

Cabinet

11 September 2013

Flooding Update



Report of Corporate Management Team

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Neighbourhoods & Partnerships**

Purpose of the Report

1. To provide Cabinet with an update on recent flood related events, the reasons for the increased incidence of flooding events, the progress made to date in developing flood prevention schemes, and also the financial implications of the flooding events that have occurred during the last two financial years.

Background

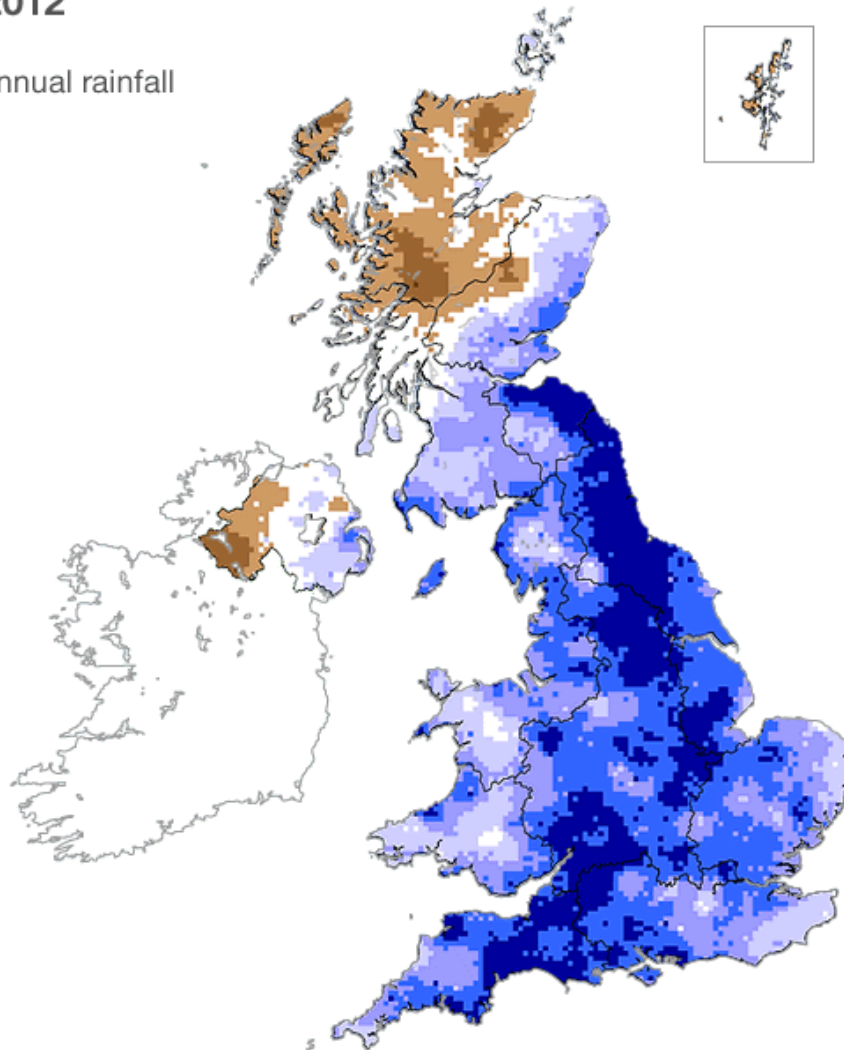
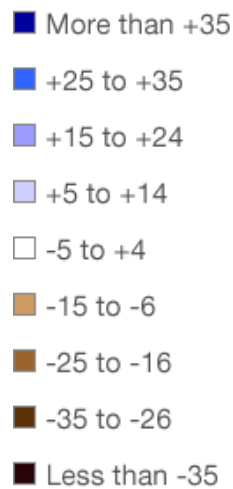
2. The year 2012/13 was the wettest year on record for County Durham. Exceptional rainfall brought unprecedented flood events countywide. These events flooded homes, damaged highways, caused widespread disruption and, at times, caused significant disruption across Council services.
3. The County Council has been heavily involved in subsequent recovery and clean-up operations, carrying out gully cleansing, drainage investigations, silt removal, cleaning and repair of roads and carriageways, disposal of household waste, and helping vulnerable residents.

A National Perspective

4. Across the United Kingdom there was a total of 1330.7mm of rainfall in 2012, according to the Met Office, just short of the record of 1337.3mm in 2000. The Met Office has supplied rainfall data (see next page) which showed the annual rainfall totals for County Durham at 1016mm compared to the average rainfall of 651mm. 2012 was the wettest year on record for County Durham since 1980 by a huge margin of over 130mm.
5. The nine month period from April 2012 to December 2012 was wetter than any previous year on record. As much rain fell in the 9 months from April to December 2012 as during the previous 19 months from September 2010 to March 2012; a period including two winters.

Rainfall for 2012

% of average annual rainfall

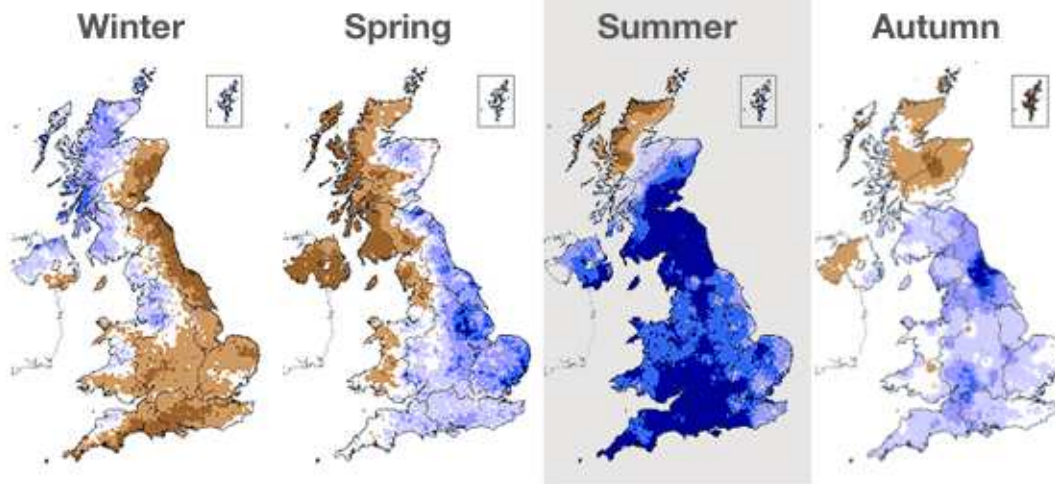
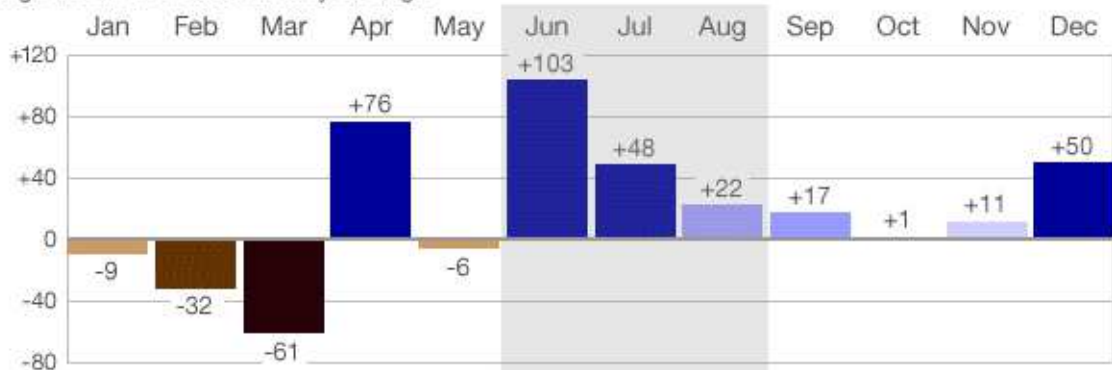


Source: Met Office

6. Figures show that the year began with below average rainfall. By April, with reservoirs at low levels, several water companies in the south of England imposed hosepipe bans in an attempt to avoid severe water shortages in the summer.
7. Those bans proved unnecessary as the period from April to June turned out to be the wettest on record. The heavy rain continued every month from June until December.
8. The lack of a dry spell over the summer left the ground saturated and it was unable to soak up the rain that continued to fall in the autumn resulting in flooding across large parts of the country.

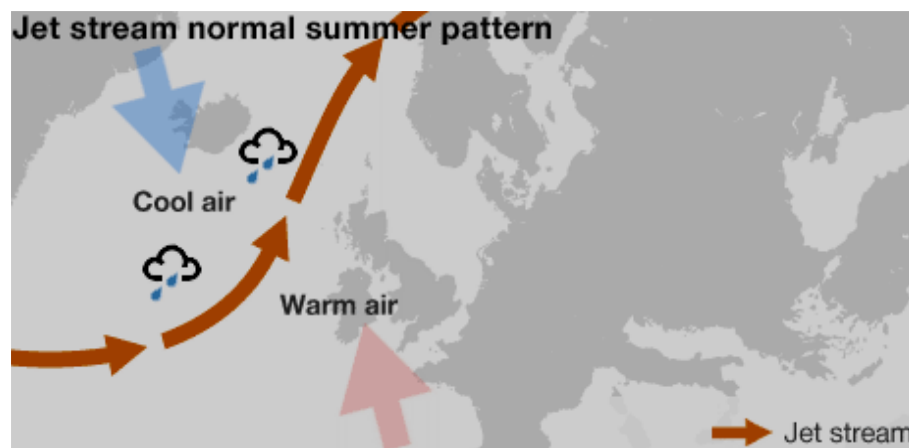
Rainfall by month

Percentage above or below monthly average

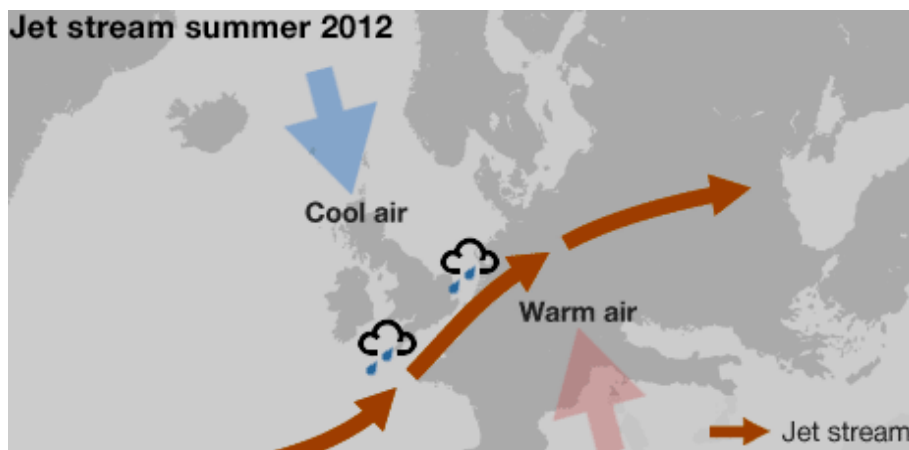


Source: Met Office

9. The wet summer was attributed to the unusually southerly location of the high-altitude belt of wind, known as the Jetstream.
10. The Jetstream normally sits to the north of the United Kingdom in summer directing areas of low pressure and bad weather further north.



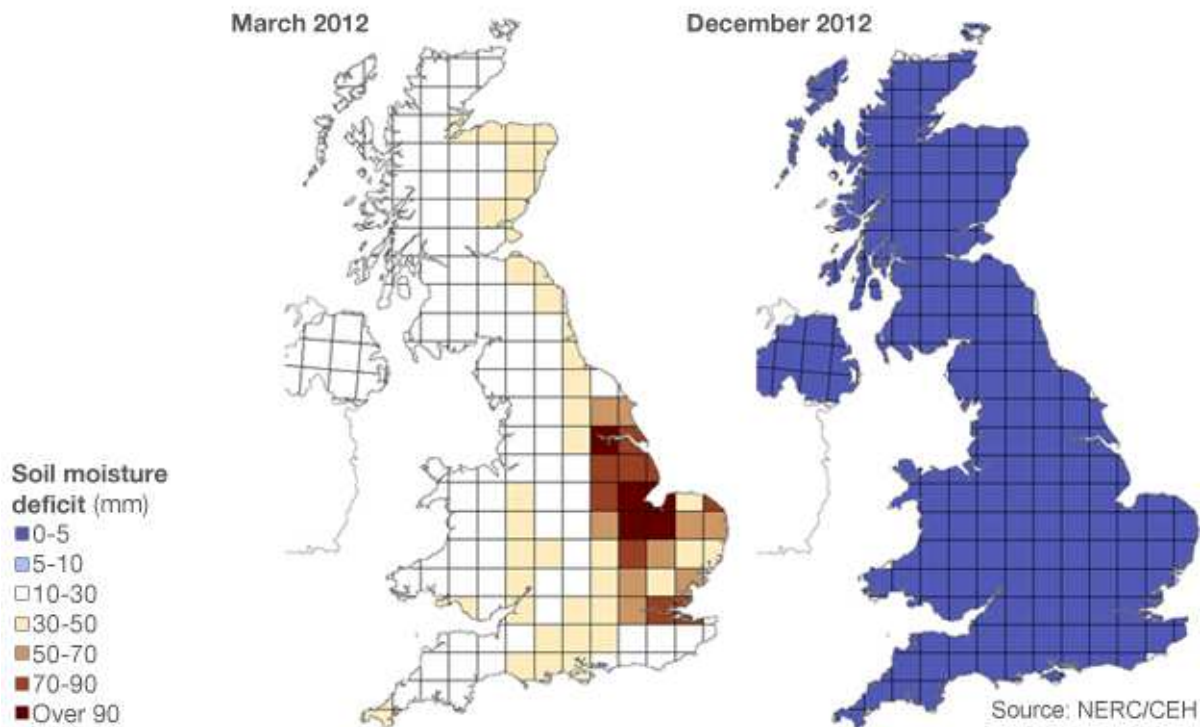
11. In 2012, the Jetstream was further south than usual during the summer months bringing wet and cold weather to much of the country.



Soil Moisture Deficit

12. Soil Moisture Deficit (SMD) is a measurement of how much water is held in the ground.
13. The beginning of 2012 saw environmental droughts declared in many areas south of Sheffield and hose pipe bans brought in by a number of water companies. The reason for this was the SMD across the country was extremely low, with areas of the country suffering dry rivers and extremely low reservoir water levels. However, as the year progressed the weather changed from being very dry to exceptionally wet, and the SMD pattern quickly changed to the ground being extremely saturated, as the graphic detailed below demonstrates.

Soil moisture levels recover across the UK



14. As a result of this, locally and across the County we experienced flooding in relatively light rain events. As the soil had no capacity to absorb rainfall, the majority of water flowed overland, increasing the risk of 'flash floods' in vulnerable areas.
15. Following on from last year's extreme events, the ground is slowly drying out. However, it should be noted that SMD levels are still comparatively high to the west of the County.
16. This was demonstrated by the rainfall event on 18th May 2013 when there were a number of flooding issues caused by overland flows, in part, due to the soil not being able to absorb the rainfall.
17. The rainfall event in May 2013 caused significant damage across the county including the collapse of a river bridge at Wolsingham requiring significant urgent action by the council and its partners to restore access and egress for local residents and members of the public staying at a local caravan site.

'Riparian Ownership' – Rights and Responsibilities

18. At times of flooding, it is often assumed by a land or property owner that the Council has sole responsibility to investigate and resolve a problem. However, any person owning land adjoining, above or with a watercourse running through it has certain rights and responsibilities. In legal terms, this person is known as a 'riparian owner'
19. As the Lead Local Flood Authority (LLFA), we have powers to manage flood risk from ordinary watercourses. In that role, we can give advice and guidance

on how to manage a watercourse. However, we may also advise riparian owners of their own rights and responsibilities.

20. The Environment Agency has produced an extremely useful advisory booklet entitled *'Living on the Edge – A Guide to Your Rights and Responsibilities of Riverside Ownership'*. It clearly sets out the various responsibilities for riparian owners together with other information on associated matters.
21. As well as the Council's role as LLFA, the two organisations that have distinct areas of responsibility are:
 - The Environment Agency – the risk management authority for main rivers and the sea
 - Northumbrian Water – responsible for public sewerage and its associated assets

Both the EA and NWL are represented on the Durham Strategic Flood Management Group that has been formed to provide collaborative working on flood risk management.

Examples of Flooding and Progress to date

22. There are a number of flood prevention schemes in progress, many originated from the flood events of 28th June 2012.
23. Appendix 2 to this report gives a brief review on progress to date on the schemes completed or in progress. This is not a comprehensive list but gives examples of the type of works being undertaken across the county. Each of these schemes requires a significant amount of officer time identifying the flooding issues, designing solutions, working with partners and regularly consulting and communicating with local residents.

External Funding – Environment Agency (EA) Application 2013

24. A Medium Term Investment Plan (MTP) has been developed with the aid of AECOM and was submitted to the Environment Agency (EA) in June 2013.
25. The MTP comprises a list of 25 schemes (see Appendix 3). Grant funding is being sought to an estimated value of £7.5 million, of which £5.5 million will be Local Levy funding over a period of ten years.
26. The application has been submitted to the EA and by 30 November 2013 the County Council will be presented with a copy of the indicative list of schemes approved by the EA. Positive feedback has been received from the EA on the applications submitted.

Additional Revenue Funding

27. £250,000 of additional revenue funding has been made available from corporate contingencies for each of the next two years for preventative inspections and maintenance of Durham County Council (DCC) drainage assets in high risk areas.
28. The drainage team are currently working on the 'A' roads that have been identified as having flooding issues. Investigations have been completed on the A694, and it has been determined that there is not a positive highway drainage system. The existing road gullies discharge to soakaways that are unable to cope with the quantity of water. From these initial investigations, a Capital scheme is being designed. Early estimates have the value of the works in the region of £60,000 but since no properties are being affected, it has a low score on the priority scoring system and may therefore not gain approval into the capital programme. However, further consideration is being given to the risk to highway users and these will be prioritised accordingly.
29. The team are currently in the process of investigating a flooding issue on the A1086 Coast Road, Blackhall. Early investigations have identified 600 linear metres of highway drainage that is 100% blocked with silt. For the length of system affected, it would have taken decades for it to accumulate these volumes of silt in the system. The next target is the A691 Durham to Lanchester.
30. The team are working to determine other revenue works that are required to be included on a cyclical maintenance regime. This not only involves highway assets but other areas, such as parks and countryside areas in DCC ownership that require maintenance to alleviate flooding problems.
31. This will lead to a comprehensive record of DCC drainage assets together with a recommended inspection and maintenance regime subject to continuation of funding. The inspection and maintenance regime will be based upon recommended good practice and risk management principles.
32. A further £100,000 of revenue funding has also been allocated from the Neighbourhood Services cash limit reserve. This will be used to employ technical support from AECOM to support the Drainage and Coastal Protection Team with flood investigations and the development of flood prevention schemes.

Working with External Partners and Communications

33. DCC, as Lead Local Flood Authority, has a lead role in managing flood risk from surface water, groundwater and ordinary watercourses across the County. This involves working with partners involved in flood and water management, known as Risk Management Authorities. Most specifically, the Council works closely with both Northumbrian Water Limited (NWL) and the EA, and has also recently established a working relationship with Natural England with regard to agricultural flooding issues.

34. As an element of this partnership working approach, the Durham Strategic Flood Prevention Group, chaired by DCC, meet every three months to oversee the development and delivery of flood prevention schemes led by DCC, EA or NWL.
35. In association with this, it is recognised that communication to essential stakeholders is critical in demonstrating that the Council is striving to address the flooding issues across the county.
36. Working with external partners, the Council has attended joint public meetings to demonstrate the collaborative and proactive approach to managing flood problems. For example, the drainage team has jointly attended and made numerous presentations to public meetings at Chester le Street, Wolsingham, Lanchester and other areas.
37. Members are regularly updated with a monthly e-mail bulletin on progress to date with current drainage schemes. These regular communications have been well received by Members. In turn, this information is cascaded and disseminated to other groups and organisations, such as Parish Council and action groups (e.g. the Oakenshaw Community Action group).
38. To continue this good work, it is intended to engage with the Area Action Partnerships and arrange for presentations to those areas affected by flooding and/or undergoing drainage projects later this year.

Flood Investigations

39. Since April 2012, there have been 639 requests received for flooding investigations. Of these, 297 are complete and 342 are either in progress or under investigation. By under investigation, this means that the team is awaiting further information or actions from private landowners, NWL or the EA, etc. before determining what action can be taken. 134 of these requests have been received since 1st April 2013 with over half that number received following the rainfall event of 18th May 2013.
40. With the flooding events that happened on 18th May 2013, the information that has been received from NWL (see Appendix 4 of this report) regarding the intensity of the rainfall across the County on 18th May 2013, show that there were very few highly significant rainfall events and generally the rainfall that was experienced was relatively normal. The flooding experienced was mainly due to surface water run-off from fields and agricultural land, etc. This is suggesting the ground was still saturated from last year's rainfall events and areas may still be at a significant risk of flooding from overland flows from otherwise 'normal' rainfall events.

Climate Change

41. Recent experience is that the frequency and severity of flooding events is increasing. Therefore, there is a need to be prepared for more flooding events which may affect areas not previously affected. As detailed in the report, the Council and its partners are making good progress with flood prevention

schemes. However, it should be noted that not all flooding can be prevented despite best efforts as sometimes it is not technically or economically feasible to prevent flooding.

42. Therefore, the Council will continue to encourage householders and businesses in affected areas to improve their resilience to flooding. This will include engaging with communities through events such as “Operation Valencia” held in Lanchester by the Local Resilience Forum (supported by the Civil Contingencies Unit), encouraging volunteers to become community flood wardens, and encouraging householders and businesses to improve their resilience by keeping a supply of sandbags and using other flood defence measures.
43. The experiences of 2012 and early 2013 clearly demonstrate that there are many risks associated with severe weather events. One of the most significant risks is the financial burden that such events bring on the Council. A sustainable programme of investment in preventative inspections and maintenance is vital to ensure that these risks can be mitigated.

Financial Information

44. During 2012/13 the Council incurred additional revenue costs of £630,000 due to flood related expenditure. This expenditure was met from corporate contingencies, while an additional £456,000 of corporate funding was carried over in reserves to 2013/14. £265,000 of these reserves is already committed on existing works, leaving £191,000 to fund any new flood works in 2013/14.
45. A further £475,000 of capital funding was also approved during 2012/13 to complete essential repairs to the highway asset following flood damage. This consisted of £225,000 relating to embankment slippages, footways, and carriageways, £100,000 for Bridges, and a further £150,000 for flood mitigation works and property protection.
46. In addition to this, Blackhill Park had all of its paths washed out by floodwater, and a capital scheme to the value of £500,000 was approved, in order to reinstate the pathways.
47. As mentioned previously in this report, there was a severe flooding event in May 2013 which has resulted in additional revenue and capital costs. However at this present time, this cost is being met from existing budgets, and also from the uncommitted flood reserves that were carried over from 2012/13.
48. A potential source of funding is the Bellwin scheme of emergency financial assistance to local authorities, which may be activated in any case where an emergency or disaster involving destruction or danger to life or property occurs. Bellwin has traditionally been seen as a response to incidents in which bad weather caused threats to life and property beyond all previous local experience. Grant is normally paid to claiming authorities based on 85% of eligible expenditure above the annual thresholds specified by the Department for Communities & Local Government. The Council’s threshold is currently £1.477m. Under the terms of the scheme, incidents must be reported within

one month of them occurring and eligible works have to be completed within two months of the incident.

49. An important consideration regarding the Bellwin scheme is that only additional expenditure that would not otherwise have been incurred by the Council, will qualify towards the threshold. Therefore, existing employee costs along with plant that is already owned or hired by the Council will not be eligible.
50. The conditions of the scheme also state that in general, the immediate nature of emergency expenditure means that capital expenditure is unlikely to qualify for grant, although there may be limited circumstances in which a contribution could be made to the cost of a capital item.
51. Given the restrictions of the scheme, in terms of “additional expenditure” it was not possible for the Council to benefit from additional funding under the Bellwin scheme for the 2012/13 incidents.

Recommendations and Reasons

52. Cabinet are requested to:
 - Note the update on recent flood events
 - The progress made to date in developing flood prevention schemes
 - The bids submitted to the EA

Background Papers

- Neighbourhood Services Management Team report dated 21st January 2013
- EA’s Monthly Water Situation Report
- Jetstream Forecast – netweather.tv

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Appendix 1 : Implications

Finance

The content of the report highlights the significant financial implications that flood events bring to the Council.

Staffing

Not applicable

Risk

As detailed within the report, there is a need to introduce a preventative inspection and maintenance regime for DCC highway and land drainage systems in order to mitigate the risks and impacts of flooding.

Equality and Diversity / Public Sector Equality Duty

Not applicable

Accommodation

Not applicable

Crime and Disorder

Not applicable

Human Rights

Not applicable

Consultation

Not applicable

Procurement

Not applicable

Disability Issues

Not applicable

Legal Implications

The Council has statutory duties under the Highway Act 1980 and the Flood Water Management Act 2010 in relation to flood prevention.

Appendix 2: Flooding Schemes Update

Location	Progress to Date
<p>Cong Burn and Town Centre, Chester- le -Street</p>	<p>The cause of flooding is:</p> <ul style="list-style-type: none"> ▪ Main river and sewer inundation ▪ Overland flooding through saturation <p>DCC have been working with its partners, the EA and NWL in developing deliverable solutions for the area.</p> <p>The EA are looking at options on Cong Burn, NWL have carried out an extensive hydrological study of their systems in the area, and are considering options available to them. DCC has undertaken extensive investigations in the areas of Menceforth Cottages, Northern Approach, Twelfth Street, Cone Terrace and on the Cong Burn, Hopgarth Gardens and Picktree Lane. NWL are to deliver a sewer improvement scheme within Front Street in 2013/14.</p> <p>As an interim measure, arrangements have been made for temporary pumps to be on standby when we receive a flood warning. When a flood warning is received, manned pumps will be deployed immediately to Cone and Poplar Terrace.</p> <p>Some significant defects have been identified, such as damage to highway drains caused by utility companies, tree root infestation to DCC and NWL assets, and the loss of some outlets for DCC highway drainage due to modification works to NWL sewers. DCC has also installed one-way valves on the road gullies that discharge into the Cong Burn culvert to prevent surcharging.</p>
<p>Lanchester</p>	<p>The cause of flooding is:</p> <ul style="list-style-type: none"> ▪ Main river and sewer inundation ▪ Overland flooding through saturation <p>DCC are working with our partners, the EA and NWL in developing a deliverable solution for the area. The EA are to look at the Smallhope Burn Culvert with a view to undertake a hydraulic model, NWL have carried out repair work to their assets due to tree root infestation, and DCC have been working with Aecom in producing an application to the EA for grant funding of a scheme worth £1.2 million.</p>

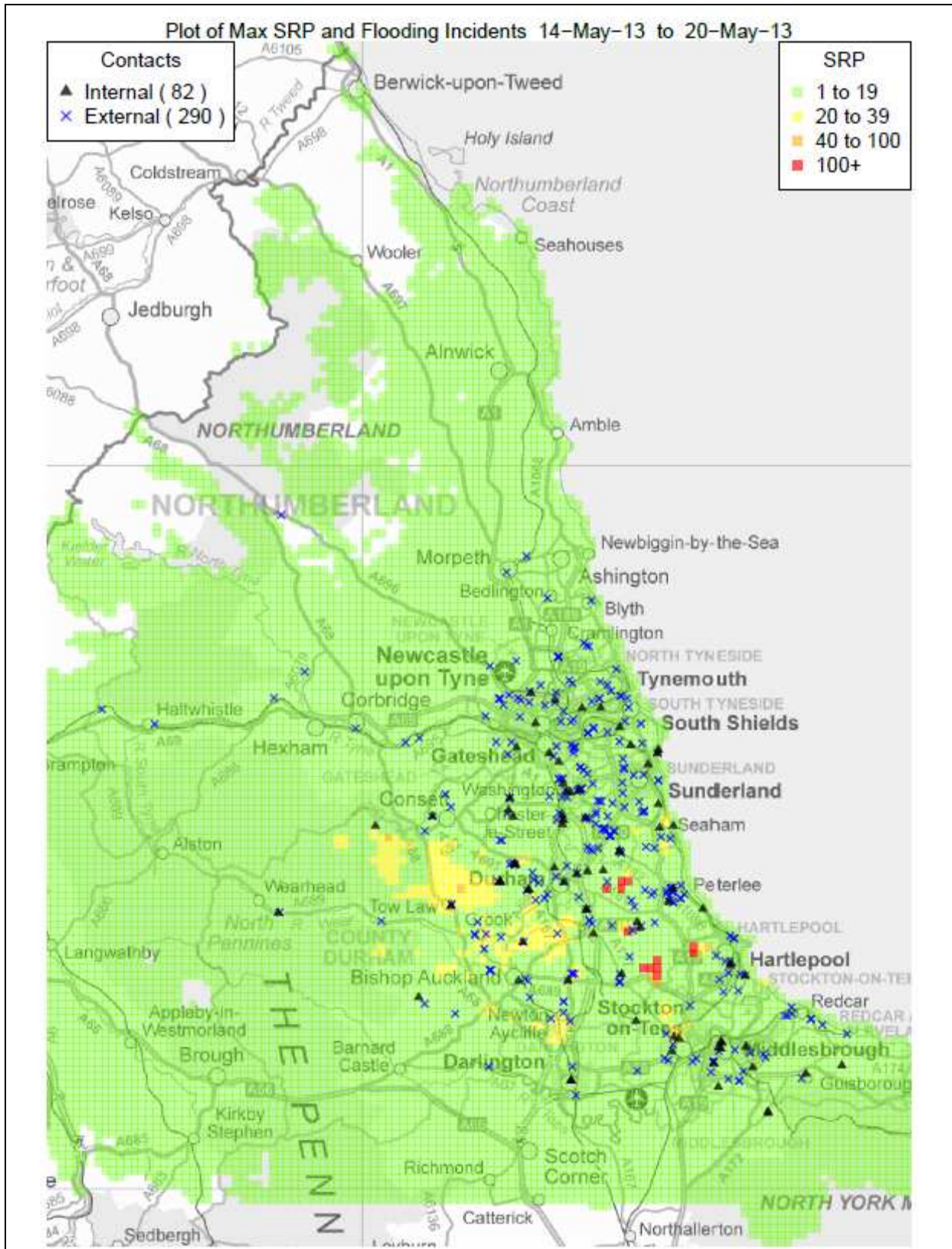
Witton Gilbert	<p>This area saw a culvert inlet blinded off due to debris from a stream bed. As a consequence, the full flow of the watercourse inundated the highway drainage system resulting in the flooding of properties.</p> <p>We have engaged the services of our strategic partner AECOM in seeking funding from the EA and undertaking a hydrological study to determine options for a major capital scheme.</p>
Brancepeth	<p>The flood flow here went from DCC land to private land to highway and resulted in property flooding.</p> <p>DCC have been engaging with the private landowner for them to undertake works to attenuate runoff from agricultural land and DCC are looking at options to contain any additional flows in the highway.</p>
Generation Place, Consett	<p>This is a new development that was built with no drainage provision to convey surface water from the front of some properties. During recent weather episodes properties have been flooded.</p> <p>DCC has approached the developer and they have installed additional new drainage in the area.</p>
A688 Bishop Auckland	<p>The A688 flooded due to a large blockage on a mine water drain discharging to a reed bed to the south of the A688. After several attempts DCC successfully cleared the blockage. Works are continuing on restoring the reed bed.</p>
Brasside	<p>Flooding from private agricultural land led to flooding of properties on land owned by the Ministry of Justice. We engaged in discussion with the local farmer and undertook some exploratory work in his land. During this, we uncovered a 'lost' culvert.</p> <p>Some works have been carried out to re-grade an existing ditch system to enable it to intercept and convey overland flows. An additional investigation found a significant blockage on a privately owned culvert. All information has been passed to the land owners to action.</p>
Herrington Close, Langley Park	<p>A surface water culvert system surcharged and flooded four properties and inundated a NWL surface water pumping station. This exacerbated the flooding.</p> <p>Works have been carried out to up-size 15m of culvert. NWL are carrying out a feasibility study for upsizing their surface water pumping station.</p>

<p>Willington</p>	<p>The cause of flooding was runoff from DCC highway and open space.</p> <p>Ditching works have been carried out in the former colliery reclamation land to the north of Railway terrace, and sections of the highway drainage system have been de-silted. A meeting with the residents is to be arranged in the near future.</p>
<p>Oakenshaw</p>	<p>The cause of flooding was runoff from agricultural land accumulating at a low point. Works are in hand to increase the capacity of the existing surface water drainage system, improve headwall inlets and provide a diversion to the majority of overland flow. Significant ditching works have been carried out.</p>
<p>Harap Road, Junction of B1278 between Trimdon and Fishburn</p>	<p>The cause of flooding was runoff from agricultural land and DCC highway. Approximately 500m of highway drain has been cleared of tree root infestation. The outlet of the highway drainage discharges into a natural fissure, which was blocked solid with silt. A flow had been re-established into the fissure, but this has now failed, also during the de-silting works additional drainage inlets to the fissure have been found. Investigations are still ongoing.</p>
<p>Dipton</p>	<p>The cause of flooding was runoff from surrounding land. There was flooding to properties and to the highway on the A692. The culvert has now been cleared across the highway upstream and as far as the properties downstream. Debris found is mainly brick rubble and stone with a loss of flow of 50-80%. A number of excavations down to the culvert have been carried out during the course of these works. These were necessary to remove blockages and allow investigations to continue.</p>

Appendix 3 : MTP Submissions

Area	Village	Type of Scheme
Front Street	Lanchester	Flood Alleviation Scheme
Village	Witton Gilbert	Flood Alleviation Scheme
Hood Street	St Johns Chapel	Flood Alleviation Scheme
Tutta Beck	Greta Bridge	Flood Alleviation Scheme
Plantation View	West Pelton	Flood Alleviation Scheme
Pringle Place	New Brancepeth	Flood Alleviation Scheme
Upper Town	Wolsingham	Culvert Works
Waldrige	Chester le Street	Flood Alleviation Scheme
Daleside	Sacriston	Property Level Protection
Front Street	Dipton	Flood Alleviation Scheme
Various areas	North West Durham	Property Level Protection
Shotley Bridge SW Flood Management Works	Shotley Bridge	Flood Alleviation Scheme
Bishop Auckland SW Drainage and Culvert Works	Bishop Auckland	Drainage and Culvert Works.

Appendix 4 : NWL Rainfall Data - 18th May 2013



NWL rainfall data. SRP = Storm Return Period (years)