</li> </ol>	1	LLFA Developer	Low High	High	High
DA16A	Weston village	This is a steep catchment. There is a potential flood risk stemming from maintenance of a culverted watercourse through village.	Undertake study of flooding issues and identify potential measures.	<ol style="list-style-type: none"> <li>1. Engage local community</li> <li>2. Commission study</li> <li>3. Identify potential improvements</li> <li>4. Identify funding opportunities</li> </ol>	1&2	LLFA	WW, EA,	Medium	High

Wet-spot ID	Location	Driver	Action	Implementation Plan	Plan Progress at April 2015	Action Owner	Action Supporter	Indicative Cost*	Priority**
DA16D	Weston Park	Weston Road has experienced flooding. The sources have not been well documented but includes highway gulley blockage.	Maintenance of drainage assets to enable effective drainage.	<ol style="list-style-type: none"> <li>Asset inspection: is the gulley or pipework blocked</li> <li>Undertake necessary maintenance</li> <li>Implement a continued asset maintenance programme</li> </ol>	3	LLFA		Medium	High
DA16G	Bath City Centre	Bath City Centre has experienced flooding. The sources have not been well documented, however likely sources include fluvial, surface water / pluvial, groundwater and highway gulley blockage.	Continue to monitor future flood incidents, if flooding continues to cause disruption, upgrade works to highway drainage may be required.	<ol style="list-style-type: none"> <li>Monitor flooding at this location</li> <li>Understand the cause of flooding</li> <li>Assess the need for upgrade works to the drainage network</li> </ol>	1	B&NES Council	B&NES Council Highways, EA, WW	Low	High

Wet-spot ID	Location	Driver	Action	Implementation Plan	Plan Progress at April 2015	Action Owner	Action Supporter	Indicative Cost*	Priority**
DA16G	Lower Bristol Road	Surface water flooding and highway drainage issues known. Significant development and associated river Avon flood risk improvements planned.	Ensure any development/ flood risk scheme appreciates surface water flood risk.	1. Ensure developer is aware of surface water flooding issues (and potential interaction with river Avon).	1	B&NES Council Major projects	EA, LLFA	High	High
DA18A	Batheaston and Bathford	London Road East has experienced fluvial flooding from Main River.	Education of riparian owners on their rights and responsibility.	1. Engage the community and inform how they can contribute to managing flood risk 2. Explain the importance of maintenance to ditches	1	EA	LLFA, Local Flood Repts	Low	High

LLFA: Bath and North East Somerset Drainage and Flooding team	EA: Environment Agency	WW: Wessex Water	Highways Mtc: Bath and North East Somerset Highways
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These prioritised actions address a number of flood sources. Many of the prioritised actions address flood incident points with unknown sources. This highlights the importance of better data collection across the B&NES area. Many of the high priority actions address flooding from highway gullies. These can be considered as 'Quick Wins' as asset cleaning of these wet-spot areas can be achieved relatively easily. In addition, another source of flooding identified is flooding from drainage ditches or ordinary watercourses. Often this is due to poor asset condition. As a result, this Action Plan suggests the education of Riparian owners on their rights and responsibility. It is recommended that the Operational Flood Working Group work with Local Flood Representatives to disseminate this information.

## 8.7 Detailed SWMP

The B&NES area wide SWMP has highlighted a number of drainage areas where more detailed Level 2 SWMPs would provide a better understanding of flood risk. These areas, in order of priority are:

- Midsomer Norton – Further investigations;
- Weston in Bath (Rudmore Lane area) – detailed SWMP.

## 8.8 Sources of funding

Funding for local flood risk management may come from a wide range of sources. In the B&NES area these may include:

- Defra (Flood Defence Grant in Aid)
- Industrial estate owners and businesses
- B&NES Council (highways)
- Local communities
- New developments (directly through the developer or through CIL)
- Wessex Water
- Local Levy from the RFCC
- Environment Agency where combined sources involved dominated by Main River
- Natural England (catchment sensitive farming grants)

It is likely that in the B&NES area many of the actions will be collaboratively funded by the project partners as multiple benefits could be achieved. Additional funding streams are available when project deliverables include improvements to highways, public open spaces and biodiversity.

## 8.9 Ongoing monitoring

The Strategic Flood Board and Operational Flood Working Group partnership arrangements established as part of the LFRMS and SWMP processes will continue beyond the completion of the SWMP in order to discuss the implementation of the proposed actions, review opportunities for operational efficiency and to review any legislative changes.

There may be circumstances which might trigger a review and/or an update of the action plan in the interim, for example:

- Occurrence of a surface water flood event
- Additional data or modelling becoming available, which may alter the understanding of risk within the study area
- Outcome of investment decisions by partners is different to the preferred option, which may require a revision to the action plan
- Additional (major) development or other changes in the catchment which may affect the surface water flood risk

## 9 Development and Surface Water Management

### 9.1 Impact of urbanisation

In terms of flood potential, urbanisation is probably the most significant land use change that can be made to a catchment. In recognition of this B&NES Council has provided much of the information in this chapter to highlight the risks and make the linkages to current planning policy.

The development of an urban area, covering the ground with impermeable surfaces can have a significant effect on evaporation / transpiration and surface runoff processes. This has implications for flooding and water quality with consequences including:

- **Increased runoff volume.** Urban surfaces are typically less permeable than rural surfaces, so runoff volumes are greater;
- **Faster runoff.** Urban development includes drainage works (for example, gutters, pipes, sewers and channel improvements) to convey runoff away from the source. Rainfall runs off impermeable surfaces more rapidly and the response is faster to peak. This means that the catchment becomes sensitive to shorter duration storms;
- **Antecedent catchment wetness less influential.** Urban surfaces wet-up more readily than rural surfaces, so pre-storm catchment conditions are less influential.
- **Less recharge.** An increase in impermeable surfaces leads to a reduction in natural groundwater recharge; river base flows are correspondingly reduced.
- **Interaction with soil type.** Urban effects tend to be greater for naturally permeable catchments (which have a low percentage runoff and slow response) than for impermeable catchments (which already have a typically urban high percentage runoff and fast response).
- **Interaction with return period.** Floods of all return periods are, in general, increased. Urban effects tend to be more pronounced in the response to small, short return period storms (which otherwise yielded low percentage runoff and little overland flow). Severe, high return period storms, which already have a typically urban high percentage runoff and increased overland flow, can be expected to produce a response more typical of the original catchment state.
- **Seasonality.** Rural catchments tend to respond to longer duration rainfall events, more often associated with frontal rainfall; these are more prevalent in winter (November to April). Urbanised catchments tend to respond to short duration intense rainfall events, most commonly convective storms; these are more frequent in summer (May to October). Thus, the seasonality of flooding may move from winter to summer.
- **Possible separation effect.** Where urban development is highly localised within the catchment, a separation effect can arise, particularly on naturally permeable catchments. The flood hydrograph then comprises two components: a short-term intense response from the urban area and a longer-term more attenuated response from the rural area. On catchments where a two-part response typically occurs, it may be flood frequency rather than flood magnitude that increases due to urbanisation. The location of settlements with respect to the outfall can have various effects, downplaying or emphasising the separation effect. Urbanisation in upstream areas may result in a rapid urban response which coincides with and reinforces the slower rural response from downstream, so that the effect on flood frequency may be intensified. In contrast, urbanisation in downstream areas may cause the urban response to pass before the slow rural response from upstream arrives, so that the effect on flood frequency may be less extreme. However, observed storms can consist of two or more bursts and, in some instances, the urban response from the downstream areas may reinforce the upstream rural response to an earlier burst.
- **Loss of floodplain storage.** Where urban development encroaches on to the floodplain, possibly associated with levee construction, the available overbank storage is reduced, leading to increased flooding downstream.
- **Impacts on water quality.** The rapid runoff of storm water is likely to cause pollutants and sediments to be washed off the surface or scoured by the river. In an urban area there are likely to be more pollutants on the catchment surface than there would be on the surface of a rural catchment thus increasing the risk.

Impermeable areas are defined as roads, roofs, and hard standing / paving; permeable areas account for everything else (for example, gardens and open spaces). The impacts of urbanisation will not always be the same due to differences in the characteristics (permeability, porosity) of various urban surfaces. Mitigating works such as Sustainable Drainage Systems (SuDS) can be implemented to reduce the impact of urbanisation on surface water flooding and can result in an overall reduction in peak flows in heavily urbanised areas.

One of the objectives for the SWMP is to ensure the level of future development does not exacerbate existing problems and to identify opportunities for new development to provide benefits in terms of flood risk management.

Planners, consultants and developers will need to consider the most appropriate surface water discharge method during the initial site planning process. Early consideration of the proposed drainage strategy is imperative as it will likely determine the site layout and drainage land take requirements.

The Council recognises that one of the greatest challenges for managing flood risk and surface water management is the legacy of drainage networks that struggle to cope with the increase in surface water volumes due to increased urbanisation and climate change. The proper consideration of surface water runoff as part of all developments, and the use of sustainable drainage systems (SuDS), is key to the successful management of both existing and future flood risk.

#### **9.1.1 Identification of potential surface water flood risk**

Many potential development sites fall within or are in close proximity to areas at risk of surface water flooding. In light of this it will be essential that site specific Sustainable Drainage Strategies are undertaken for any sites that are within or close to areas at risk of surface water flooding, in order to ensure that each development takes due account of the potential flood risk and the importance of the appropriate surface water management.

The Interactive Flood Incident Maps (Appendix B) and the Environment Agency Flood Map for Surface Water give an indication of the likelihood of surface water flood risk. See Chapters 6 and 7 for more details.

#### **9.1.2 Opportunities to reduce flood risk**

Another important aspect for the Council to be aware of is where development sites present opportunities to manage and mitigate local flood risk beyond the proposed development site boundary. Applicants / Developers of the major development sites should always seek to provide betterments on their site and reduce the risk of flooding.

New development should not increase the rate of run off from a site's undeveloped state and redevelopment should reduce run off rates. The topography of a development site should be managed so as not to introduce new flow paths that will increase flood risk.

#### **9.1.3 B&NES Sustainable Drainage Systems Policy and Guidance**

The Bath and North East Somerset Placemaking Plan<sup>19</sup> sets out the Development Management Policies to which B&NES will work. The Sustainable Drainage Systems Policy links with the Core Strategy Key Policy CP5 Flood Risk Management and CP7 Green Infrastructure and requires that all sites are expected to incorporate sustainable drainage systems to reduce surface water runoff and minimise its contribution to flooding.

In addition, there are site specific requirements for the Core Strategy Strategic Site allocations and for the site allocations proposed within the Placemaking Plan.

The Placemaking Plan Sustainable Drainage Systems policy is supported by the West of England Sustainable Drainage Developer Guide, which provides standards and guidance for developers, planners, designers and consultants on the requirements for design, approval and adoption of SuDS in the Somerset and the West of England. The guidance provides information on the planning, design and delivery of attractive, high quality and well integrated SuDS

schemes, promotes the need for early consideration of SuDS, and introduces the use of a “proof of concept” process to gain agreement in principle at an early stage from the approving authority.

The aims of the Placemaking Plan Sustainable Drainage System Policy are to:

- Set out the high level principles for drainage designs incorporating SuDS features and the SuDS hierarchy that will be used in B&NES.
- Provide a basis for the incorporation of SuDS in development schemes through the planning system, ensuring that SuDS features are considered at an early stage and incorporated into a scheme design.
- Identify key considerations and requirements for developers which should be addressed via development management.

Table 9.1 Surface water drainage policies and legislation for development

Policy / Legislation
National Planning Policy Framework (NPPF)
Sustainable drainage systems policy: Written statement (HCWS161) 18 December 2014
Bath and North East Somerset Council emerging Placemaking Plan: Policy SU1
Building Regulations Part H (HM Government, 2010)
Bath and North East Somerset Council’s Core Strategy

Table 9.2 Surface water drainage guidance for development

Guidance
Planning Practice Guidance (Department for Communities and Local Government)
Non-Statutory technical standards for sustainable drainage systems (Department for Environment, Food and Rural Affairs, 2015)
West of England Sustainable Drainage Developer Guide (West of England Partnership, 2015)
Environment Agency Local Flood Risk Standing Advice for Bath and North East Somerset (Environment Agency, 2014)

### 9.1.4 Infiltration Potential maps

The Discharge Hierarchy (see West of England Sustainable Drainage Developer Guide) identifies infiltration as the most sustainable method of surface water drainage and ranks alternative means of disposal in order of sustainability.

Runoff must be discharged in order of priority:

- Into the ground by infiltration
- Into a surface water body such as a river, ditch, pond or stream
- Into a surface water sewer
- Into a combined sewer

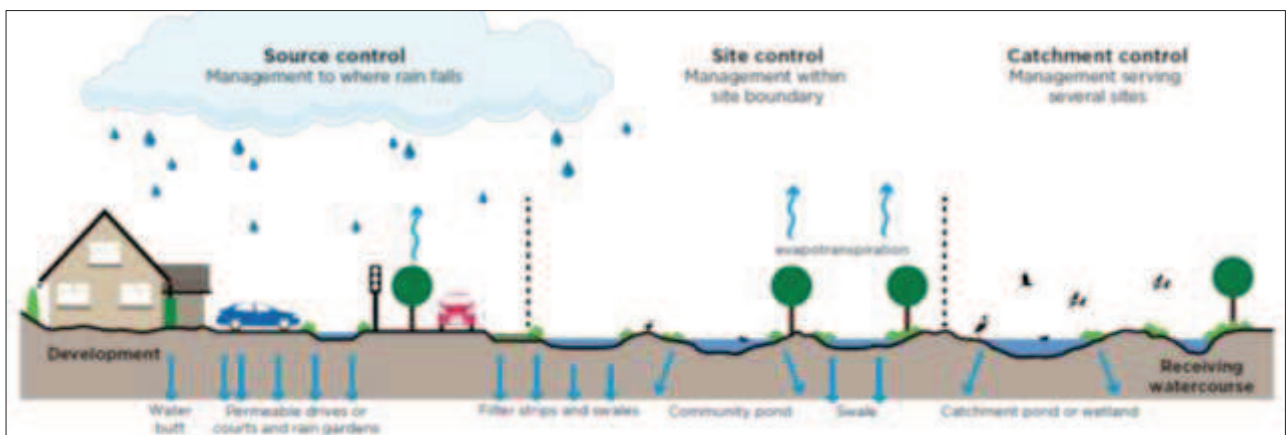


Figure 9.1 The Discharge Hierarchy, taken from the West of England Sustainable Drainage Developer Guide (Section .3)

In order to aid developers in their ‘proof of concept’ and / or sustainable drainage strategy, this SWMP has produced a series of Infiltration Potential Maps to identify where infiltration needs to be considered, and areas where it need not be considered.

The Infiltration Potential maps use British Geological Survey data to highlight areas that may be suitable for infiltration drainage techniques and recommends the steps that should be taken to confirm site specific infiltration potential.

It must be noted that these maps are provided as a guide only and ultimately site specific infiltration tests and ground investigations will need to be conducted and provided to the Local Planning Authority for review.

In addition to infiltration rates, any proposal to use infiltration drainage must consider a number of other influencing factors, including:

- Depth to water table
- Contaminated material / groundwater protection
- Risk of landslips

This information should be established by way of ground investigations.

### 9.1.5 How to use the Infiltration Potential maps

The maps are colour coded according to their likely infiltration potential. Depending on what colour band your development site falls into, you will need to either make further investigations or move down the Drainage Hierarchy.

Table 9.3 Decision Matrix for using the Infiltration Potential Maps

Colour band	Infiltration potential	Action
Green	Highly compatible for infiltration SuDS	Infiltration testing required to confirm design parameters.
Orange	Probably compatible for infiltration SuDS	Infiltration testing required. Test results needed to justify any move down the discharge hierarchy
Red	Very significant constraints are indicated	As infiltration SuDS are unlikely to be viable, a move down the Drainage Hierarchy to the next destination would be acceptable without further justification.

Figure 9.2 below shows the Infiltration Potential Map for the entire Bath and North East Somerset area. Appendix F – Infiltration Potential Maps then includes enlarged Infiltration Potential Maps for the different Drainage Areas in Bath and North East Somerset.



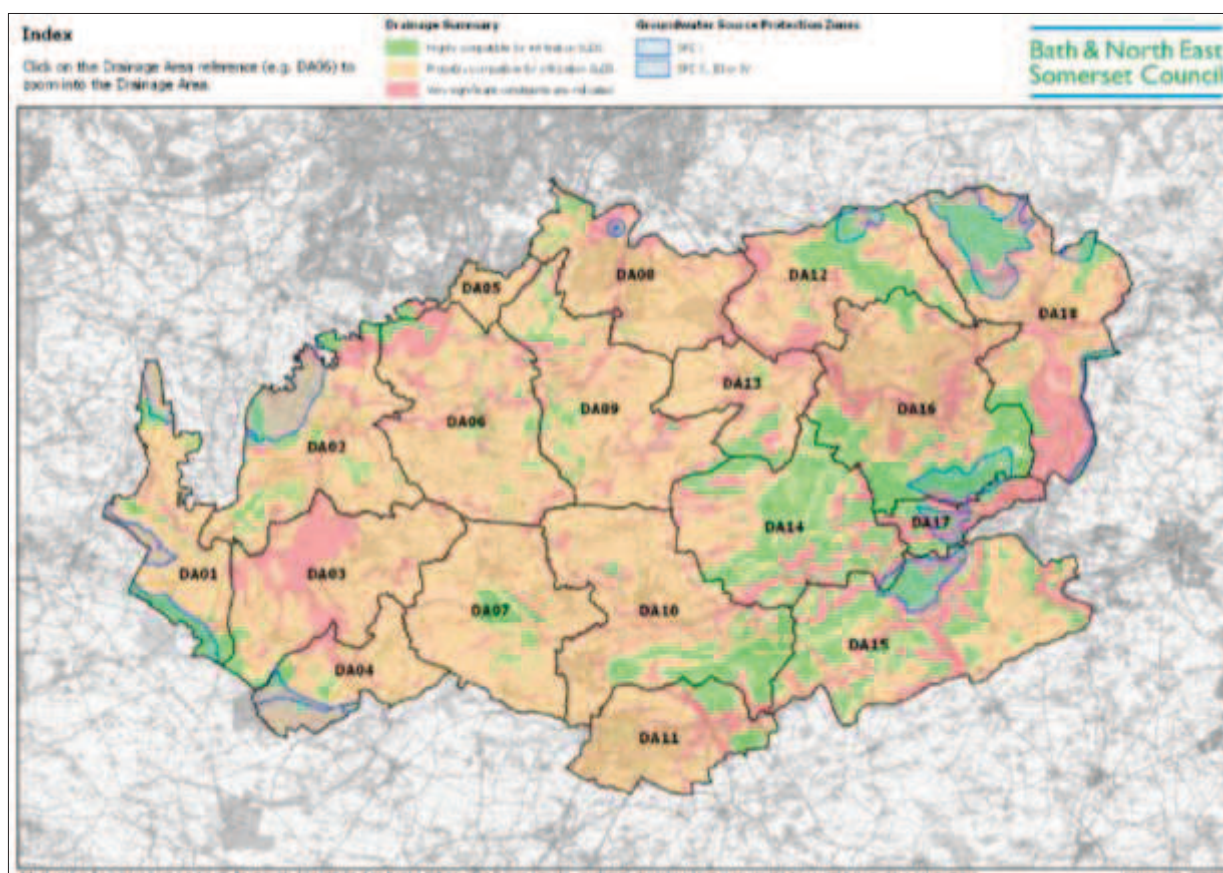


Figure 9.2 Infiltration Potential Overview Map - Supplied by B&NES Council (see Appendix F for Infiltration Maps at a Drainage Area scale)

### 9.1.6 Groundwater source protection

In addition to the infiltration potential, the Infiltration Potential Maps also include information about Groundwater Source Protection Zones. Groundwater Source Protection Zones identify areas where groundwater is highly sensitive to contamination (commonly because the groundwater is used as a source for drinking water). The Infiltration Potential Maps highlight:

- Groundwater Source Protection Zone I - where there is a 50 day travel time from any point below the water table to the source. This zone has a minimum radius of 50 metres.
- Groundwater Protection Zones II, III, IV – areas with a longer travel time than in Zone I, or areas identified as a 'zone of special interest'.

More information about Groundwater Protection Zones can be obtained from the Environment Agency.

If a development is likely to interact with a sensitive water body or a Groundwater Source Protection Zone (I, II, III, or IV), a water quality risk assessment will be required to quantify the potential risk. The water quality risk assessment could form part of a wider Water Framework Directive compliance assessment if required at the planning stage.

## 9.2 Climate Change

The nature of climate change will vary at a regional level. In the UK projections of future climate change indicate that more frequent short-duration, high-intensity rainfall and more frequent periods of long-duration rainfall of the type responsible for the 2000 floods could be expected. These changes will have implications for surface water flooding.

To help organisations (including local authorities and regional planning bodies) to assess their vulnerability to climate change and plan appropriate adaptation strategies, the Government established the UK Climate Impacts Programme (UKCIP).

Recommended precautionary sensitivity ranges for climate change are provided in the Defra document 'FCDPAG3 Economic Appraisal Supplementary Note to Operating Authorities – Climate Change Impacts'. Global sea level will continue to rise, depending on greenhouse gas emissions and the sensitivity of the climate system. The relative sea level rise in England also depends on the local vertical movement of the land, which is generally falling in the south-east and rising in the north and the west.

The suggestion is that winters will become wetter over the whole of the UK, by as much as 20% in the 2050s. A shift in the seasonal pattern of rainfall is also expected, with summer and autumn becoming much drier than at present. Snowfall amounts will decrease significantly throughout the UK, but the number of rain-days and the average intensity of rainfall are expected to increase. Although average seasonal wind speeds could increase over most of the country, there is currently much less certainty regarding the potential for greater storminess and the consequences for sea surges or extreme wave activity on coasts.

In making an assessment of the impact of climate change on flooding from the land, rivers and sea as part of a flood risk assessment, the sensitivity ranges in Table 9.4 below should be used to provide an appropriate precautionary response to the uncertainty about climate change impacts on rainfall intensities and river flow.

Table 9.4 sensitivity ranges for climate change

Parameter	1990 to 2025	2025 to 2055	2055 to 2085	2085 to 2115
Peak rainfall intensity	+5%	+10%	+20%	+30%
Peak river flow	+10%	+20%		

Source: Environment Agency, September 2013, 'Climate change allowances for planners', Table 2.

### 9.2.1 Urban Creep

Urban creep is the conversion of permeable surfaces to impermeable over time e.g. surfacing of front gardens to provide additional parking spaces, extensions to existing buildings, creation of large patio areas. Much research has been carried out in to the effect of urban creep and its effect on the drainage systems which cater for urban areas. It has been shown that, over the lifetime of a development, urban creep can increase impermeable areas by as much as 10%.

Whilst we have always considered the impermeable areas proposed on new development sites and accounted for climate change we have not, previously, accounted for urban creep. From April 2015 an allowance for urban creep is required as part of the surface water drainage proposals for new developments and redevelopments.

The consideration of urban creep should be assessed on a site by site basis but is limited to residential development only.

The appropriate allowance for urban creep must be included in the design of the drainage system over the lifetime of the proposed development.

The allowances set out below must be applied to the impermeable area within the property curtilage:

Table 9.5 Urban Creep allowances

Residential development density (dwellings per hectare)	Change allowance (% of impermeable area)
≤ 25	10
30	8
35	6
45	4
≥50	2
Flats and apartments	0

Source: *West of England Sustainable Drainage Developer Guide, Section 1 p 26.*

Where the inclusion of the appropriate allowance would increase the total impermeable area to greater than 100%, 100% should be used as the maximum. “Curtilage” means area of land around a building or group of buildings which is for the private use of the occupants of the buildings.

### 9.3 Conclusions / Recommendations

Urbanisation and climate change have the potential to significantly impact surface water flood risk within the B&NES area.

Climate change is likely to increase surface water flood risk throughout the B&NES area, particularly in those areas that are already at risk and identified as flooding wet-spots.

Future development also has the potential to increase flood risk. It is therefore important that surface water flood mitigation measures are included in any development plans, following B&NES SuDS policy.

Appropriate development management policies are already in place to minimise the potential impact of urbanisation and climate change and it will be important for these to continue to be implemented for all new developments within the B&NES area.

## 10 Effects of Interference to Flow from Bridges and Structures

Bridges and structures that are within close proximity to, or cross a watercourse or overland flow route, have the potential to interfere with flows, re-directing flood water and in some cases, particularly where structures become blocked, potentially exacerbating flood risk.

A high level assessment of the effects of interference to surface water flow from bridges and structures owned and operated by B&NES Council has been carried out as part of this study to identify structures that could be having a significant impact on surface water flows and exacerbating flood risk.

Information from the B&NES Council asset register has been collected and analysed to identify potentially critical structures based on the following criteria:

- Flood incidents in proximity to a structure on the B&NES Council Asset Register
- Where properties could be affected in the event of blockage of a structure
- Where climate change results suggest that structure blockage could affect a significant number of properties
- Where properties affected are in an area of high deprivation
- Structures where there is a risk of critical infrastructure being affected in the event of blockage.

### 10.1 Analysis results

There are a total of 178 structures listed on the B&NES Council asset register, 137 of these are Bridges, 36 are Culverts and 5 are Screens.

#### 10.1.1 Assessment of flood incidents in proximity to a structure on the B&NES Council Asset Register

An analysis of the 178 structures (bridges, culverts and screens) that are listed on the B&NES Council asset register was carried out to determine how many of the structures are within close proximity of a flood incident shown on the Interactive Map of Local Flood Incidents. The results of this analysis are shown in Table 10.1 below.

Table 10.1 Numbers of structures in proximity of a flood incident on the Interactive map of local flood incidents.

Structure Types on the B&NES Council Asset Register	Number of structures within a proximity of a 100m of a flood incident
Bridges	55
Culverts	9
Screens	3

A total of 67 structures - 55 bridges, 9 culverts and 3 screens - are located close to a recorded flood incident and could potentially exacerbate flooding in these areas if the structures became blocked.

#### 10.1.2 Assessment of where properties could be affected in the event of a structure blockage

A further analysis was carried out to establish which of the 67 structures that are located close to a recorded flood incident are also located close to a residential property.

The results of this analysis are shown in Table 10.2 below.

Table 10.2 Number of structures within close proximity to a recorded flood incident AND residential properties.

Structure Types on the B&NES Council Asset Register	Number of structures within 100m of a residential property
Bridges	30
Culverts	4
Screens	2

A total of 36 structures - 30 bridges, 4 culverts and 2 screens - are located within close proximity to residential properties and a recorded flood incident shown on the Interactive Map of Local Flood Incidents. Blockage of these structures has the potential to exacerbate flooding affecting residential properties.

### 10.1.3 Assessment of where the properties affected are in an area of high deprivation

The Indices of Multiple Deprivation (IMD) are a long standing method used by the government to develop a single understanding of deprivation at a local level by allowing a relative comparison of all areas in England. Deprivation in these terms is used to cover a wide range of issues and looks at unmet needs across a number of issues (or “domains”). The Bath and North East Somerset Council Indices of Deprivation 2010 provides an update to this data for the 2010 indices published in March 2011.

Bath and North East Somerset is one of the least deprived authorities in the country ranking 247 out of 326 English authorities. It is ranked 49 out of 56 unitary authorities. Despite these relatively low levels of deprivation, pockets of high deprivation remain within the area. The areas of “higher” deprivation (most deprived 40%) within the B&NES area are shown in

Figure 10.1 below.

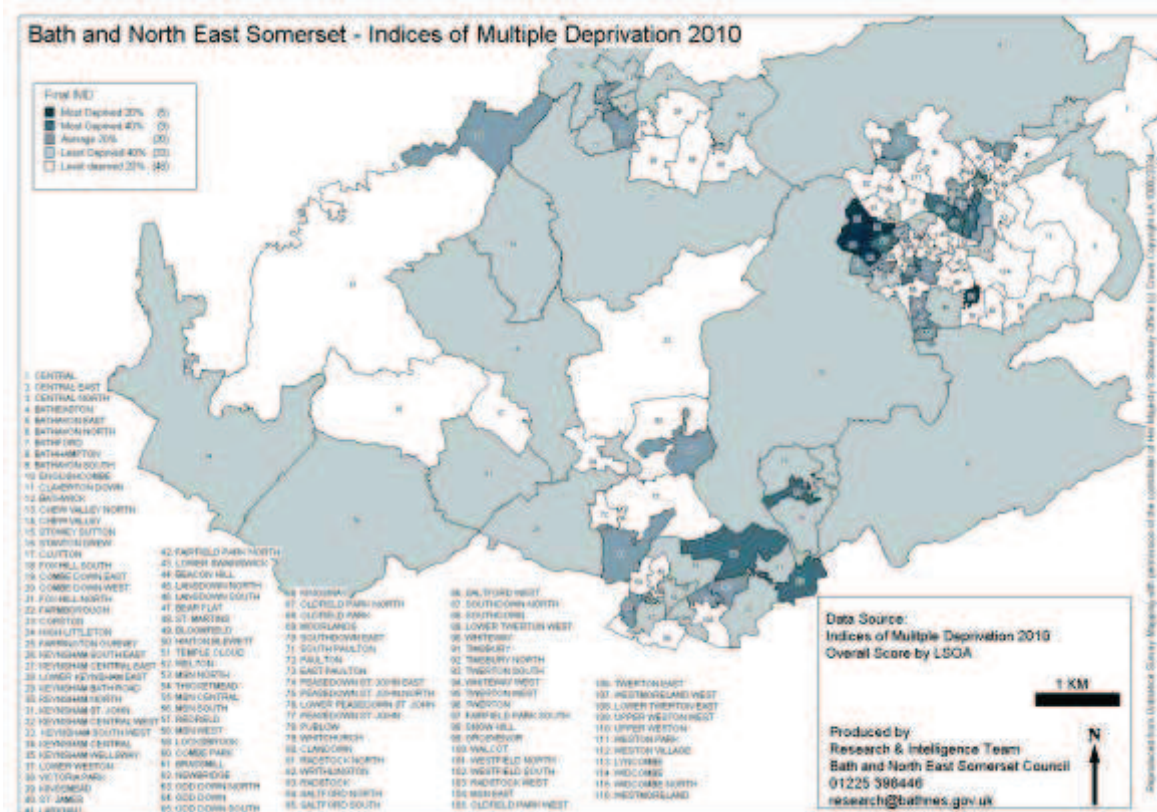


Figure 10.1 Bath and North East Somerset – Indices of Multiple Deprivation.

Five areas are within the most deprived 20% of the country with a further nine within the most deprived 40%.

An analysis was carried out to identify structures on the B&NES Council asset register that are within close proximity of a recorded flood incident, close to a residential property and within an area of deprivation.

The results are summarised in Table 10.1 below.

Table 10.3 Structures that are located within close proximity of a recorded flood incident, close to residential properties AND within an area of deprivation

Structure Types on the B&NES Council Asset Register	Number of structures within 100m of a residential property and in an area of high deprivation
Bridges	7
Culverts	0
Screens	0

There are 7 bridges within close proximity to a recorded flood incident shown on the Interactive Map of Local Flood Incidents, close to residential properties and within an area of deprivation. These structures can be considered critical for maintenance as they have to potential to exacerbate flooding to residential properties in areas of high deprivation should they become blocked.

### 10.1.4 Assessment of where climate change results suggest that flooding could affect a significant number of properties

The predicted flood outlines from the updated Flood Map for Surface Water with climate change allowance have been used to identify structures that are close to residential properties where flood extents are increased with climate change taken into account.

The results of the analysis are shown in Table 10.4 below.

Table 10.4 Structures which are close to residential properties where flood extents are likely to increase with climate change

Structure Types on the B&NES Council Asset Register	Number of structures within 100m of a residential property affected by climate change
Bridges	7
Culverts	0
Screens	0

There are 7 bridges that are close to residential properties and within an area where climate change is likely to increase flood extents. These structures can be considered critical for maintenance as flood risk is likely to increase in the future and flooding to properties could be exacerbated in the event of structure blockage.

#### 10.1.5 Assessment of structures where Critical Infrastructure could be affected by structure blockage

Items which are classified as “Critical Infrastructure” within the National Receptor Database are listed in Table 7.1 and include Schools, Hospitals, Power Stations, Electrical sub-stations and Sewage and Water Treatment Works.

An analysis was carried out to identify bridges, culverts and screens on the B&NES Council asset register that are close to critical infrastructure. The results of the analysis are shown in Table 10.5 below.

Table 10.5 Structures close to Critical Infrastructure

Structure Types on the B&NES Council Asset Register	Number of structures within 100m of critical infrastructure
Bridges	20
Culverts	2
Screens	2

24 structures - 20 Bridges, 2 culverts and 2 screens - are located close to critical infrastructure. These structures can be considered critical in terms of their requirement for regular maintenance as they have the potential to exacerbate flood risk to critical infrastructure in the event of structure blockage.

## 10.2 Critical structures

Based on the analysis results, a total of 27 structures (2 screens, 2 culverts and 23 bridges) have been identified as potentially critical in terms of their requirement for regular maintenance. Due to the location of these structures, close to a recorded flood incident, close to residential properties and in areas of deprivation, close to residential properties in areas affected by climate change, or close to critical infrastructure, these structures have the potential to cause significant flooding if they become blocked. These structures should therefore be prioritised for maintenance to ensure that, as far as possible, they remain clear of blockages. Some of the structures are critical for more than one of the criteria analysed.

The potentially critical structures are summarised in Figure 10.2 and Table 10.6 below.

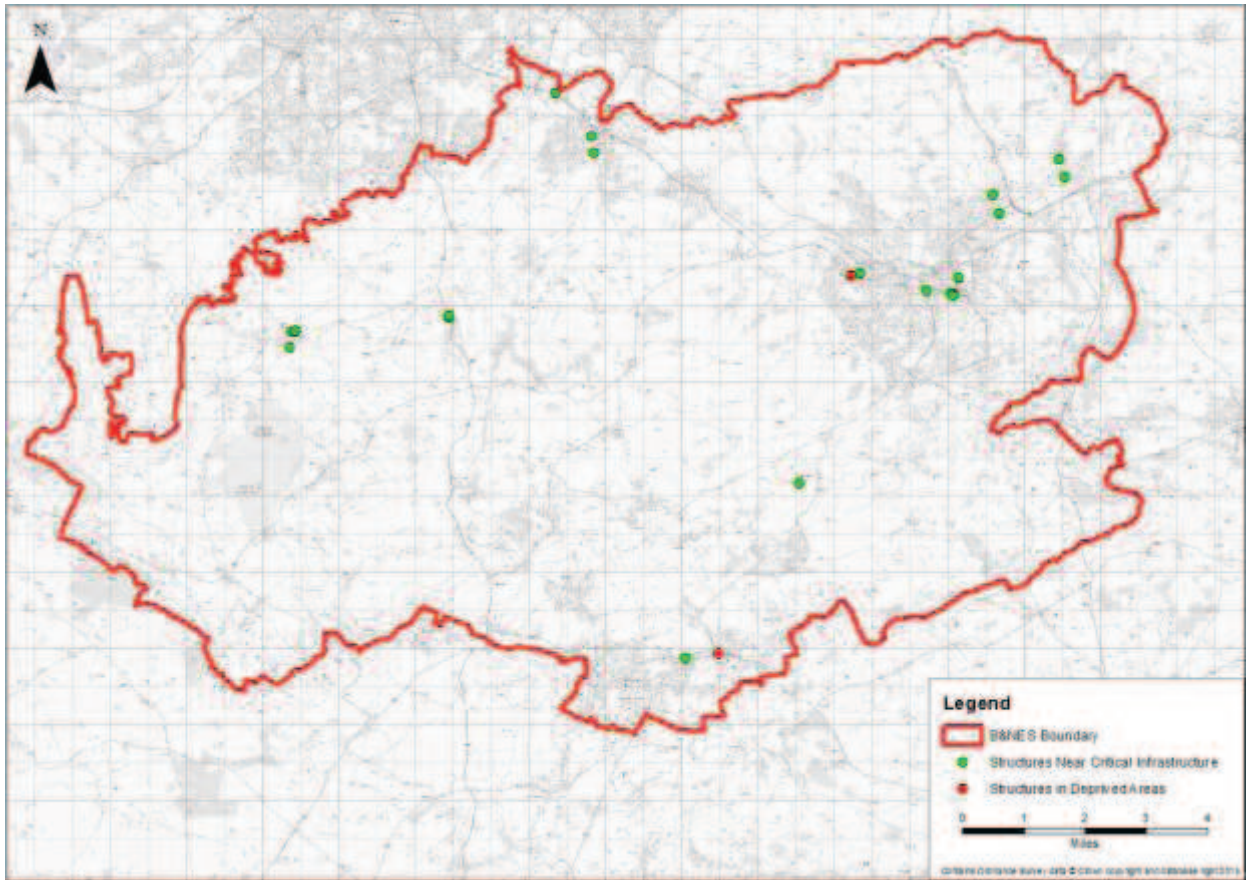


Figure 10.2 Structures near Critical Infrastructure and in Deprived Areas



Table 10.6 Structures that could be considered critical for maintenance to avoid blockage

Criteria	Easting	Northing	Asset Register ID	Name	Owner	Type	Associated Watercourse / Road
Potential to exacerbate flooding to properties in areas of deprivation and to critical infrastructure	372444	164802	76087	Connection Road (Railway) Bridge	Railtrack	Bridge	Connection Road
Potential to exacerbate flooding to critical infrastructure and with climate change	357759	163320	56021	Gasworks (Silver Street) Bridge	B&NES Council	Bridge	Winford Brook
	357824	163325	56067	The Batch Footbridge	B&NES Council	Bridge	Stream
	357846	163369	56123	School Lane Footbridge	B&NES Council	Bridge	Stream
	378056	167402	76006	Stambridge Bridge	B&NES Council	Bridge	St. Catherine's Brook
	376165	166913	76114	Brooklyn Road Bridge	B&NES Council	Bridge	Lam Brook
Potential to exacerbate flooding to properties in areas of deprivation	368975	154883	65091	Radstock Co-op Bakery Bridge	Radstock Co-operative	Bridge	Wellow Brook
Potential to exacerbate flooding to critical infrastructure	368101	154755	-	Welton Road	B&NES Council	Screen	-
	357748	163441	23	Chew Magna	B&NES Council	Screen	-
	377917	167866	76058	School Lane Culvert	B&NES Council	Culvert	St Catherine's Brook
	361882	163711	66048	Side Stream (Salters Brook Culvert)	B&NES Council	Culvert	Salters Brook
	375274	164742	76161	Terrace Walk / Parade Gardens	B&NES Council	Bridge	-
	357694	162912	56043	Tun Bridge	B&NES Council	Bridge	River Chew
	375156	164304	76182	Skew Rail Bridge	Railtrack	Bridge	River Avon and Footpath
	375067	164332	76071	Churchill (Avon Services) Footbridge	B&NES Council	Bridge	River Avon
	374435	164398	76096	Lower Oldfield Park Rail Bridge	Railtrack	Bridge	Lower Oldfield Park

	376343	166435	76005	Lambridge Bridge	B&NES Council	Bridge	Lam Brook
	375104	164276	76072	Claverton Street Subway	B&NES Council	Bridge	Footway
	372687	164869	76048	Weston Cut (Canal) Footbridge	British Waterways	Bridge	Weston Cut
	371080	159346	75004	Dunkerton Church Bridge	B&NES Council	Bridge	Cam Brook
	365696	168031	66060	Cooks (Steel Mill) Bridge	B&NES Council	Bridge	River Chew
	365637	168459	66029	Chew Bridge (Keynsham)	B&NES Council	Bridge	River Chew
	361868	163718	66047	Pensford Old Bridge	B&NES Council	Bridge	River Chew
	361869	163765	66016	Pensford New Bridge	B&NES Council	Bridge	River Chew
	364681	169592	66109	Durley Lane Railway Bridge	Railtrack	Bridge	Durley Lane
Potential to exacerbate flooding with climate change	373554	165064	0	Windsor Footbridge	B&NES Council	Bridge	River Avon
	373568	165067	76043	Windsor Road Bridge	B&NES Council	Bridge	River Avon

It should be noted that these results are based on a very broad scale, high level analysis and that further more detailed assessments should be carried out in order to establish the actual impact of structure blockage. There are various methods available for the purpose depending on the level of detail of existing information.

## 11 References

- <sup>1</sup> Sir Michael Pitt (2008) The Pitt Review: Learning lessons from the 2007 floods
- <sup>2</sup> Defra (2012) Surface Water Management Plan Technical Guidance
- <sup>3</sup> Department for Communities and Local Government (2010) Planning Policy Statement 25: Development and Flood Risk
- <sup>4</sup> Department for Communities and Local Government (2012) National Planning Policy Framework
- <sup>5</sup> Defra (2005) Making Space for Water: Taking for a new Government Strategy for flood and coastal erosion risk management in England
- <sup>6</sup> Environment Agency (2010) Preliminary Flood Risk Assessment (PFRA) Final Guidance
- <sup>7</sup> Defra (2010) Flood and Water Management Act Section 9 - Local Flood Risk Management Strategies
- <sup>8</sup> B&NES Core Strategy (2009)
- <sup>9</sup> Capita Symonds (2008) SFRA Level 1 for Bath and North East Somerset
- <sup>10</sup> Capita Symonds (2009) SFRA Level 2 for Bath
- <sup>11</sup> Capita Symonds (2009) SFRA Level 2 for Keynsham
- <sup>12</sup> Capita Symonds (2009) SFRA Level 2 for Midsomer Norton and Radstock
- <sup>13</sup> Capita Symonds (2009) Bath and North East Somerset Flood Risk Management Strategy Scoping Study
- <sup>14</sup> Atkins (2010) Bath and North East Somerset Flood Risk Management Strategy Report
- <sup>15</sup> Environment Agency (2009) Bristol Avon CFMP
- <sup>16</sup> Environment Agency (2012) Bristol Avon CFMP Summary Report
- <sup>17</sup> B&NES Environmental Sustainability and Climate Change Strategy 2012-2015
- <sup>18</sup> B&NES Preliminary Flood Risk Assessment March 2011
- <sup>19</sup> Bath and North East Somerset Placemaking Plan - Part 2 of the Local Plan – Options Document, November 2014.
- <sup>20</sup> Marshall, D.C.W. and Bayliss, A.C. June 1994. Report No. 124. Flood estimation for small catchments. Institute of Hydrology, Wallingford
- <sup>21</sup> <http://www.bathnes.gov.uk/services/streets-and-highway-maintenance/drains/report-drainage-issue#programme>
- <sup>22</sup> Environment Agency, Living on the Edge, 5<sup>th</sup> Edition 2014
- <sup>23</sup> National SUDS Working Group, July 2004, Interim Code of Practice for Sustainable Drainage Systems
- <sup>24</sup> Environment Agency and Department for Environment Food and Rural Affairs, Rainfall runoff management for developments, Report – SC030219, October 2013

## Appendix A - Data Register and Quality Score

## Appendix B – Interactive Map of Local Flood Incidents

## Appendix C – Local Flood Incident Table

## Appendix D - Action Plan

## Appendix E – Flood Incident Data Collection Fields



## Appendix F – Infiltration Potential Maps

Offices at

**Coleshill**

**Doncaster**

**Edinburgh**

**Exeter**

**Haywards Heath**

**Limerick**

**Newcastle upon Tyne**

**Newport**

**Saltaire**

**Skipton**

**Tadcaster**

**Thirsk**

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## PLANNING, HOUSING AND ECONOMIC DEVELOPMENT POLICY DEVELOPMENT AND SCRUTINY PANEL

This Forward Plan lists all the items coming to the Panel over the next few months.

Inevitably, some of the published information may change; Government guidance recognises that the plan is a best assessment, at the time of publication, of anticipated decision making. The online Forward Plan is updated regularly and can be seen on the Council's website at:

<http://democracy.bathnes.gov.uk/mgPlansHome.aspx?bcr=1>

The Forward Plan demonstrates the Council's commitment to openness and participation in decision making. It assists the Panel in planning their input to policy formulation and development, and in reviewing the work of the Cabinet.

*Should you wish to make representations, please contact the report author or Mark Durnford, Democratic Services (01225 394458). A formal agenda will be issued 5 clear working days before the meeting.*

*Agenda papers can be inspected on the Council's website and at the Guildhall (Bath), Hollies (Midsomer Norton), Civic Centre (Keynsham) and at Bath Central, Keynsham and Midsomer Norton public libraries.*



Ref Date	Decision Maker/s	Title	Report Author Contact	Strategic Director Lead
<b>1ST SEPTEMBER 2015</b>				
1 Sep 2015	PHED PDS	Community Infrastructure Levy	Simon De Beer Tel: 01225 477616	Strategic Director - Place
1 Sep 2015 4 Nov 2015 <b>E2787</b>	PHED PDS  Cabinet	Bath and North East Somerset Placemaking Plan	Lisa Bartlett  Simon De Beer Tel: 01225 477281  Tel: 01225 477616	Strategic Director - Place
1 Sep 2015	PHED PDS	Draft Local Flood Risk Management Strategy	Jim McEwen, Jim Collings Tel: 01225 39 4409, Tel: 01225 39 4366	Strategic Director - Place
<b>3RD NOVEMBER 2015</b>				
3 Nov 2015	PHED PDS	Youth Homelessness	Michael Chedzoy Tel: 01225 477940	Strategic Director - Place
3 Nov 2015 1 Mar 2016	PHED PDS PHED PDS	West of England Joint Spatial Plan	Simon De Beer Tel: 01225 477616	Strategic Director - Place

<b>Ref Date</b>	<b>Decision Maker/s</b>	<b>Title</b>	<b>Report Author Contact</b>	<b>Strategic Director Lead</b>
3 Nov 2015	<b>PHED PDS</b>	<b>Culture &amp; Creative Strategy</b>	Benjamin Woods Tel: 01225 477597	Strategic Director - Place
3 Nov 2015	<b>PHED PDS</b>	<b>Economic Strategy Update</b>	Benjamin Woods Tel: 01225 477597	Strategic Director - Place
3 Nov 2015	<b>PHED PDS</b>	<b>World Heritage City Management Plan</b>	Tony Crouch. Tel: 01225 477584	Strategic Director - Place
<b>5TH JANUARY 2016</b>				
5 Jan 2016	<b>PHED PDS</b>	<b>Placemaking Plans for North East Somerset</b>	Lisa Bartlett Tel: 01225 477281	Strategic Director - Place
5 Jan 2016	<b>PHED PDS</b>	<b>Digital B&amp;NES</b>	Benjamin Woods Tel: 01225 477597	Strategic Director - Place
<b>1ST MARCH 2016</b>				
1 Mar 2016	<b>PHED PDS</b>	<b>Bath Enterprise Area</b>	John Wilkinson Tel: 01225 396593	Strategic Director - Place
1 Mar 2016	<b>PHED PDS</b>	<b>Skills &amp; Apprenticeships Programme</b>	Benjamin Woods Tel: 01225 477597	Strategic Director - Place

Ref Date	Decision Maker/s	Title	Report Author Contact	Strategic Director Lead
1 Mar 2016	PHED PDS	Neighbourhood Planning	Lisa Bartlett Tel: 01225 477281	Strategic Director - Place
<b>3RD MAY 2016</b>				
3 May 2016	PHED PDS	Waterscape Strategy	Zoe Hancock Tel: 01225 477841	Strategic Director - Place
3 May 2016	PHED PDS	World Heritage Status - 2nd Inscription	Tony Crouch. Tel: 01225 477584	Strategic Director - Place
<b>5TH JULY 2016</b>				
5 Jul 2016	PHED PDS	Victoria Art Gallery		Strategic Director - Place
<b>ITEMS YET TO BE SCHEDULED</b>				
	PHED PDS	Houses of Multiple Occupancy (referred by Council)		Strategic Director - Place
	PHED PDS	Corporate Gypsies & Travellers Policy	Graham Sabourn Tel: 01225 477949	Strategic Director - Place
	PHED PDS	Student Accommodation - Phase Two	Lisa Bartlett Tel: 01225 477281	Strategic Director - Place

<b>Ref Date</b>	<b>Decision Maker/s</b>	<b>Title</b>	<b>Report Author Contact</b>	<b>Strategic Director Lead</b>
	<b>PHED PDS</b>	<b>South West Housing Providers Longitudinal Welfare Reform Study</b>	Graham Sabourn Tel: 01225 477949	Strategic Director - Place
	<b>PHED PDS</b>	<b>Archway Centre Project Update</b>		Strategic Director - Place
	<b>PHED PDS</b>	<b>Salford Brassmill</b>		Strategic Director - Place
Page 272	<b>PHED PDS</b>	<b>Archive Centre</b>		Strategic Director - Place
	<b>PHED PDS</b>	<b>Former MoD Site - Foxhill - Mulberry Park</b>	Graham Sabourn Tel: 01225 477949	Strategic Director - Place

The Forward Plan is administered by **DEMOCRATIC SERVICES**: Mark Durnford 01225 394458 Democratic\_Services@bathnes.gov.uk