
**Mary Breakell (CLOUD) response to Matter 3 Spatial Strategy**
**Main Issue: Whether the Council's strategy for development within the District is Sound**
**Specific element of question addressed:**

**b) Policies SG1, SG2, SG3 and TC1 (Bailrigg Garden Village) are the need and locations for this mixed-use developments soundly based on, and justified by, the evidence assembled by the Council in support of the DPDs?**

Referring back to **Policy SG1: Broad Location for Growth – Bailrigg Garden Village**
**Paragraph 12.27 of 001 Strategic Policies and Land Allocation details the 2,000 new jobs to be delivered for the district and potential investment income.**

The Lancaster University Health Innovation Campus (HIC) is referred to above as a major employment plank underpinning the need for Bailrigg Garden Village. CLOUD questioned this extensively in our responses in April 2018 and February 2019. The City Council's response to Matter 3 b) in their 3B.14 simply states they are comfortable with an appropriate level of evidence without addressing the difference between the projections in the Local Plan and those of the economic consultants they employed in 2018, Hall and Aitken EvEm_Ep_03_Lancaster District Inclusive Growth Report. This report makes no mention of the 2,000 jobs and highlights that the majority of SME assists will be managerial or organisational.
We are here providing additional evidence and explanation of our concerns relating to the HIC job growth figures claimed in the Local Plan. This analysis is supported by Freedom of Information (FOI) request 2602 to the University and received by CLOUD on 10 September 2018 (See Appendix 1 for full set of responses).

The Health Innovation Campus may have the potential,when all phases are completed, to create around 2,000 new jobs, but most of these will not be based on the Lancaster University campus at Bailrigg.This undermines the direct link with the need for housing in Bailrigg Garden Village.

Several clear statements are made by the University which demonstrate this.

1. The University confirms that only Phase 1 has funding and is being currently built along with infrastructure works. Phase 1 is to house the Faculty of Health and Medicine.
   The jobs directly in the Lancaster economy derived from the business case for Phase 1 are as follows :
   'The expenditure of the additional students will support **113 FTEs** posts in the local economy and **36.5 FTE** posts will be created for additional teaching and administration staff to resource the expanded Faculty and the Innovation Hub.

   2. **The business case includes Phase 2 and Phase 3 of the development makes the following statement:**

The SME accommodation will provide space for 1,633 FTEs when maximum occupancy levels (90%) are reached. This will include a number of jobs created as a result of tenants accessing the business support programmes each year. The latter will vary each year depending on the number and types of assist, the associated impacts and their persistence.
**Over the 15 years, 2,100 SME assists will be delivered, leading to the creation of 578 new products, processes and services and 1,106 FTEs.** The university will also engage in a further 64 longer term commercial partnerships, with at least 26 of the businesses involved creating new products/processes and/or experiencing productivity improvements. The activities will also lead to the creation of at **180 FTEs** within the 15 year period.'
The statement ends with the following statement:
These figures are **not** a Strategic Plan Target. The University's Strategic Plan can be found here :
**https://www.lancaster.ac.uk/about-us/strategic-plan/**

The Local Plan shows little appreciation of the nature of business assists. SME assists are defined as any engagement between an SME and the University. This can be anything from a full blown collaboration leading to new product development to attending a conference or a course. Past experience in highly successful programmes delivered by Lancaster University, such as the LEAD programme, demonstrate that employment effects from business engagement but from businesses across the region, rather than simply Lancaster- see Table 2 p.14
https://esrc.ukri.org/files/news-events-and-publications/impact-case-studies/lead-an-innovative-programme-for-developing-leadership-in-smes-lancaster-university-management-school/

This was confirmed by recent statements from the University Vice Chancellor. On **8 August 2018** *Mark E. Smith said: "The HIC will drive business innovation, creating new jobs by supporting 300 Lancashire-based small and medium enterprises to develop new and innovative digital and technological solutions and will have wider impact by engaging regionally, nationally and internationally with hundreds of companies. It will allow Lancaster's world-class research to have even greater impact.*

Similarly Graham Cowley, chairman of the LEP's Growth Deal Management Board, *said: "Healthcare is an emerging economic sector in Lancashire and the Health Innovation Campus is set to act as a dynamic catalyst for the whole region within both health R&D and innovative healthcare practice. "Further this facility will be* ***accessible to local SMEs who are active within health, wellbeing and related sectors.*** *This means smaller firms will be able to tap into the University's wealth of*

*knowledge and experience to help them accelerate commercial opportunities, become more competitive and* ***add significant value to the wider Lancashire economy.***

Finally HIC is part funded by the European Regional Development Agency (ERDF) which identifies postcodes across which assists are to be delivered. These extend across North West England. Historical experience during the 2000s confirm that while a proportion of SME assists were in Lancaster, the majority were elsewhere in the region.

Collectively this evidence casts significant additional doubt on the extent to which the jobs growth expected from the HIC will increase the demand for houses at Bailrigg Garden Village or elsewhere in the immediate vicinity of Lancaster University.

**Tony Breakell CLOUD Matter 6 Transport Whether the Council's strategy for accommodating transport infrastructure is sound?**

**(1) Freedom of Information Request to Lancashire County Council**

In August 2018 CLOUD submitted an FoI request to Lancashire County Council on a range of issues arising from the Lancaster city local plan, mainly connected with the proposed Bailrigg garden village. The complete set of questions and answers is at Appendix 2 to this statement. Questions which are relevant to the Hearing on Matter 6 Transport are set out here :

***The BGV and Local Community Impact***

***Question 2 :*** *What are Lancashire County Council's plans to cope with an expected increase in the demand for buses to and from the BGV and surrounding areas including the University's Underpass Terminal on campus? For instance are there plans and funding to upgrade existing facilities at the University or elsewhere if the BGV proposal goes ahead?*

***Answer*** *: TBC – We are still waiting for a response from Bus Rapid Transport. As soon as we receive the information we shall forward this on to you as a matter of urgency.*

***Jobs Growth, Funding and Regeneration***

***Question 3 :*** *With reference to the proposed Bailrigg garden village (as detailed in the 2018 publication version of the Lancaster City Council Local Plan), what funds, if any, has Lancashire County Council already committed to the development of the necessary highways infrastructure to support this development, specifically (a) the reconfiguration of M6 Junction 33 and (b) the crossing of the West Coast Main Railway to provide access into the garden village site?*

***Answer*** *: There is a £16.25m Lancashire Growth Deal funding allocation towards M6 J33, which would be subject to approval of a business case by the Lancashire Enterprise Partnership.*

***Question 5 :*** *The Lancashire County Council 2016 Highways and Transport Master Plan states that further work is needed to finalise our options and consult on detailed plans for transport in the Lancaster area. It also states that this consultation is likely to take place in late 2018 or 2019. Please advise (a) whether a firm date has been set for the start of this consultation and if so when (b) when the detailed plans are expected to be finalised?*

***Answer*** *: A) No firm date has been set for the consultation. B) Plans expected 2019.*

***Question 6 :*** *What is Lancashire County Council's current estimate for the cost of reconfiguring M6 Junction 33?*
***Answer*** *: £55m was the high level estimated cost provided in relation to securing a Lancashire Growth Deal allocation as detailed above at point 3), however this would be subject to business case, assurance, and further detailed findings / cost estimates etc.*

The significance of the above answers is clear - information on bus rapid transit is not yet available (answer 2), while the cost estimates are only high level and need further work and analysis (answers 5 & 6). In addition, it should also be noted that the £16.25M funding referred to in answer 3 has now been reallocated (references : http://council.lancashire.gov.uk/ieListDocuments.aspx?CId=938&MId=9664 and http://council.lancashire.gov.uk/documents/s146369/Edit%20Report%20Growth%20Deal%20Funding%20Approvals.pdf ). I therefore contend that it would be premature to approve the development of Bailrigg garden village at this stage and that any decision should be deferred until realistic costings are available.

**(2) Lancaster City Council response to Inspector's questions**

Lancaster City Council's response to the Inspector's questions (reference LCC7.6.0 - question 6a) refers to the Lancashire County Council's 2016 Highways & Transport Master Plan. However, as detailed in FoI question 5 above, Lancashire County Council recognises that further work is needed on the infrastructure costings associated with Bailrigg garden village. Detailed plans are expected in 2019 and will then be subject to consultation. This has not yet happened and it is my contention that it would be premature to approve the Bailrigg garden village development until this further report is available. Of particular relevance is the statement on page 32 of the 2016 Highways masterplan - *"The masterplan therefore sets out an indicative timetable for the further work needed to finalise all our options and to consult on detailed plans."* Page 35 provides further acknowledgement of the expense involved in the proposed reconfiguration of Junction 33 on the M6 and recognises that *"a substantial private sector contribution from developers"* will be needed - but without any indication as to what sum might be required or whether developers are willing and able to provide it.
The 2016 Highways masterplan contains these cost estimates for developments in south Lancaster :

| | |
|---|---|
| Reconfiguration of Junction 33 | c£40-60M |
| Local road network for BGV | c£22M |
| A6 south Lancaster to city centre | c£10M |
| TOTAL | c£72-92M |

However, in the Local Plan Infrastructure Delivery Schedule (reference LCC4.9), the cost estimates are reported as :

| | |
|---|---|
| Reconfiguration of Junction 33 | £40M |
| Local road network for BGV | £5M |
| A6 south Lancaster to city centre | c£3M |
| TOTAL | £48M |

In view of these disparities in the cost estimates, I contend that approval of Bailrigg garden village should be deferred until realistic costings are available.

The City Council's response (reference LCC7.6.0 - question 6d) fails to recognise Bailrigg Garden Village would add to transport inefficiency due to the paucity of new jobs in the immediate south Lancaster area, including Lancaster University. This would oblige garden village residents to travel to work, whether elsewhere in Lancaster or further afield via M6. This is contrary to NPPF chapter 9 para 103 *("significant development should be focused on locations which are or can be made sustainable").*

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**Stephen Constantine (CLOUD) Response to Matter 7, Environment, item (b).**
**Main Issue: Are the DPDs in accordance with the NPPF in respect to open space, recreation, design, renewables?**

**7b Are policies…DM33 [and] DM34…in accordance with the policies of the NPPF in respect of…flood risk, drainage….**

1. Concerns about flooding and about these policies were expressed in two CLOUD responses to Local Plan consultations. That of April 2018, pp.10-15 and Appendix 3, p.25, refers specifically on p.10 to the floods on the night of 22 November 2017 which devastated homes, businesses and more importantly lives in Halton, Bowerham, Hala and Galgate. Our response to the second consultation, February 2019, noted that the Flood Risk Assessment document supplied by the Planning Department did not consider the areas severely flooded in November 2017, and it contained no specific measures to address the risk of flooding consequent on the construction of the Health Innovation Campus, of Bailrigg Garden Village, and of its intended road link to the M6.
2. A site inspection shows that even today, in late March 2019, restoration of some houses and the main garage on Main Road in Galgate are still only underway. On Salford Road, close to Main Road, some devastated properties remain empty. What a site inspection would not reveal are the costs of restoration and re-furnishing, increased insurance premiums, and the irreplaceable loss of precious personal possessions.
3. We can add more to the history of floods in Galgate. Local newspapers report floods in 1877, 1891, 1909, 1922, 1929 and so on – but matters getting worse. Floods in 1956 were described as the worst for 50 years. In that year, the Lancaster and Preston by-passes were being planned. It was noted in the press that water run-off from the motorway would be discharged into local watercourses. As we recorded in our April 2018 response, the

Environment Agency had been unable to obtain central government funds to carry out remedial work on the M6, and that still seems to be the case.

4. A self-help Galgate Flood Action Group, advised by similar organisations (for example a South Lancaster group) and particularly by an EA officer have been monitoring rainfall, preparing responses, and undertaking site inspections, noting for example how very recent housing developments have affected surface water flows down Stoney Lane and into the adjacent Whitley Beck. Two other housing developments in Galgate have recently been approved by the Council's Planning Department in spite of local objections, including fears that flood risks would be exacerbated.
5. A drop-in session organised not by the Planning Department but by the South Lancaster Flood Action Group took place recently, on 25 March. Representatives from United Utilities and companies marketing flood protection devices attended. However, the most interesting conversations were with Environment Agency officials. These concerned particularly the statistical modelling being carried out by the EA to determine not just flood risks, but the potential consequences of actions taken to mitigate flood risk in one location which might increase flood risk elsewhere. Apparently one such modelling with respect specifically to Galgate is currently underway. Without having the results of this exercise to hand, and without knowing what if any action should – and would – be taken, it would seem inadvisable to approve a Local Plan which might have a deleterious effect on an area already demonstrably vulnerable to flooding.
6. The attached ***Appendix 3*** provides visual evidence with some commentary on the 22 November 2017 floods in Galgate.
7. ***A Community Account of Local Flooding***, December 2018, was produced for the South Lancaster Flood Action Group. It is an impressively researched, illustrated and highly informative report on the particular causes and local impact of the November 2017 floods. It is divided into three sections. 'Documenting the Flooding Problem' describes the impact of the floods in 15 locations. 'General Observations and Progress to Date' includes an account of worsening climatic conditions and rainfall over the past 50 years. 'Agency Responses' cover the Environment Agency, Lancashire County Council, Lancaster City Council, and United Utilities. The author of the report has generously authorised CLOUD to submit this report to the Inquiry.
8. This response, the Appendix 4, and *A Community Account of Local Flooding* have been submitted to the Programme Officer in digitised form, and three hard copies of each have also been provided.

**Air Quality Hearing Statement for Rosie Morgan, CLOUD for Matter 7 Environment – including a) Are the DPDs in accordance with NPPF –with respect to DM31 Air Quality and implications for viability b) Is policy DM56 (health and wellbeing) in accordance with NPPF**

Lancaster, like many cities in the UK currently experiences poor air quality, affecting the health of thousands of people. Poor air quality in our cities is caused by vehicle emissions, with Nitrogen Dioxide (NO2) being the pollutant with most cause for concern. Due to the poor air quality Lancaster City Council (LCC) has declared three Air Quality Management Zones (AQMA), located in Carnforth,

Lancaster centre and Galgate. With each AQMA an air quality action plan has to be written, although there are no implications for LCC if the air quality doesn't improve, which mostly is hasn't. The best way to improve air quality is to reduce the volume of traffic. There are no hard measures in any action plan from LCC that will achieve this. The opposite is in fact true. A medium sized development in Galgate (15/00080/FUL) was recently given the go-ahead, despite Paul Cartmell, the Senior Environmental Health Officer in charge of air quality, recommending that it be refused on air quality grounds. Additionally, the original outline plans for the redevelopment of the canal corridor in Lancaster included proposals for at least 600 parking spaces to help fund the project. Rethinking of the Canal Corridor development since the Local Plan was published has left parking quite vague, though the underground carpark has been abandoned https://www.lancaster.gov.uk/sites/canal-quarter/canal-quarter-faq. There is no doubt that LCC does not take air quality seriously.

This brings me onto the only document provided by LCC in relation to air quality in support of the BGV, the air quality position statement. It is disappointing to see the consultancy firm Air Quality Consultants, one of the most respected air quality firms in the country, produce such a wholly inadequate document. This document looks at the last few years of air quality monitored data, up to the end of 2017, and concludes that as air quality in 2017 has improved slightly in Galgate due to HGVs using the new expressway, there is consequently no issues with air quality in Lancaster, and therefore no further assessment is required. This cannot be concluded using only one year's data, and the position statement additionally states that vehicle emissions are improving year on year and therefore by the time the BGV is built and fully occupied air quality will no longer be an issue. As the recent Volkswagon scandal has shown, vehicle emissions are not improving as expected.

In reality, a position statement like this could only potentially be adequate if it was in support of a proposed development of 50 residential dwellings or less, not a full scale garden village with well over 1500 residential dwellings. The Institute of Air Quality Management (IAQM), the professional body for air quality scientists and consultants, recommends that any road that will see an increase in 500 vehicle movements due to a development, should be assessed fully using licensed air quality modelling software, for example ADMS-Roads, ADMS- Urban or AERMOD. The IAQM also states that this number should drop to 100 vehicles for an AQMA, which in this instance would include both Galgate and Lancaster.

Often overlooked is the requirement by Natural England for an air quality ecological assessment if a development is likely to impact upon designated habitats. The A588 is one road that significant development generated traffic will use. This road passes less than 10m from the Morecambe Bay Ramsar site, a European designated habitat of significant importance.

The position statement is not worth the paper it is written on, hence why it is imperative that a full air quality assessment is undertaken, both operational and ecological. The only possible reason why one was not carried out is because the results could potentially illustrate how adverse the air quality impacts of the BGV could be on local residents.

Air quality Assessment Requirements

The assessment must include sensitive receptors located along the full length of the A6 corridor.

The assessment must be carried out under IAQM guidance.

A sensitivity analysis must be carried, as per IAQM guidance.

The sensitivity analysis must be a worst-case scenario, where 2017/2018 emission factors and background concentrations are used for the future year assessments. CURED or other spurious methods must not be agreed.

The assessment must include a scenario where the proposed alterations to junction 33 of the M6 are not carried out.
All committed developments must be included in the assessment, including any future planned phased developments of the BGV, and the new University Health Innovation development.
Meteorological data used in the assessment should be from the University's own Met site off Hazelrigg Lane. A Met site located near to the coast, for example Blackpool, should not be used as the higher wind speeds found near to the sea will reduce modelled pollutant concentrations.
Street canyons must be included, especially through the centre of Lancaster where new student accommodation has recently been built. Road widths used in the model should be included in the appendices.
Slow down and queuing sections must be included within the model.
Monitoring locations which are on the façade of a building should be modelled at the exact grid reference for all future scenarios.
Development wide NO2 contour plots should be included to ensure that proposed receptor locations do not exceed air quality objectives.
ADMS mapper should be used to provide drawings illustrating road, receptor and monitor locations.
All parameters used in the air quality modelling software must be included in the appendices, along with the traffic data and model verification details.
ADMS .upl files must be made available to be scrutinised by third parties.
A Damage Cost Calculation should be included to place a financial figure onto the air quality impacts.
Hard and firm mitigation measures must be included, not wishy-washy wording implying that 'some' of the measures listed below 'might' be included. An EV charging point for every residential dwelling should be non-negotiable as a starting point.
An ecological air quality assessment must be carried out.
If construction traffic exceeds IAQM guidance then a construction air quality assessment should also be undertaken alongside the operational and ecological ones.

Ref No: 2602
Date: 10/09/18
Subject: BGV and HIC

## REQUEST AND RESPONSE

**BGV Development and Partnerships**

1.Can the University provide details of all 'Leading' members of staff (Executive, Estate Project Managers etc) who have direct responsibility, act as the point of contact, have 'signing off' responsibility with Lancaster City Council, Lancashire County Council, Lancashire Enterprises Partnership (LEP) and all other agencies and organisations involved in the development of the BGV?

**Professor Andrew Atherton, Deputy Vice-Chancellor; Jerry Headley, Interim Director of Estates, Facilities & Capital Development (to August 2018); Andrew Burgess, Director of Estates, Facilities & Commercial Services (from September 2018).**

2. Who are the current BGV Leads acting on behalf of Lancaster City Council, Lancashire County Council and the LEP?

**This information is not held - Under FOIA we are not required to provide opinions or comments or answer speculative questions where the information requested is not clearly described and/or is neither held nor already recorded. This message acts as our refusal notice. Please address this query to the respective entities.**

3. How frequent are Meetings held between the strategic parties to the BGV?

**Since October 2017: 04/10/17, 09/11/17, 20/12/17, 01/02/18, 21/02/18, 21/03/18.**

4. During the lifespan of the BGV planning process have the strategic partnership, terms and conditions, and its relationships between Lancaster University and the Lancaster City Council Planning Department including all other strategic partners changed? And if so what were the reasons?

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**The BGV and Local Community Impact**

1. What is Lancaster University's current Environmental rating/standing?

**There is currently not an environmental rating scheme that all Universities participate in. Historically Lancaster University participated in the 'Green League', but has not submitted information to this for approximately 5 years. Lancaster University has been awarded the Green Flag Award, the benchmark national standard for publicly accessible parks and green spaces in the United Kingdom, for the last seven years. Furthermore, for all new builds Facilities aim to achieve BREEAM 'Outstanding' grade in refurbishments and BREEAM 'Excellent' in construction.**

**Further information on the Green Flag Award can be found here:**

**http://www.greenflagaward.org.uk/**

**Further information on BREEAM can be found here:**

**https://www.breeam.com/**

**Lancaster is proud of the improvements it has made in its environmental performance over the last decade in relation to reductions in carbon emissions, improving recycling rates, positive impacts of its travel plan, certification to ISO 14001 Environmental management System, implementation of its biodiversity masterplan and participation of students and the local community in environmental projects run via Green Lancaster.**

2. Does Lancaster University measure the current levels of air pollution to which staff and students are exposed while on campus or travelling to and from the city centre?

**No - but Lancaster City Council do monitor air quality at the locations in the District where Lancaster University staff and students are likely to be most exposed to air pollution.**

3. Has Lancaster University carried out an environmental or risk assessment (including of flooding) in respect of the impact of (a) the proposed BGV with the additional houses and increase in road traffic on the A6, (b) all 3 phases of the HIC, (c) the planned student accommodation on the former water treatment site, (d) the Sports Centre extension?

**a) No – this is being undertaken by Lancaster City Council**

**b) Yes**

**c) No – this is not a Lancaster University Development**

**d) No - this development does not fall under Schedule 1 or Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 nor is it in a site of sensitive area (i.e. Site of Special Scientific Interest, National Park or Area of Outstanding Natural Beauty)**

**therefore these assessments were not undertaken. Lancaster University has undertaken an Arboricultural impact assessment/method statement and an Ecology Appraisal for this development.**

4. It was widely reported that the University Underpass and the Bus Terminal located there suffered from extensive flooding during the serious November 2017 local floods. What structural repair works (if any) were performed to address these flooding issues?

**Please note that reports of extensive flooding are incorrect, the centre section of the underpass did flood but this did not cause any structural damage.**

**Works the underpass to reduce flooding risk have included:**

- **(a) Installation of an underground storm water storage tank to contain sudden storm runoff (which can be gradually pumped away)**
- **(b) Upgrading of underpass sump pumps to improve pumping ability**
- **(c) Upgrading of additional surface drains to improve runoff interception.**

5. Historically, how many previous occurrences of flooding in the Underpass have there been, what are/were the causes, what disruption to services did they cause and for how long?

**Information on disruption to services is not recorded by Lancaster University. This information is not held - Under FOIA we are not required to provide opinions or comments or answer speculative questions where the information requested is not clearly described and/or is neither held nor already recorded. This message acts as our refusal notice. This information will likely be held by Stagecoach.**

**Lancaster University does not record the number of instances of flooding and the causes, therefore this information is not held. Under FOIA we are not required to provide opinions or comments or answer speculative questions where the information requested is not clearly described and/or is neither held nor already recorded. This message acts as our refusal notice.**

6. What are the University's plans to cope with an expected increase in the demand for buses in the underpass and on campus? For instance are there plans and funding to upgrade existing facilities at the University if the BGV proposal goes ahead?

**We are monitoring the expected continued increase in demand for bus travel. A draft scheme for the underpass has been drawn up in conjunction with Stagecoach which would provide increased capacity in the underpass for buses and for waiting passengers. This is in the early stages with no formal papers or approvals to date.**

**Job Growth**

With reference to the Local Plan it states that "when fully realised the Health Innovation Campus (HIC) has the potential to deliver in the region of 2000 new jobs for the district....". And again the Issues and Options Paper for Bailrigg garden village states that by 2025 Lancaster University aims for 17000 students and 4000 staff working at the Bailrigg campus (source : Campus Development Booklet 201819 Final). These 2025 figures seem to indicate a pretty high growth rate given that Lancaster University's 2017 Annual Review reported a total of 12549 students and 2842 staff.

1. Can you confirm that to date only phase 1 of HIC has been approved and this mainly involves the relocation of existing staff?

**Phase one includes the relocation of the majority of staff from the faculty along with accommodation to support engagement with external partners.**

**The HIC has planning permission for the infrastructure works. The new HIC building (to House the Faculty of Health & Medicine) currently under construction has planning permission.**

2. Can you provide information concerning future employment growth that might be expected from later phases of the HIC?

**The information below is from the HIC Business Case 2016:**

*'The expenditure of the additional students will support 113 FTEs posts in the local economy and 36.5 FTE posts will be created for additional teaching and administration staff to resource the expanded Faculty and the Innovation Hub.*

*The SME accommodation will provide space for 1,633 FTEs when maximum occupancy levels (90%) are reached. This will include a number of jobs created as a result of tenants accessing the business support programmes each year. The latter will vary each year depending on the number and types of assist, the associated impacts and their persistence.*

*Over the 15 years, 2,100 SME assists will be delivered, leading to the creation of 578 new products, processes and services and 1,106 FTEs. The university will also engage in a further 64 longer term commercial partnerships, with at least 26 of the businesses involved creating new products/processes and/or experiencing productivity improvements. The activities will also lead to the creation of at 180 FTEs within the 15 year period.'*

**Please note that these figures are predictions rather than guarantees of future employment growth. Our response to Q3 addresses how these figures were estimated.**

3. Can you explain how the figure of 2000 new jobs, as quoted in the Lancaster council's Local Plan, has been calculated and whether it is a target in your Strategic Plan?

**The information below is from the HIC Business Case 2016:**

*'The estimates of jobs based in the new business accommodation reflect the level of floorspace and occupancy rates (which increase over time) taken from the University plans and the average employment density for co-working space, based on the 3rd Edition of the Homes and Communities Agency's Employment Density Guide.*

- *The estimates of jobs created as a result of SMEs accessing business support are based on University benchmarks of the number of jobs created per assist (0.53 FTEs) derived from previous delivery experience and plans for projects that are currently being developed. These have been tested against compactor benchmarks in national guidance for relevant funds such as the England ERDF Programme 2014-2020: Output Unit Costs and Definitions Report prepared by Regeneris.*

- *The estimates of the jobs created as a result of commercial partnerships are based on the average partnership lasting three years and an average annual employment impact derived from benchmarks for longer term university and industry collaborations (1.0 FTEs) and national findings. This estimate is considered cautious to ensure that the benefits are not overstated although the employment impact of long term collaborations could be higher. There is also the likelihood that the specialist and innovation focused nature of the building will lead to the occasional development of new processes and products that generate a scaling up effect as a result of their application. This will result in the companies involved experiencing high growth and expansion in a short time period. As these effects are hard to predict and forecast an average annual benefit has been applied rather than trying to account for these peaks.*

*The estimates of additional students and academic and administrative staff are based on the University's forecasts contained in the financial model for the Health Innovation Campus.*

- *The job estimates linked to additional student expenditure in the local economy are based on: a) the average annual undergraduate (£12,056) and postgraduate spend (£14,861) from the National Union of Students website (adjusted for inflation to the base year); and b) the average cost per FTE in North West sectors where students will spend money, using benchmarks from the Annual Business Survey and Business Register and Employment Survey. It is assumed that the large majority of spend will occur within Lancashire, and an adjustment is made through the application of with a leakage adjustment made to take account of expenditure (and the associated employment benefits) outside Lancashire as a result of students visiting and spending in other areas and payments made to businesses and individuals based elsewhere in the Country.*

- *The assessment only covers the benefits that occur while students are studying at Lancaster University. It does not take account of the longer term economic contribution/benefits of the graduates and researchers trained through the HIC progressing into careers and their subsequent contribution to the UK economy.'*

**These figures are not a Strategic Plan target. The University's Strategic Plan can be found here:**

**http://www.lancaster.ac.uk/about-us/strategic-plan/**

4. How confident are you that these jobs will arrive?

**This information is not held - Under FOIA we are not required to provide opinions or comments or answer speculative questions where the information requested is not clearly described and/or is neither held nor already recorded. This message acts as our refusal notice.**

5. What is the expected timescale for this growth?

**Please see our response to question 2 for the information that we hold relating to the timescale.**

6. What proportion are expected to be university posts i.e. Academic and Support staff and how many are from small business start-ups associated with the later phases of HIC?

**Please see our response to question 2 for the information that we hold relating to levels of staffing.**

7. Do you have any indication as to whether job holders are expected to live in Lancaster or commute in from elsewhere?

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8. What does the university consider to be the likely effect of the 2016 EU Referendum result and the UK's imminent departure from the EU in March 2019 in terms of job growth and Student numbers?

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9. Does the figure of 2000 new jobs, as referred to above, take account of the likely impact of the 2016 EU Referendum?

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Your request i.d. is: 2602. Please quote this in all enquiries.

The University aims to comply fully with its obligations under the Freedom of Information Act 2000 and to ensure that the service it provides for those wishing to gain access to information is helpful and effective.

The personal information you have supplied will be used only to process your request; some details will be retained for our records after the request has been answered. This information will not be passed on to other parties unrelated to the University unless we are required to do so by law, or where it would be necessary to answer the request in full (in which case we would seek your consent for any transfer).

Process for Making a Complaint

If you feel the service you have received does not meet our aims or your expectations, please write to:

Hilary Hunter
Head of Governance Services
University House
Lancaster University
Bailrigg
Lancaster
LA1 4YW

If, following our internal review, you are dissatisfied with the response provided, you may write to the Information Commissioner's Office, for details visit www.ico.org.uk.

## Appendix 2: Freedom of Information Request by CLOUD to Lancashire County Council

## A] CLOUD
## Request :

### The Bailrigg Garden Village (BGV) Development and Partnerships

1.Can Lancashire County Council provide details of all ‘Leading’ members of staff who have direct responsibility, act as the point of contact, have 'signing off' responsibility with Lancaster University, Lancaster City Council, Lancashire Enterprises Partnership (LEP) and all other agencies and organisations involved in the development of the BGV?

2. Who are the current BGV ‘Leads’ acting on behalf of Lancashire County Council, Lancaster City Council, Lancaster University and the LEP?

3. How frequent are Meetings held between the strategic parties to the BGV?

4. During the lifespan of the BGV planning process have the strategic partnership terms and conditions, and its relationships between Lancashire County Council, Lancaster City Planning Department, the LEP and Lancaster University, including all other strategic partners changed? And if so what were the reasons?

### The BGV and Local Community Impact

1. Has Lancashire County Council conducted an environmental or risk assessment (including of flooding) in respect of the impact of (a) the proposed BGV with the additional houses and increase in road traffic on the A6 and surrounding roads, (b) all 3 phases of the Lancaster University Health Innovation Campus, (c) the planned student accommodation on the former water treatment site, (d) the University Sports Centre extension and (e) Ward Field Farm Development on the A6?

2. What are Lancashire County Council’s plans to cope with an expected increase in the demand for buses to and from the BGV and surrounding areas including the University’s Underpass Terminal on campus? For instance are there plans and funding to upgrade existing facilities at the University or elsewhere if the BGV proposal goes ahead?

### Job Growth, Funding and

**Regeneration**

1) Re: the 9500 new jobs forecast for Lancaster in the Local Plan, please advise (a) the timescale over which they are expected to arise (b) the locations within Lancaster where these jobs are expected to be created and (c) what the employment categories (unskilled, semi-skilled, office, academic etc) of these jobs are expected to be?



2) Throughout all the planning stages of the BGV and for its future sustainability and viability, how much reliance is placed on Lancaster University's Job Growth as the major employer in Lancaster?

3. With reference to the proposed Bailrigg garden village (as detailed in the 2018 publication version of the Lancaster City Council Local Plan), what funds, if any, has Lancashire County Council already committed to the development of the necessary highways infrastructure to support this development, specifically (a) the reconfiguration of M6 Junction 33 and (b) the crossing of the West Coast Main Railway to provide access into the garden village site?

4) How many houses in Lancaster have been improved through urban regeneration schemes in the last 10 years and how many are scheduled for improvement during the period of the current Local Plan?

5. The Lancashire County Council 2016 Highways and Transport Master Plan states that further work is needed to finalise our options and consult on detailed plans for transport in the Lancaster area. It also states that this consultation is likely to take place in late 2018 or 2019. Please advise (a) whether a firm date has been set for the start of this consultation and if so when (b) when the detailed plans are expected to be finalised?

6. What is Lancashire County Council's current estimate for the cost of reconfiguring M6 Junction 33?

### B] Lancashire County Council
### Response :

**From:** Freedom of Information <CSSGFreedom@lancashire.gov.uk> **Date:** 17 September 2018 at 10:36:32 BST **To:** "mark.salisbury@talk21.com" <mark.salisbury@talk21.com> **Subject: Request for Information (Our Ref: 945.1363.PH) Response**

Dear Mr Salisbury,

**Request for information under the Freedom of Information Act 2000**

We refer to your attached request for information made under the provisions of the above Act. Please see below our response. **The Bailrigg Garden Village (BGV) Development and Partnerships**

> 1 Martin Kelly – Director of Economic Development and Planning, Lancashire County Council. However going forward it will be Stephen Young, Executive Director of Growth Environment Transport and Community Services, Lancashire County Council. 2 As above. 3 This would be for Lancaster City Council to confirm, however it is our understanding that these meetings have not yet been formalised. 4 Not applicable as above.

**The BGV and Local Community Impact**



> 1 TBC – However this would fall under Lancaster City Council 2 TBC – We are still waiting for a response from Bus Rapid Transport. As soon as we receive the information we shall forward this on to you as a matter of urgency.

**Jobs Growth, Funding and Regeneration**

> 1 This is for Lancaster City Council to respond to as the planning authority. 2 This is for Lancaster City Council to respond to as the planning authority. 3 There is a £16.25m Lancashire Growth Deal funding allocation towards M6 J33, which would be subject to approval of a business case by the Lancashire Enterprise Partnership. 4 This is for Lancaster City Council to respond to as the planning authority. 5 A) No firm date has been set for the consultation. B) Plans expected 2019. 6 £55m was the high level estimated cost provided in relation to securing a Lancashire Growth Deal allocation as detailed above at point 3), however this would be subject to business case, assurance, and further detailed findings / cost estimates etc.

In respect of information held by Lancaster City Council, these aspects of your enquiry will need to be directed to Lancaster direct at the following:

http://www.lancaster.gov.uk/information/freedom-of-information

We hope the above is informative.

Yours
Sincerely,

**On behalf of the Information Governance Team Legal & Democratic Services Lancashire County Council freedomofinformation@lancashire.gov.uk www.lancashire.gov.uk**

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CLOUD

Appendix for Stephen Constantine, CLOUD Matter 7b) Flooding. Photos relate to the flooding of Galgate 22 November 2017 and have been supplied by Galgate Flood Action Group

1.Salford Road, Galgate, night of 22 November 2017

2. Main Road Galgate night of 22 November 2017

4. R.M. Fisher Showroom, Main Road, Galgate
22 November 2019. See over for further details

**Statement from Janet Hilton on impact of 22 November floods shown in image 4 overleaf.**
Our family business is R M Fisher, the SEAT garage on the main road. We suffered terrible losses in .Wednesday ... 68 vehicles written off and the whole place had 2 to 3 feet of water and ruined the majority of stuff inside . I realise that this loss is different from people's homes however it has been devastating for us.  This business was started by my parents in 1956 and we have never been flooded prior to this and I still can't believe the depth of the water on the A6.

5. Whitley Beck flowing down Stoney Lane. See report on next page for details.

**Some notes on Whitley Beck during the flood of 22-11-17 from Chris Baxter, 6 Stoney Lane, relating to image (5)**

Whitley Beck flows in a deep culvert 3.7 metres from our front door. Our drive is a bridge connecting us to Stoney Lane. The culvert is 2.2m wide, 1.9m deep on the house side and 2.07 deep on the lane side – where it is bounded by a stone wall. The 'throat' of the bridge is 2.2m wide and 1.24m high to the top of the shallow arch.

We have lived here for 4 years. Previous high water marks have been Storm Desmond, when the highest level was 12cm short of the arch centre, and the flash flood of August 16, when the beck briefly began to pool – perhaps reaching 10cm above the arch centre.

Two features are striking: As the depth of water increases so does the speed – to perhaps a very fast walk or a slow jog. The levels can rise and fall very quickly indeed.

**The flood.**

1 I have managed the grounds of Ellel Grange for 20 years – I'm fairly in tune with the weather.
2 It rained heavily the night before – everything was sodden.
3 The dawn of the 22nd barely happened – the whole day was ominously dark.
4 From lunchtime on the rain was almost constant.
5 I usually work until around 6.00 pm but I had a bad feeling about the rain and left at 4.45 pm.
6 Drains on the A6 were already overflowing. (Near northbound bus stop just south of M6 Jct 33.)
7 Whitley Beck was high but coping. The flow was increasing but seemed to level out a few centimetres from the arch at around 7.00pm. It even dropped a little.
8 At around 8.00pm I joined Parish Councillor John Greenwood to have a look around. The beck was around 10cm short of the arch. It was raining heavily as we walked down to the Conder at Salford Road and then back. On our return we saw that the beck had begun to pool against our bridge – it had risen perhaps 20cms in 15 minutes.
9 At around 8.45 the beck was full and began to overflow on the house side – flowing past our front door and down our drive into Stoney Lane.
10 At about the same time water began to flow out of the next drive upstream – the entrance to Launds Field.
11 The flow past our front door increased until perhaps 9.15 when water began to flow over the wall directly into Stoney Lane.
12 But the flow from Launds Field increased dramatically. My estimate is that at the height of the flood, say 9.45 to 10.30, 70% of the water flowing down Stoney Lane was emerging from Launds Field. This was joined by perhaps 25% from our drive and 5% from lower down the beck.
13 The level began to drop at around 10.45. By midnight it was all over.

Flooding aftermath

# Local Plan flood assessment is 'out of date'

By Nick Laker

**A Lancaster councillor says a flood risk report associated with building thousands of new homes across the district is out of date.**

Coun Charlie Edwards has written to Lancaster City Council asking for evidence of flood risk assessment as part of the proposed Local Plan, which includes planning for thousands of new homes.

Lancaster City Council said it had received many comments and queries about the Local Plan since the flooding last month, and that recent events have added further intelligence to the understanding of flood risk within the district. Councillors will get the final say on the Local Plan at a meeting on December 20.

But Coun Edwards, who represents Morecambe South on the county council and Bare on the city council, is seeking reassurances that the council has carried out due diligence "before making such a huge decision on the futures of potentially thousands of people".

He says that the council's Strategic Flood Risk Assessment published in October 2017 is now out of date.

He said: "I am seriously concerned about the flood risk that we could be placing thousands of new homes in, as well as increasing the risk to existing properties, especially in the Galgate/Bailrigg area and also in Torrisholme.

"Our flood risk is increasing, not just naturally through the level of rainfall, but also a reduction in green space and trees to soak the rainwater away, problems with historic drainage systems that are really ill to burst and through an increased consumption of water in our daily lives."

Lancaster City Council said that the Local Plan would go through a thorough independent examination, and flood risk would be an important part of that. In a statement, the city council said that development can also deliver benefits solutions to flood risk that can benefit communities.

In relation to the proposed Bailrigg Garden Village, the council said that the creation of wetlands and ponds could help to reduce surface flooding. Many people in Galgate are concerned that the development could increase flood risk, but the council said that the Garden Village had the potential to put in place work to reduce, rather than increase, future flooding in Galgate.

Coun Edwards added: "I want to support the Local Plan, I need to see the evidence which says we will not be condemning homeowners, many first time buyers, to a life of misery and constant worry from flooding, increased insurance and devalued house prices."

## Plan to set up action groups

**A meeting to discuss ways of thwarting future flooding in the district took place this week. The Lune Valley Flood Forum met at The Friends Meeting House on December 4. One of its aims is to set up action groups, and empower existing ones, in towns and villages, to "bring about change and resilience within the landscape". Chair Jan Taylor added that funding could be applied for to help purchase things like tools and barriers.**

6. Report in Lancaster Guardian, 6 December 2017 with Councillor Charlie Edwards querying the Flood Risk Assessment underlying the Local Plan. Councillor Tim Hamilton-Cox also raised this as an amendment when the Local Plan was debated on 20 December 2017, proposed delaying the Plan until a revised Flood Risk Assessment. This amendment was rejected by City Council.

South Lancaster **Flood Action Group**

# A Community Account of Local Flooding

**December 2018**

# Forward by Cat Smith MP

The floods of November 2017 were devastating for so many residents in South Lancaster and Galgate, with hundreds of homes damaged and many individuals and families left in temporary accommodation for the Christmas holidays, away from their own homes and often also their friends and neighbours too. When I visited many affected homes and businesses to see the damage in the days after the floods I was heartbroken by the impact on residents, the sense of loss people felt, and the evident trauma of seeing their homes ruined by a deluge of flood water, and a sense of helplessness to prevent it.

In the days, weeks, and months afterwards it became clearer that steps could, and should, have been taken by a variety of bodies to reduce the risk of catastrophic flooding in the first place, whether by adequately clearing drains and gullies or investing in proper flood defences. Concerns over the future have also been evident in my correspondence with residents, with large scale developments planned for south Lancaster which could, if not well managed, lead to a greater risk of flooding in the coming years.

However, a year on from November's floods, there has been some good news. The way that the community has come together has been commendable, and I am pleased to see that South Lancaster Flood Action Group has hit the ground running in doing important work in detailing and reviewing both what went wrong, and indeed what went well, before, during, and after the November flooding last year. Collating community experiences in this report is so important to ensure that lessons are learned, and the scale of damage caused in November can be reduced. Although the threat of Climate Change means we cannot completely eliminate the threat of flooding, I am hopeful that this report, and the work of the South Lancaster Flood Action Group, will benefit the community of South Lancaster for many years to come.

Cat Smith
Member of Parliament
Lancaster & Fleetwood

# Introduction

On the 22nd November 2017 the Lancaster district was hit by sustained and intense rainfall which resulted in significant flooding across the district. Whilst there is a history of flooding in South Lancaster, this night was particularly devastating with widespread flooding.

Following this flooding event there were a series of multi-agency events and it became clear that the community expected more to be done to manage flood risk and that insufficient attention was being paid to proactively solve flooding issues by the appropriate agencies. South Lancaster Flood Action Group was formed in May 2018 to represent the community's concerns to those responsible for flood risk management.

The community in this area is varied. There are some residents who have lived in the area for over 50 years and have shared their insights. They have suggested that the impact of flooding events has become worse, combined with increased regularity for both actual and near miss flood events. This situation combined with severe cuts in public finances, the absence of a coherent multi agency plan to proactively identify and solve problems, and a fragmented approach to flood management is of great concern.

South Lancaster Flood Action Group felt it important to produce this report to document community experience of flooding and to gather ideas about what could be done to prevent future incidents as there was no such document being created elsewhere. It was initially envisaged that this report be a document to describe the area's flooding experiences on the night of 22nd November 2017. However, upon receiving witness accounts of flooding and through subsequent follow up conversations, it became apparent that flooding in this area has happened both before and after this incident. The November flooding simply forms part of a longer story of suffering for affected homeowners and indicates a significantly wider problem in flood management by the agencies tasked to solve such issues. It was thus necessary to widen the scope of this report.

The evidence in this report has been collated from the experiences of local residents and documents the locations in the area that have flooded or are at risk of flooding and also captures the nature of the flood risk. Suggestions are also made to mitigate the impacts of future flood events.

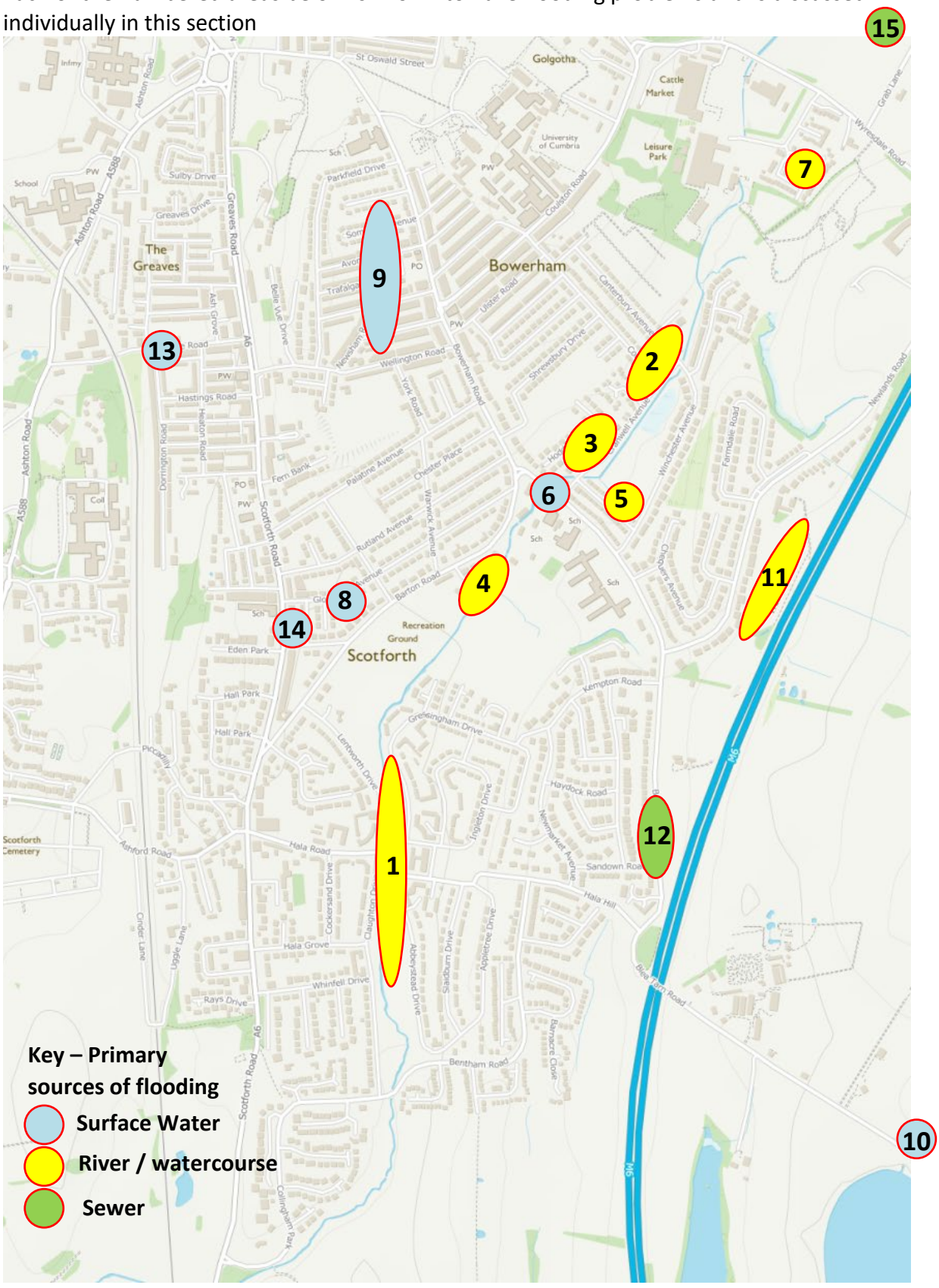
# Structure of the Report

This report is structured in three main sections:

1. Documenting the flooding problems by area
2. General Observations & Progress to Date
3. Agency Responses

# SECTION 1: Documenting the Flooding Problem

Each of the numbered areas below is known to have flooding problems and is discussed individually in this section



# Area 1: Hala

## Description

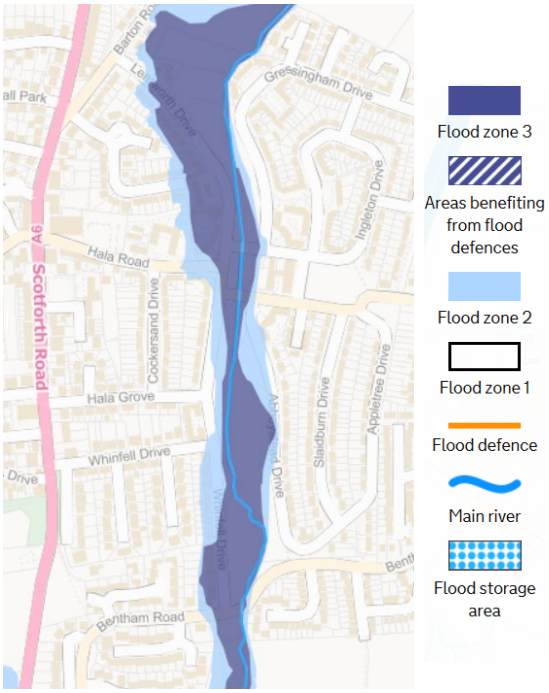
Burrow Beck burst its banks and flooded onto the roads to the East, this situation was exacerbated as the culverts under the road were overwhelmed with flood water backing up and overtopping the bridges. Houses and flats were flooded as were the roads leading to the Racecourse Estate. This area also has accommodation for a number of vulnerable people, some of whom had to be evacuated. Their homes were subsequently flooded, and residents could not return to their home for 4 months.

## When was the flooding

Near miss in Storm Desmond/Eva, significant impact in November 2017. Burrow Beck regularly reaches the top of its banks in moderate rainfall.

## What causes the flooding

Burrow Beck




**Flood Map for Planning from https://flood-map-for-planning.service.gov.uk/**

**Hala Square on 22nd November showing the culvert at full capacity and water flowing across the road**

**A flooded home on Lentworth Drive**

**The day after the November flooding - arrow shows highwater mark, Burrow Beck is beyond the bottom of the photo**

## Suggestions to prevent future flooding

- The quantity of water flowing through Burrow Beck and connecting culverts is greater than the infrastructure can hold/manage. A point of emphasis on reducing/eliminating water quantity further upstream is necessary.
- Attenuation of flow and addition of upstream storage.
- Proactive maintenance of Burrow Beck by all responsible.
- Retaining bund along Hala green to contain flood water.

# Area 2: Canterbury Avenue / Cork Road

## Description

The 48 hours prior to the November 2017 event had been very wet. By 12 noon on the day of the flood the beck gauge at Lancaster Leisure Park was showing Burrow Beck as only 8cm from the top (typically the beck rises 1cm for every 1mm of rainfall). The further downpour which started mid-afternoon on 22nd resulted inevitably in Burrow Beck breaking its banks.

Between 5.45pm and 6pm, Burrow Beck broke its banks behind Canterbury Avenue. This is the first location to be impacted by Burrow Beck and floods when other areas are unaffected. The force with which water flows upon beck bursting is extreme. It's impossible to stand up near this flow and large gardens fill to a depth of 3 to 4 feet within 20 minutes.

**June 2012 – View from house to road track off Canterbury Avenue, houses flooded.**

On the night of November 22nd, the Fire and Rescue Service attended this area and helped turn off the electricity as houses had to be abandoned as it was deemed unsafe. The Fire & Rescue Service also advised that the depth of the water was getting close to a point that they are not usually allowed operate in.

Even after this point the water continued to rise and the back-garden fences and walls on the lower north side of Canterbury Avenue were penetrated and flood water fully entered those properties. Due to the depth of water and despite the fact that the whole of the area had now become indistinguishable from the Beck, the water continued to try and flow through its existing channel. However, its infrastructure was overwhelmed, and water started also accessing other Canterbury Avenue houses. The height of water also overcame the capacity of the culvert under Canterbury Avenue. Water then flowed across Canterbury Avenue and was running down drives and over the backs of the houses on Cork Road

flooding those properties. "T*he flow of water was quite rapid coming up the drives of Cork Road like a river flowing*" (local resident).

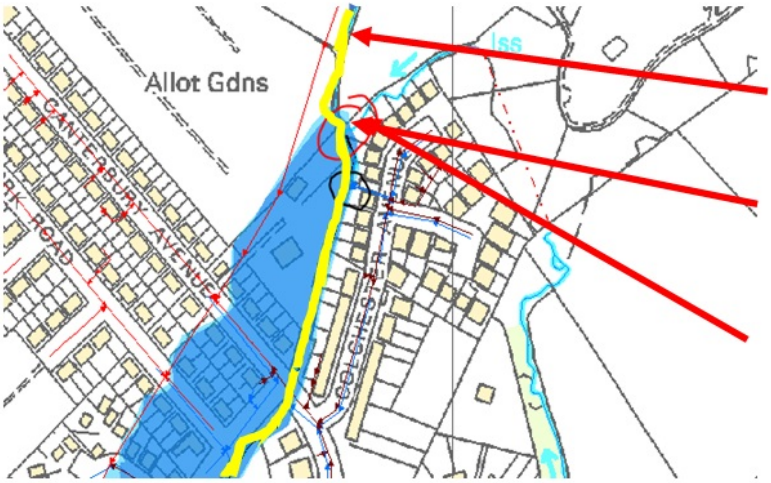
Houses were flooded to considerable depths causing extensive damage throughout; some repair works only were completed by October 2018. With that degree of water depth in the houses, the approximate maximum depth of flooding at the lowest point of the garden during the night was probably 4 to 5 feet.

## When was the flooding

Multiple times every year. The house behind Canterbury Avenue has had flood waters penetrate the property 3 times in 5 and a half years. Property insurance claims have been made and cars have been written off. Burrow Beck has broken its bank behind Canterbury Avenue at least 6 times since 2011. Prior to 2011 there were at least 4 other instances.
Additionally, the existing storm drains are insufficient to cope with the water which flows from the Canterbury Avenue allotments and other neighbouring water catchment areas. Consequently, during bouts of heavy or prolonged rainfall, the gardens and road track frequently flood with surface water to a depth of approx 1 foot.

**Yet another close call August 2016.**

## What causes the flooding




A – shows Burrow Beck in yellow.

B – culvert carrying water from additional water course around Colchester Avenue and beyond.

C – structures from Colchester Avenue gardens which cross the entire beck blocking/diverting high waters.

There are 3 principal causes:

- Burrow Beck being unable to cope with the quantity of water flowing at the point highlighted above.
- At the exact point where this occurs there is also a watercourse which joins Burrow Beck. This carries torrents of rain/surface water from behind Colchester Avenue and beyond. It has been confirmed by the Environment Agency that the culvert has existed since at least the 1840's! Can such a structure cope with modern rainfall and the demands placed upon it by current age housing developments?
- At the point where the above occur, structures have been placed by Colchester Avenue residents which extend across the beck. Rising beck torrents strike these and deflect water away from the natural beck path into the Canterbury Avenue gardens and beyond. As these structures are unauthorised Canterbury Avenue residents have since 2011 requested the Environment Agency use their powers of enforcement to have these structures removed. Early in 2018, the Environment Agency confirmed Colchester Avenue residents had been written to and given the necessary period of time to remove them. During Storm Callum in October 2018, the Environment Agency, witnessed the problem in action and took photographs. During this visit the Environment Agency representative confirmed the structures were causing blockages.

## Suggestions to prevent future flooding

- The quantity of water flowing through Burrow Beck and connecting culverts both behind and on Canterbury Avenue is greater than the infrastructure can hold/manage. A point of emphasis on reducing/eliminating/attenuating water quantity further upstream is critical.
- Removal of culverts and redirect water away from Burrow Beck at this point.
- Environment Agency to enforce removal of the Colchester Avenue garden structures which cause water blockage/diversion.
- Remodel the position and angles of Burrow Beck and watercourses behind Canterbury Avenue.
- Significantly increase capacity of Burrow Beck.
- Review and improvement of storm drain capacity.

# Area 3: Cranwell Avenue/Hodder Place/Steward Avenue

## Description

During Storm Desmond (December 2015) Burrow Beck along Cranwell Avenue held within its banks. In August 2016 during a period of intense rainfall the beck overflowed and began collecting where Steward Avenue meets Cranwell Avenue. Thanks to the prompt actions of residents the water was contained. A small defensive barrier was built opposite the entrance to The Spinney.

In November 2017 Burrow Beck overflowed along two sections of its bank in this area resulting in extensive flooding in Steward Avenue, Hodder Place and other properties just beyond. During this event, a surge of water was noticed increasing the amount of water overflowing. "*all of a sudden water started to come up through the floors in all areas of the downstairs of the house. Within less than 5 minutes there was water everywhere, the carpets lifted and anything on the floor was wet*" (Resident of Hodder Place).

## When was the flooding

August 2016, November 2017.

## What causes the flooding

Overtopping of Burrow Beck.

**Cranwell Ave: Overtopping August 2017**
**(Note the former pond/wild life area beyond the overtopping beck which has become silted up and now holds little water)**

**Cranwell Ave: Overtopping August 2016**

**Cranwell Ave: Overtopping August 2016 – Fire Brigade emergency defences**

**Pinch point from the bridge at the Western end of Cranwell Ave**

## Suggestions to prevent future flooding

- In 2018 the Environment Agency rebuilt part of the river bank along Cranwell Avenue covering the sections which overtopped in November 2017. However, this merely replaces recent erosion, concern remains that future events will have similar effects.
- The quantity of water flowing through Burrow Beck and connecting culverts is greater than the infrastructure can hold/manage. A point of emphasis on reducing/eliminating water quantity further upstream is necessary.
- Burrow Beck is culverted under roads at both ends of Cranwell Avenue. The capacity of these culverts should be examined and a programme of increasing capacity by dredging, widening, deepening should be undertaken.
- Dredging of the ponds which are silted up opposite the end of Cork Road would allow water storage and recreate a wild life facility and enhance the visual amenity of the area (see photo above).
- A survey of open land to the south bank of the beck along the length of Cranwell Avenue should be undertaken to examine the possibility of creating an area for water storage.
- Increase the capacity of the beck through the pinch point at the Western end of Cranwell Avenue where it flows downstream of the bridge (see photo above).

# Area 4: Barton Road

## Description

Surface water drains failed as Burrow Beck rose. Eventually Burrow Beck rose to the extent it overtopped and flooded some properties to a depth of c.3ft. "*the flood water was so bad that water was coming directly back up the surface water drains, the beck level was so high it was cascading over the small bridge spanning the beck directly "filling" the whole of the property!*" (Local resident).

Some houses on Barton Road also had their cellars flood. The cause of this flooding appears to be a combination of water running off Barton Road and down drive ways and water draining off the Barton Road playing fields into back gardens.

## When was the flooding

November 2017, though other incidents have happened previously and for some houses repeatedly.

## What causes the flooding

Burrow Beck & surface water drains.

**The night of November 22nd**

## Suggestions to prevent future flooding

- The quantity of water flowing through Burrow Beck and connecting culverts is greater than the infrastructure can hold/manage. A point of emphasis on reducing/eliminating water quantity further upstream is necessary.
- Greater capacity of Burrow Beck and improved regular maintenance of gullies.

# Area 5: Newlands Avenue

## Description

Houses and gardens were flooded when a tributary to Burrow Beck was overcome by excessive water during the November flooding. The nature of flooding in this area is rapid: "*On the night in question the levels rose to that point then in a matter of minutes came up the garden and to the house and garage.*"

## When was the flooding

November 2017

## What causes the flooding

Flooding came from a tributary that joins Burrow Beck at the end of Newlands Avenue. The source of this tributary is unknown as it is culverted under the housing estate. However, it is likely that it originates on the eastern side of the M6 and contains surface water runoff from fields and may also collect additional inputs as it is culverted.

## Suggestions to prevent future flooding

- The source of this flood water and any cumulative inputs needs to be fully understood so that appropriate mitigation measures could be implemented.
- Mapping of the culvert will determine responsibilities for maintenance from its source to the outfall into Burrow Beck.
- Capacity of Burrow Beck to accept excessive flows from this tributary needs to be understood.
- Flood water storage along this tributary and along Burrow Beck.

# Area 6: Bowerham Road (near Junction of Barton Road)

## Description

There is a low point in the road where water accumulates flooding the entire carriageway. This flooding is surface water accumulation from Bowerham Road. There are highways gullies at this location, but they are often blocked or unable to cope with the volume of water. Gullies on this section of Bowerham Road connect into the surface water sewer, which runs on the South-West side of Bowerham Road. This system then discharges into Burrow Beck where it crosses under the road. Critically, the discharge is at the very lowest point of the beck (just at the water surface when at its lowest regular rate of flow is) and is therefore prevented from flowing into the beck when its level is elevated. Therefore, when Burrow Beck is in high flow the water on this part of the road surface cannot escape and builds up. An exacerbating factor here is that vehicles including heavy vehicles (i.e. buses) continue to use the road when flooded further risking properties. In November 2017 this area also received water from Burrow Beck where it was breached further upstream.

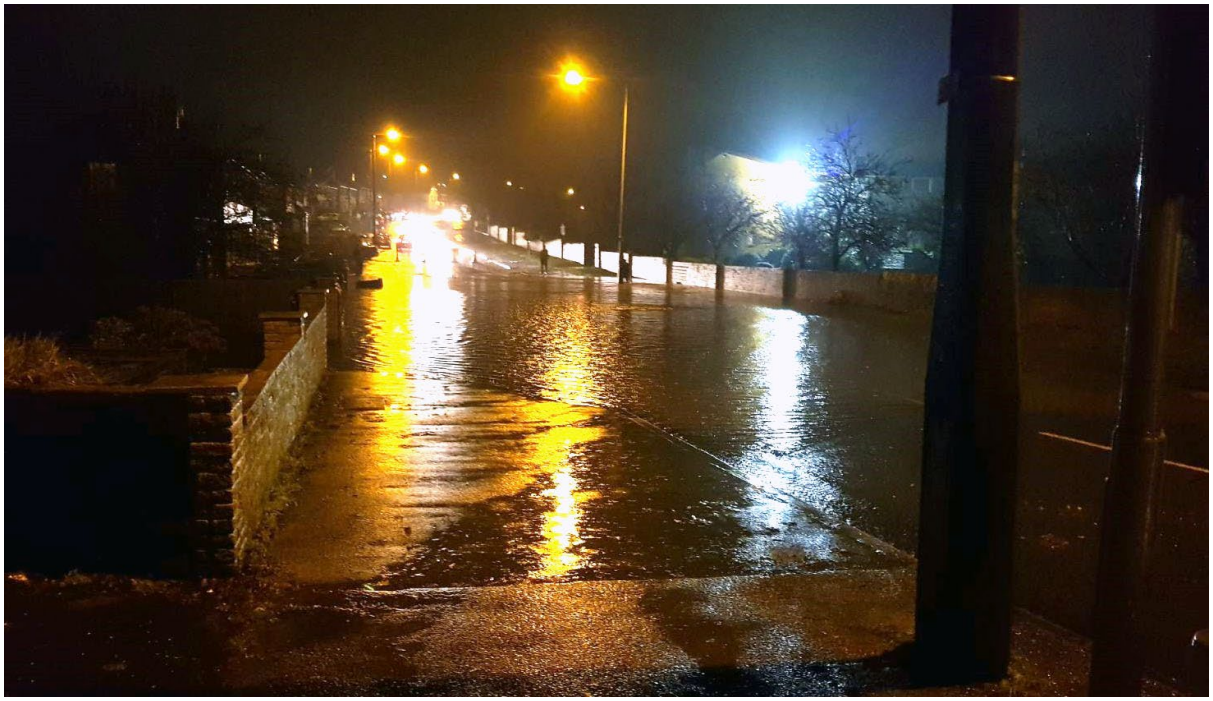
## When was the flooding

Any heavy rainfall.

## What causes the flooding

This flooding is surface water accumulation from Bowerham Road which physically cannot discharge into the sewer system or Burrow Beck.

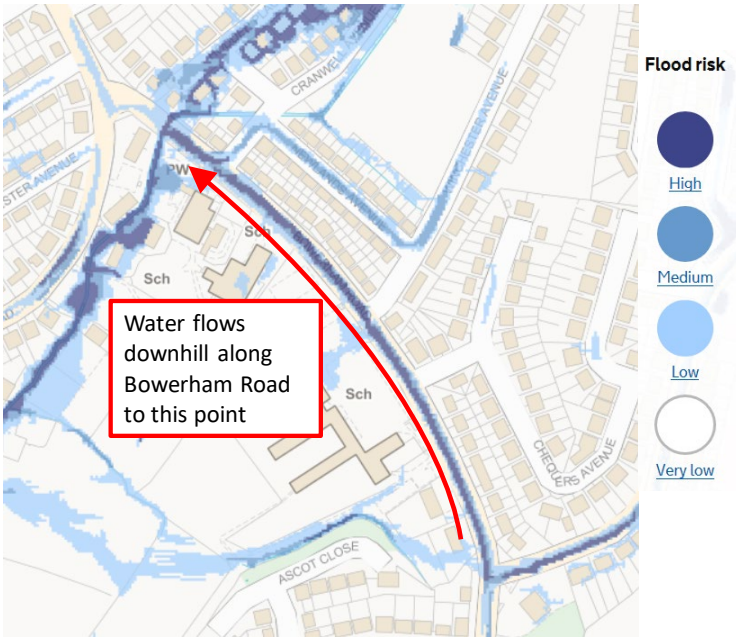
**A typical view following moderate rainfall**



**The same view (from the opposite side) on the night of the flooding, 22nd November 2017. Note at this time it had already subsided slightly.**

## Suggestions to prevent future flooding

- Lancashire County Council to investigate the highway drainage effectiveness and opportunities for increased capacity. Specifically, the highway drainage system should be re-designed to discharge at the very top level of the beck, so water can still escape from Bowerham Road when the beck level is in flood and / or additional drainage outputs should be provided.
- Ability for local residents/FLAG to close the road to prevent wake caused by vehicles.
- The surface water flood map (right) shows the flow of water along Bowerham Road to this point. Lancashire County Council to investigate the effectiveness of drains on inclines, capturing water higher up the road would alleviate the problem here so long as it does not hinder the discharge at this point.
- Stagecoach to enforce advice to drivers on moving through flood water.




**u**
**rface Water Flood map from https://flood-warning-information.service.gov.uk**

# Area 7: Pottery Gardens

## Description

During the November 2017 floods the Leisure Park car park, the estate road into Pottery Gardens and a number of residents' gardens and drives flooded. Estimated depth in the Leisure Park car park was two thirds of the height of the car tyres. Shortly before residents downstream observed what has become known as "the surge" which resulted in the first period of flooding of Canterbury Avenue properties that night, witnesses at the Leisure Park observed the sudden drainage of the car park flood water. However, further accounts and information will be needed to be confident about what happened.

There was some concern that the Sustainable Urban Drainage System (SUDS) at the development had failed. However, Lancashire County Council did inspect the SUDS and found it was operating as expected.

## When was the flooding?

November 2017

## What causes the flooding

The source of flooding at the Leisure Park car park is not known. Burrow Beck flows under the car park - so it may be that the flooding was caused by a combination of the insufficiency of the culvert, potential blockage/restriction of the culvert entrance and surface water accumulation.

## Suggestions to prevent future flooding

We need more information about flood events in Pottery Gardens and the Leisure Park to build a more complete understanding of what flooded when, so that we can establish causes and then work to address them.

In this area Burrow Beck is an Ordinary Watercourse and there is suspicion that there are several other contributing inputs which need to be understood.

# Area 8: Gloucester Avenue

## Description

When there is a heavy downpour the road floods, residents are well practiced at attempting to unblock road drains and do whatever they can to help the water escape naturally. Gardens and outbuildings have been flooded and houses have only escaped being impacted by fractions.

## When was the flooding

This has flooded in all the recent significant events of July 2018 (Flash Flooding), November 2017 (heavy continuous rain), December 2015/2016 (Storms Desmond/Eva). However, it also occurs any time there is heavy rainfall and the grids are blocked with leaves or debris.

## What causes the flooding

Surface water accumulation, highway drainage insufficient/unable to discharge due to blockages caused by debris washing down from further up the street.

**Residents out (again) trying to unblock road drains**

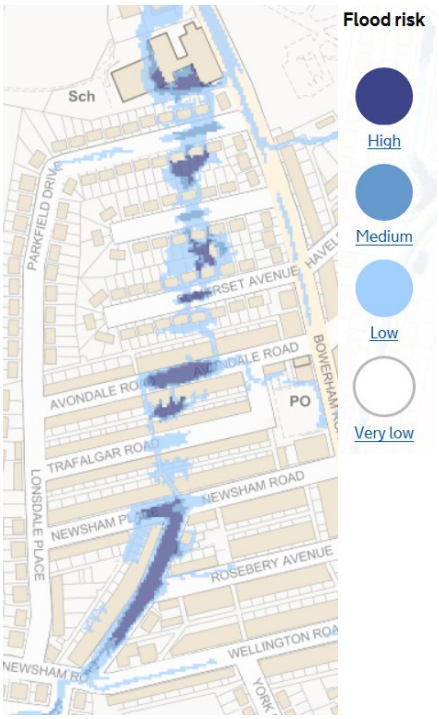
## Suggestions to prevent future flooding

- There remains a consistent absence of regular drain and road debris maintenance. When these floods happen, local residents put wellies on and go out and sweep the grids to help release water. Otherwise houses would be flooded. "*We have so far managed to avoid water in the house*" (local resident).
- Lancashire County Council to investigate the effectiveness of drains on inclines, capturing water higher up the road would alleviate the problem here so long as it does not hinder the discharge at this point.

# Area 9: Bowerham

## Description

This area is prone to surface water flooding. During heavy rainfall surface water flows from roads on the western side of Bowerham Road across to this area East of Bowerham Road where it accumulates at the lowest points. This is known to flood the residential road and gardens. The frequency and severity of this is a concern to local residents: "*The water very quickly builds up, comes down my drive, like a river, down the side of my house and fills up my back garden*" (local resident). This has been happening regularly as can be seen from the photos below taken 10 years apart and the fear is that intense rainfall events that lead to this are happening more regularly.




**Surface Water Flood Map from https://flood-warning-information.service.gov.uk**

## When was the flooding

Flooding has happened here regularly during heavy rainfall.

## What causes the flooding

Surface water accumulation in low spots where drainage is insufficient.

**These photos show the same place in c.2008 (left) and 2018 (right)**

## Suggestions to prevent future flooding

- There are no drains in the alleyway between Rosebery Avenue and Wellington Road.
- Joint investigation required by Lancashire County Council Highways and United Utilities to manage water collection and dispersion in this area.

# Area 10: Blea Tarn Road

### Description
This area floods regularly, every winter and sometimes in summer and has been closed by the police on occasions. Surface water running off fields collects on the road to a depth that has written cars off as they drive into it on several occasions.

### When was the flooding
This has been flooding every year for many years.

### What causes the flooding
Surface water runs off the adjacent fields and is forced to collect on the road due to the reservoir wall.

### Suggestions to prevent future flooding
- Investigation required into the current drainage arrangement to confirm it is not obstructed.
- Opportunities for additional drainage capacity should be addressed.
- United Utilities have been contacted to investigate if the reservoir wall could be altered to allow flood water to pass.

# Area 11: Newlands Road

### Description
This residential area lies below the M6 motorway and below fields on the opposite side of the M6 carriageway. In severe rainfall surface water runoff accumulates and has flooded gardens to the extent that retaining walls have collapsed. Several ordinary watercourses cross the M6 and Newlands Road which may also contribute to localised flooding.

### When was the flooding
In severe rainfall.

### What causes the flooding
Initially it was thought that this water was coming from the M6. However, enquires made by the South Lancaster Flood Action Group with Highways England, suggest that this is not the case. It is suspected that water is running down the hill that the M6 intersects and being channelled by drainage channels into residents' gardens.

### Suggestions to prevent future flooding
Further investigation is required to fully understand the nature of flooding in this area and the contribution that small watercourses and surface water runoff from the adjacent fields plays. We are working to establish who owns the land so that further discussions can be had about holding and slowing water. The Environment Agency and Lancashire County Council are undertaking co-ordinated work to better understand where the water comes from, and goes to in this area, as many watercourses were directed underground when the development was built.

# Area 12: Bowerham Lane/Sandown Road

## Description

Surface water coming up from the drains, primarily sewer drains but also highways gullies has caused flooding in this area. "*We watched from the front door as water came up from the fresh water sewer."* (Local resident). This occurs rapidly with significant force "*The force of this water both surface and foul is easily able to lift the cast iron inspection chamber covers right off!*" (local resident).

An exacerbating concern in this area is the proposed development of open land and the impact this will have on surface water and sewer capacity. Initially rejected by Lancaster City Council, permission was granted on appeal to develop between here and the M6. Local residents have described the impact this could have on surface water flooding as "*frightening*". The appeal from the developer was allowed despite a unanimous rejection by the City Council and residents' concerns about flooding in part because "*no objections from the Lead Local Flood Authority or United Utilities have been raised with regard to drainage or flooding*" (Planning Inspectorate Appeal Decision APP/A2335/W/18/3195605). This decision came just after the November 2017 flooding. The developer has now put in an application to address the conditions imposed by the planning inspector (18/01413/VCN), both United Utilities and the County Council as Lead Local Flood Authority have been alerted to the application and has been asked whether new understandings of flooding in the area mean that objections should now be made.

## When was the flooding

November 2017 and Storm Desmond (December 2015). Also, some flooding in 2008.

## What causes the flooding

Surface water drains, this area has a confluence of surface water drains which are overstretched in high rainfall. This also has the secondary effect of preventing highway drains discharging into the sewer system.

**The night of November 22nd**

**The night of November 22nd**

## Suggestions to prevent future flooding

As it has been confirmed that the primary source of flooding was the sewer system, United Utilities have made investigations and have fitted non-return valves where appropriate and offered property protection measures to affected homes. Lancashire County Council Highways have also made alterations to the position of highway drains. Unfortunately, the effectiveness of these measures will only become apparent in another severe event.

# Area 13: Bridge Road

## Description

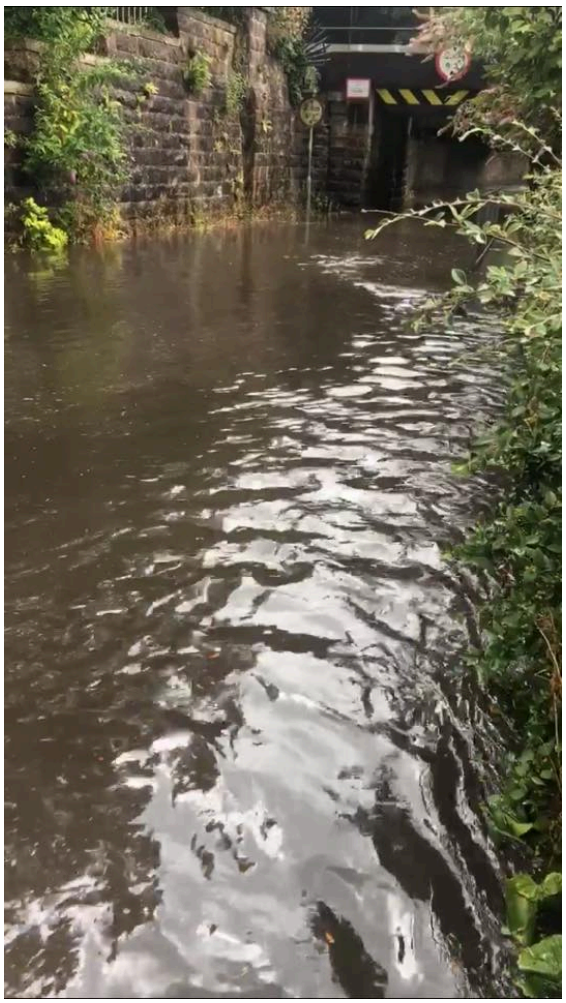
During heavy rain surface water accumulates at the low spot near the railway bridge, there have also been reports of water coming up from the drains. "*we have been flooded again, our garden has suffered flooding water wasn't far of entering our house, a few inches again*" (local resident). It appears that several of the drains in this area are not functioning correctly with only some discharging water, residents have been previously told that resources are not available to address this.

## When was the flooding

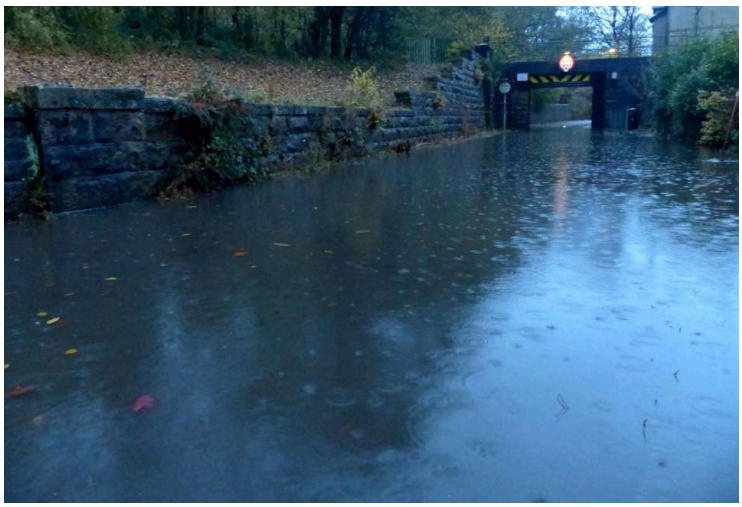
The road regularly floods during heavy rain.

## What causes the flooding

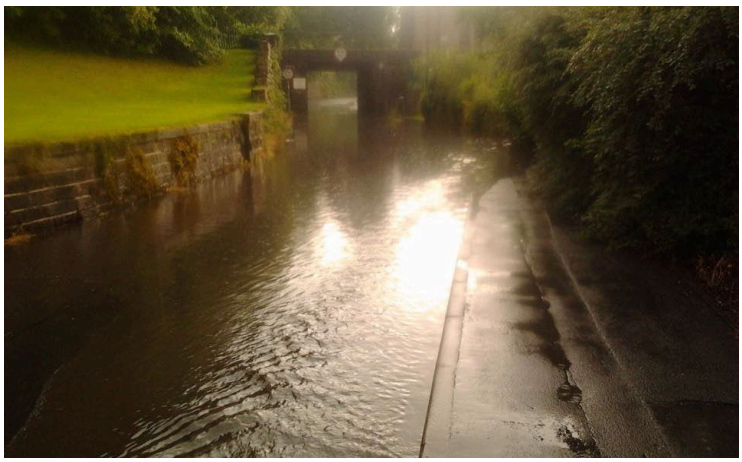
Surface water accumulation which is unable to dissipate during heavy rainfall



**28 July 2018**



**8 November 2015**



**10 June 2014**

## Suggestions to prevent future flooding

- Investigation is required to identify if the existing drainage in this area is performing properly.
- Options for increased drainage capacity need to be considered.

# Area 14: Scotforth Road

## Description

The shops on Scotforth Road have regularly flooded in any heavy rainfall, this was, of course, particularly bad in Storm Desmond, and the November 2017 floods.

A number of houses also experienced flooding along Scotforth Road and in some of the streets that Scotforth Road would naturally drain onto.

## When was the flooding

Strom Desmond (December 2015, Novermber 2017 and July 2018.

## What causes the flooding

Further investigation after the July 18 flash flood revealed a large 'fat burg' in the sewer system near the Scotforth Road shops. With this removed it is hoped that further flood events will be avoided. However, there is still a problem with the frequency with which gullies are cleared, as they are often full of leaf and other litter.

The causes of some of the other sources of flooding are not fully known.

## Suggestions to prevent future flooding

The gullies need more regular cleaning, and additional capacity may be needed in the sewer system.

# Area 15: Gleneagles Drive

## Description

During flooding events in November 2017 and July 2018 a number of houses experienced water coming up out of the sewers and drains to enter garages.

## When was the flooding

November 2017 and July 2018.

## What caused the flooding

Sewer flooding.

## Suggestions to prevent future flooding

United Utilities investigated these incidents and resolved some blockages in the sewer system. The work done should mean the problem will not reoccur, but ongoing monitoring will be required.

# SECTION 2: General Observations & Progress to Date

This section captures some of the broader aspects that the community has raised to the Flood Action Group.

## Regular maintenance / attention

For all areas identified in Section 1 the following apply:

- The identified areas need to be treated as high risk and subject to additional road sweeping and gully cleaning at regular intervals. A list of affected streets has been provided by South Lancaster Flood Action Group to the City and County Councils.
- Local residents need to proactively monitor gullies and watercourses for blockages and report any problems to the relevant agency.

## Burrow Beck

- Watercourses need to be regularly maintained to ensure free flow with attention paid to vegetation growth, dredging and emergent issues such as temporary blockages.
- Increasing capacity such as widening and deculverting must be considered.
- There are locations along the course of Burrow Beck which could act as flood water storage, the Environment Agency is currently undertaking a study into the Burrow Beck catchment which will identify options.

## Complexity

Readers of this report who are familiar with flooding issues will appreciate the complexity that is inherent with multi-agency and individual responsibilities. Members of the public this is a perplexing and difficult to understand situation especially at the time of real need – during and immediately after flooding. In this difficult time the community may be seeking help and assistance, trying to understand what has happened or looking for blame. Regardless of cause, there is a feeling of frustration when individuals attempt to engage with this system. One of the early questions people are asked is the cause of flooding (to be able to navigate the multi-agency environment). However, it may not always be clear and in significant flooding events there could well be a combination of factors present. The complexity was easily evidenced at the community meetings held in the aftermath of the flooding where the agency panel contained so many different agencies.

The Flood Action Group has a built a working knowledge of the different agency responsibilities, even with this knowledge it remains difficult to understand how the different aspects can be integrated in an effective way. It is also difficult to understand how to progress any multi agency ideas where there is no evident leadership. There is also little confidence that integration is effective beyond the best endeavours of individuals within the agencies.

Across Lancashire, the Environment Agency advises, there are more than 40 local flood action groups, but there has not been a way for them to come together and share their expertise and challenges. County Councillor, Erica Lewis, in the new year will chair a task group for Lancashire County Council to identify what the county council in partnership with borough and parish councils, other flood risk agencies, and residents' groups could do to

reduce flood risk, as well as strengthen communities' preparedness for flooding and recover after flooding. Since the November 2017 floods we have learned that locally we can tackle flooding at the level of individual houses and businesses, pinch-pinch point by pinch-point, watercourse by watercourse, but that we also need action on a county and country basis to address issues from planning to climate change.

## Reporting

Reporting of flooding is also a difficult area. Some members of the public are reluctant to report flooding fearing the impact it may have, for example on, mortgages, house prices and insurance premiums. Anyone who does want to report flooding beyond their insurer has to navigate the complexity described above with options including Lancaster City Council, Lancashire County Council, the Environment Agency and United Utilities. There does not appear to be a mechanism by which agencies can share this data or hold this data on a central system, meaning that to cover all bases reports should be made to all agencies This is a systemic problem that could be made easier.

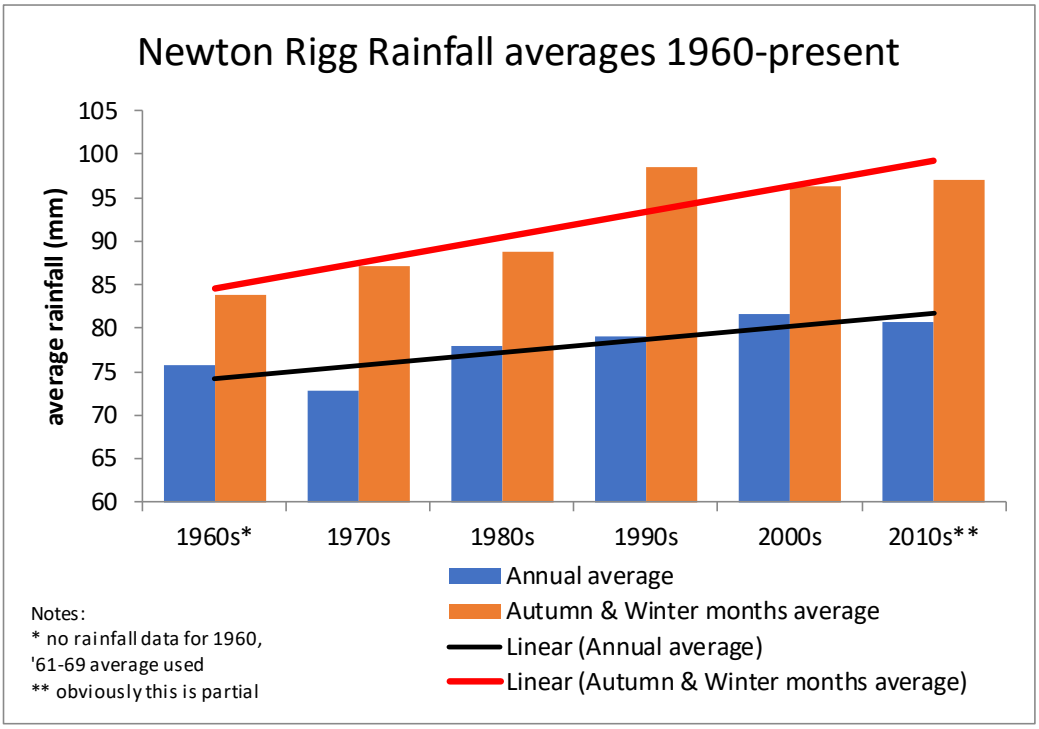
Once reported there does not appear to be much follow up leaving people feeling that they have been passed from 'pillar to post' in making the report then feeling that there was no point in reporting. This negative reinforcement generates apathy and frustration, particularly if the resident also suffers from increased insurance premiums.

Flooding only tends to be reported when there has been an impact on homes and businesses, there is no one to, or no recognition of the need to, report flooding of greenfield/brownfield ground. The absence of this knowledge becomes evident should these areas become subject to planning applications. A paper search and the Flood Risk Assessment cannot include what has never been captured. In this situation it is possible that developments can happen which are inappropriate and prone to flooding that has previously gone unreported.

## A worsening situation

Flooding is not a new phenomenon, the general feeling in the community is that both the frequency and intensity of flooding and near miss events is increasing. "*Flooding has never been an issue here before and I am aware that some of my neighbours have lived on Hodder for almost fifty years"* (Resident of Hodder Place). A combination of factors is often cited as causing this feeling which includes:

- Climate Change: analysis of Newton Rigg weather station data seems to support an assumption that we are subject to more rainfall than previously (see chart below).
- Developments: expansion of the urban area is viewed with high suspicion as a contributor to flooding, particularly large developments in the upper catchment of Burrow Beck (see planning section below for further information).
- Cutbacks: reductions in public finances are also blamed as a contributor to flood risk which include apparent reduction in watercourse maintenance, road sweeping, gully cleaning etc.




**Analysis of data from Newton Rigg weather station in Cumbria, the nearest station to South Lancaster with publicly available historic records**

## Planning

The current planning system does not give enough weight to the risks and causes of flooding. We need a planning system that adds capacity to the whole system when new developments are built, to proactively hold and slow water on the development in areas where there is a known flood risk. The planning authority should adopt a betterment policy to achieve this.

Residents feel like their experience is given little weight in the planning process especially in comparison to formal consultees. Flood risk is not accurately documented especially in instances where residents choose not to report flooding or where there are near miss incidents which are either not reported or because the internal property was not breached are not recorded. Without due recognition of local experience incorrect planning decisions can and will be taken.

United Utilities is not a statutory consultee on planning applications, despite the reality that almost any development will contribute to the volume of water entering the sewerage system. Given the strain that the sewer system is under United Utilities should be able to provide information to planning authorities with the same weight as statutory consultees. United Utilities must also be put under pressure to increase the capacity of our aging sewerage system so that it fits the Lancaster of tomorrow, rather than Lancaster of long-ago.

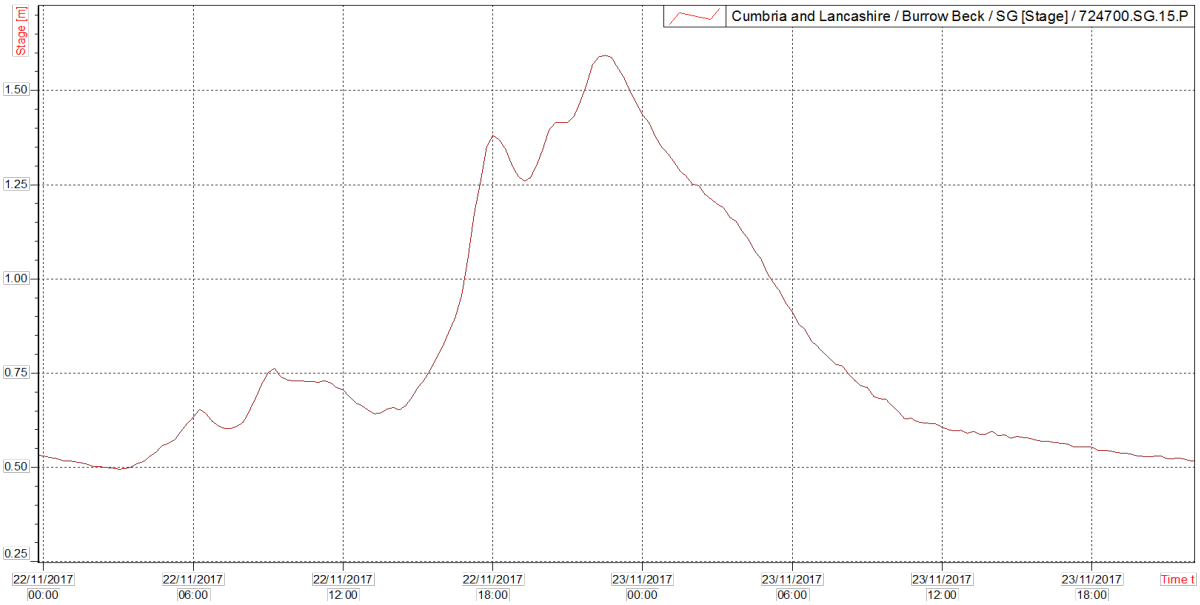
In assessing Flood Zone designations, the Environment Agency only considers water courses with photographic evidence of the watercourse issue during flooding. Thus, if an area is particularly prone to watercourse flooding as Burrow Beck is, not considering additional surface water flooding and ineffective infrastructure has lead to removal of planning

objections and, consequentially, to catastrophic flooding when all the sources of water are combined. A much greater proactive approach to flood zone designation and communication with other agencies is paramount. The planning committee is known to disregard the necessary actions regarding the sequential test because of a lack of a wider strategic city development plan. This should not occur as it is giving developers opportunity to build in areas where the sequential test needs to be exercised.

The planning process should also require detailed plans at the pre-approval stage regarding the ongoing ownership, responsibility and maintenance of any flood mitigation measures such as Sustainable Urban Drainage Systems (SUDS) and how recommendations in Flood Risk Assessments are implemented.

## Surge

During the November 2017 flooding there is a common account of a sudden surge of water in Burrow Beck: "*all of a sudden water started to come up through the floors in all areas of the downstairs of the house. Within less than 5 minutes there was water everywhere, the carpets lifted and anything on the floor was wet*" (Resident of Hodder Place). If they were not already overtopped culverts at this time acted as dams and caused water to back up and be diverted, flooding houses that without the surge would have been unaffected.
There is no definitive explanation for this surge, the most plausible hypothesis is that a volume of water that was being held upstream of Canterbury Avenue suddenly flowed downstream. It has been reported that over a foot of water was present at the Leisure Park car park which cleared very quickly at about the time of the surge. Most probably there was a blockage or restriction in the flow of Burrow Beck which cleared either by human action or naturally as a result of the force of water.




**Burrow Beck River Level 22/23 November 2017 curtesy of the Environment Agency. The 'surge' is evident at the peak.**

## Emotional impact

Flooding causes very obvious damage to property and disruption to people's lives as recovery and fixing of damage occurs. Those severely affected by flooding may have been in temporary accommodation for more than 6 months. Buildings can be repaired, and furniture can be replaced. However, the emotional impact of flooding may not be easily observed and can have a long lasting and severe impact on those affected. This is illustrated by the comments below which have been shared at least 6 months after the flooding event in November:

- "*This caused considerable upset, both mentally and physically and is still affecting the tenants now. Every flat lost all their possessions (furniture, clothes and personal photographs, family mementos) which cannot be replaced*" (resident of Scotforth Court).
- "*Due to the unexpected nature of this occurrence, I cannot recall whether water came in via the doors - to say this was a trauma is an understatement and what happened after the water rose up, is a blur*" (resident of Hodder Place)
- "*the fear is that with the next heavy downpour the same could happen again*" (Resident of Bowerham Lane).

There is little, if any, emotional support offered to victims of flooding which is a clear gap in recovery mechanisms. The actions of agency representatives in the immediate aftermath of flooding have the potential to ignite or calm an emotional torrent. Therefore, it is important that those dealing directly with the public are suitable trained and experienced in emotional management as well as technical matters.

## Property Level Protection

Home owners who are at risk of flooding are encouraged to invest in Property Level protection to minimise the impact of any flooding event. There are several barriers to this being an effective strategy:

- Cost: no government funding has been made available to South Lancaster as a result of flooding. Property Level Protection can be expensive easily reaching into the thousands for basic protection such as flood proof airbricks and flood doors/barriers. Meeting this cost may simply not be achievable for many.
- Whole building requirement: Property level protection is only effective at the building level, anyone living in a semi-detached or terraced house will require neighbours to also invest in protection for it to be effective.
- Renters: Residents who rent their home are dependent on the landlord agreeing the need for and funding investment of in flood defences.
- Product confidence: Those who have the ability and can afford protection measures will be faced with a wide array of products and services to choose from. Even after extensive research it is not always evident what decisions should be taken. In the last 12 months one of the biggest UK flood protection companies went into administration after their leading product failed government testing of its water resilience. Until another flood happens the effectiveness of these products is unknown.
- Still paying high insurance premiums: Installation of protection measures does not have any impact on insurance premiums

# Progress so far

It is unfortunate and immensely frustrating to those who have been affected by flooding that it has taken a widespread incident such at November 2017 for combined action and focus to be taken in South Lancaster. Some positive progress has already been made which is captured below. However, there remains a significant amount of work to manage the flood risk that remains today.

## South Lancaster Flood Action Group

Formed in May 2018 the South Lancaster Flood Action Group is now an established group with the following aims:

- Better understand and increase awareness of the flooding problems in South Lancaster.
- Provide a voice for residents of South Lancaster concerning all matters in relation to flood risk and prevention.
- Propose actions to reduce the impact of future flood events in South Lancaster.
- Liaise with Lancaster City Council, the Environment Agency, Local Flood Authority and other relevant agencies to ensure solutions to reduce and eliminate flood risks are progressed.
- Hold to account the Authorities involved in Flood Management and prevention.

In 2018 the South Lancaster FLAG has:

- Held 8 community meetings including Q&A sessions with (United Utilities, Environment Agency, Lancaster City Council Civil Contingencies, Lancashire County Council Highways, Lancashire County Council Lead Local Flood Authority)
- Spent time understanding the flooding that has occurred in the area
- Built relationships with flood risk management agencies
- Engaged with the planning process on a couple of flooding related applications
- Engaged the local community with email updates, Facebook group and a newsletter

Moving forward into 2019 and beyond the FLAG will:

- Continue with community engagement
- Pursue tangible improvements to flood risk
- Ensure that South Lancaster remains a priority within the agendas of the risk management agencies

## Proactive Response to bad weather

Since the November flooding South Lancaster has had several notable incidents: Flash Flooding in July and storms Bronagh and Callum.

The flash flooding in July was an event with no warning where very intense and localised rainfall resulted in pockets of flooding throughout South Lancaster. Lancaster City Council and Lancashire County Council reacted quickly by providing road sweeping and gully cleaning respectively. This has highlighted the need to remain vigilant and ensure any gullies that require attention are promptly reported.

Storms Bronagh and Callum represented a potential risk to South Lancaster and were the first predictable heavy rainfall events since November 2017. A marked difference in both of these events was the proactive stance of some risk management agencies, most notably the Environment Agency, Lancaster City Council and Lancashire Fire & Rescue Service were all noted as being proactive in checking Burrow Beck and other flooding hotspots. In addition to this on the ground activity they were also communicating with the FLAG which enabled the FLAG to relay the proactive stance to the community. Fortunately, neither of these storms resulted in any flooding.

## South Lancaster Community Emergency Centre

A Community Emergency Centre for South Lancaster has now been established at St Paul's Parish Hall on Scotforth Road. This means that if required the emergency services or the council duty officer can activate the Community Emergency Centre as a temporary refuge for displaced people and as a focal point for the provision of emergency and pastoral care. Although we hope it will never be required the centre will be available for any emergency situation including flooding.

## Road Sweeping and Gully Cleaning

One way to minimise the risk from surface water flooding is by keeping the drainage system operating as effectively as possible. Lancaster City Council and Lancashire County Council intend to work together on trouble spots including notifying residents where car parking is a hinderance to road sweeping and gully cleaning. Lancaster City Council have also accepted guidance from the Flood Action Group as to where would benefit the most from road sweeping in advance of forecast bad weather and we are asking County Council to include these streets on their priority gully cleaning schedule.

# SECTION 3: Agency Responses

## Environment Agency

**Community Engagement**

**Post Flooding Activity (November 2017 – October 2018)**

- 3 April 2018 - EA & Lancashire County Council Presentation at Hala Community Centre
- 16 July 2018 – Site Walkover to document community concerns
- 4 September 2018 – EA & Lancaster City Council Presentation at Hala Community Centre.
- Issues & Actions log produced and shared with South Lancaster FLAG
- A-Z "style" Grid Map produced and shared with community currently v2.0
- South Lancaster FLAG "Info Sheet" produced with useful links for further details

**Going Forward (Nov 2018 - onwards)**

- Offer of support from Newground to engage with the community and provide advice and guidance on Flood Resilience and Preparedness
- Look at providing joint-circular for community on best-practice and guidance
- Promote good practice and look at potential case study for TheFloodHub.co.uk (launched 5th November 2018)
- Work with partners to provide co-ordinated updates to the South Lancaster FLAG on outstanding issues via the Making Space for Water Group Meeting
- Provide updates on request ahead of FLAG meetings

**Works on the Ground**

**Post Flooding Activity (November 2017 – October 2018)**

- Cranwell Avenue Embankment
- Maintenance - Channel Weed Cut (as outlined in Annual Maintenance Programme)
- Maintenance - Embankment Grass Cut (as outlined in Annual Maintenance Programme)
- Gravel inspection and removal downstream of Bowerham Road

**Strategic Overview**

**Burrow Beck, South Lancaster – Strategic Outline Case (SOC)**

Essentially this is the first stage in putting together a business case for a scheme to benefit the community at flood risk. We originally had this work programmed to start in financial year 2021/22 but due to the significant flooding that the community suffered in November 2017, we have accelerated this work to begin this year.

The work will involve updating our hydraulic model of Burrow Beck – updating to latest software, incorporating the latest hydrological record (flow data) and extending its upstream limit. At present, our modelling starts at Colchester Avenue in accordance with

the main river designation extent. However, for us to fully understand the risk and be able to pose potential solutions, we need to extend the model to include the upper reaches – up to/beyond Gleneagles on Burrow Beck and potentially build in some of the tributary watercourses. Some representation of the surface water drainage infrastructure will also need to be built in, as flooding sources are varied and mechanisms complex.

The modelling work will likely take 6-8 months. From here we can begin to assess flood mechanisms in more detail, now and in the future (taking into consideration climate change). We then use the baseline model to understand the benefits of a wide range of potential solutions such as construction of linear defences, flood storage areas and natural flood management etc.. We anticipate that the SOC would be completed by June 2019. From here however, we move the to the next stages of the appraisal process: Outline Business Case and Full Business Case – at each of these stages we refine our preferred solution and we must pass gateways/project assurance to get the necessary funding to proceed to the next stage and ultimately design and build. This can be a time consuming process and typically takes 2 – 4 years. However, the SOC may confidently conclude that no solution is affordable, in which case, we would begin work to close the funding gap by seeking contributions from elsewhere. If this is unviable, then unfortunately the project will be closed.

Early instincts are that the only technically feasible solution will be the construction of flood storage areas and some natural flood management. Experience suggests that due to the high degree of flooding associated with the existing surface water drainage network, linear defences along Burrow Beck would not offer a complete solution. There are very few opportunities construct flood storage areas that will provide the benefit to the community. The field to the north of Colchester Avenue is one of the few locations we currently consider technically feasible. It is for this reason that we contacted Lancaster City Council expressing an interest in the land.

**Changes to the Flood Map for Planning:**
We have looked at various information and concluded that the field to the north of Colchester Avenue was flooded in November 2017. We also hold a wrack mark survey (levels taken on debris that indicates water levels) from 2011 which represents the same flooding. It seems that the tributary watercourse (along the south-eastern boundary of the field) spills out of bank at a culvert inlet and flows across the field until reaching Burrow Beck.

Until we have the updated modelling results (described above), we must consider this our best available information and as such have taken the decision to update the Flood Map for Planning to show this area as flood zone 3. This amendment is currently live on the online version of the Flood Map for Planning.

**<u>Incident Ready</u>**

- EA plan resources and actions based on forecasts and river levels and the Flood Guidance Statement. We have 24/7 Flood Duty Staff available and provide additional rostered staff where required.

- When appropriate (based on Flood Guidance Statement) EA convene Flood Advisory Service Tele-con with partner organisations ahead of potential flooding. Following recent tele-cons EA contacted South Lancaster FLAG to provide an update and raise awareness that EA officers would be in the community to provide visibility / answer questions.
- EA operational staff will carry out visual inspections and carry out 'grid runs' where appropriate to remove debris from screens etc.
- EA working closer with partners such as Lancaster City in terms of updating who's doing what from each organisation. An example being that Lancaster City provided contact details of a patrol team who would be in the Burrow Beck area during potential flooding and shared updates with the Preston Incident Room.

**Flood Warning and Telemetry**

| Sept 2017 | October 2018 |
|---|---|
| Lower Lune Flood Alert – 300 | Lower Lune Flood Alert – 311 |
| Flood Warning Area A - Burrow Beck – 5 | Flood Warning Area A - Burrow Beck – 6 |
| Flood Warning Area B - Burrow Beck – 68 | Flood Warning Area B - Burrow Beck – 78 |

Net increase in sign-ups since 2017 as shown above.
The River level monitoring site has now changed to a new location downstream of the original site.

Details of EA presentations, Info Sheets, Issues & Actions, A-Z style Grid Map, walkover notes all available to South Lancaster FLAG on request.

## Lancashire County Council - Flood Risk Management (FRM)

This team is responsible for ensuring the county council as Lead Local Flood Authority fulfils its various legal duties relating to flood risk and watercourse management. These duties include:

- Working with other drainage authorities - the highway authorities, water companies (principally United Utilities plc, known as UU), the Environment Agency (EA) and the city and district councils - to warn and inform people at risk of flooding so they can take effective measures to reduce the risk of flooding to their homes and businesses;
- Investigating flooding events to identify whether all the appropriate drainage authorities were involved in managing it and recovering from it;
- Investigating flooding events to identify what changes or improvements might reduce the risk of such an event happening again, or might make it less damaging if it did occur again.

These duties and the way the county council aims to carry them out are published in the Local Flood Risk Management Strategy.

Flooding caused by the storm of 22/23 November 2017 affected hundreds of Lancashire homes from Blackpool and Thornton-Cleveleys on the coast of the Irish Sea, as far inland as Tunstall and Ireby in the far north-east of the Lune Valley, generating high numbers of individual investigations.

The type of post-flood investigation carried out in each affected community has depended on the scale and nature of the flooding event experienced there. For example:

- In communities flooded directly from Burrow Beck and the River Conder in Lancaster district, the EA has led on understanding the way these main rivers functioned on the night in order to develop improvement strategies;
- In communities flooded principally from overland/surface water flows, for example around Scotforth and Bowerham, the local highways teams and/or UU have led to understand where, how and why their drainage systems failed to accommodate the water;
- In communities flooded from local watercourses (streams, becks and brooks), that overtopped their banks, the FRM team is tracing and unblocking lost culverts and informing landowners of their responsibilities. A major project of this nature is required in Torrisholme;
- Where the sources of flooding in communities and/or the scope to reduce future flood risks are not immediately identifiable, the FRM team will aim to bring in specialist teams from our consultants, Jacobs Engineering Group, to assess the situation and offer recommendations, as is already underway in Halton and in preparation for Priest Hutton.

Sharing of technical data and projects where more than one organisation needs to be involved are coordinated through various meetings held when need arises, and progress is overseen by the quarterly Making Space for Water meetings held for each District.

## Lancashire County Council - Highways

This team is responsible for the day to day delivery of reactive and planned maintenance on the existing Highway network. Our duties and actions with regard to drainage in Lancaster include:

- Planned cyclic maintenance of priority gullies in Lancaster District.
- Reactive maintenance of all gullies in Lancaster District.
- Working with our colleagues in Flood Risk Team and other partners as required - the highway authorities, water companies (principally United Utilities plc, known as UU), the Environment Agency (EA) and the city council) – to identify and resolve drainage and highway flooding.
- Problem investigation including drainage dig-down repairs on highway drainage systems, including gulley's highway maintained watercourses and culverts.
- Formal action with regard to private premises adjacent to the highway causing water to discharge and or cause nuisance to highway users under Highways Act 1980.
- Liaising with Lancaster City Council Cleansing on gully cleaning to coincide with Street Cleaning and leaf removal in identified problem areas.
- Carrying out and arranging for CCTV inspection where necessary to identify fault location.

Since the most recent flooding in November 2017 our recent involvement in the flood hit areas of Lancaster District has included:

Gully Cleaning

- November 17- Jan 18 gully clean of all locations adversely affected where flooding to property occurred in Galgate, Lancaster, Brookhouse, Halton, Lancaster.
- October 18 – Gully clean on flooded roads in the above areas from November 2017 in liaison with Lancaster City Street Cleansing Teams.
- Ongoing cyclic maintenance on priority gully and reactive.

Dig Downs/ maintenance

- South Lancaster –Additional gullies/ cyclepath drainage works/ culverted watercourse investigation.
- Cockerham - Drainage investigation and highway drainage improvements including landowner liaison.
- Ellel/ Galgate - Highway watercourse inspections and repair of damaged headwalls/ culvert.
- Halton - Watercourse clearance due to washed out material. Repair of trash screens. Identification and removal of unauthorised third party apparatus in highway drain.
- Torrisholme - Additional highway drainage, watercourse clearance.
- Caton - tree root removal, additional highway drainage & gulley improvements.
- North Lancaster – Highway culvert investigation.

Sharing detailed technical information and co-ordinating our drainage work and investigation with partners at the quarterly Making Space for Water Meetings.

## Lancaster City Council - Civil Contingencies

Severe Weather & Flood Warnings: The City Council has a 24/7/365 Duty Emergency Incident Officer system which serves the Lancaster area well throughout the year. Following our experiences in November 2017, when multiple flooding incidents were occurring throughout the district, we have now introduced an enhanced scheme whereby additional officers are put on standby for forecasted severe weather or flooding events and they proactively go out to known 'hotspots' to monitor conditions. These officers also link with Fire & Rescue and Environment Agency colleagues to coordinate the checking of areas. These revised responses were first trialled during Storm Eleanor and then used more recently for Storms Bronagh and Callum.

Multi-Agency Flood Plan: The flood plan for Lancaster District is regularly updated and has been revised following the November floods. Moving forwards, following a national review of flood response, some further guidance is expected from Central Government and if changes are made the local plan will be amended to comply with any new standards.

Community Emergency Centres: Since 2015 the City Council has been working with a number of groups around the district to establish Community Emergency Plans and

Community Emergency Centres in suitable buildings. Many of these have been rural communities who were affected by Storm Desmond but some are in urban areas. During 2018 a local group has been formed to create a Community Emergency Centre in St. Paul's Church Hall on Scotforth Road. This is a very welcome development and provides a safe place for local people who have to leave their homes in an emergency situation.

## Lancaster City Council - Public Realm

If there is a severe weather warning for rain issued, we monitor the forecast. Once we take the view it is likely to happen we then send our sweepers to areas that are flood prone. They will patrol before, during and after. Take into account though that the sweepers will still need to complete their day to day works. However, if widespread flooding had occurred obviously that would alter.

The road sweeper, if it has access to the channel (ie isn't blocked by cars), will remove leaves from channels and gully covers as well. Please note that if its windy leaves are continuously blowing down or being washed down. It can be done once and an hour later be full of leaves again- hence the need for residents to help. What the road sweeper won't do is sweep channels that on visual inspection are clear of leaves and debris.

All sweeping does is help get the water to the drainage system as quickly and directly as possible. If there's enough rain no amount of sweeping will prevent flooding.

Having this system in place isn't a replacement for residents and businesses considering what protective measures they need to have ready.

There's a big distinction between fluvial (adjacent to river) and pluvial (flash floods which could happen anywhere) events in terms of sweeping response

In the event of flash flooding (eg what we had during the summer) it is difficult to pinpoint where the rain is going to land. So this means the areas we'd expect flooding (ie near rivers) might not be the areas that flood. So when we had the sudden downpours this summer we were basically chasing the locations where we heard of reports of standing water and these weren't areas we'd expect to flood

## United Utilities

The storm on the 22nd November 2017, was a significant rainfall event, in which United Utilities received and responded to a number of customer contacts due to flooding, our teams investigated accordingly, which allowed us to identify any defects relating to United Utilities infrastructure, and to completed any remedial work required after the storm event, to protect our customers.

The second significant storm event which occurred on the 28th July 2018, United Utilities received a number of customer contacts due to flooding in the area; following investigations a blockage was found, and the system was cleaned and letters dropped in the surrounding

area for information, about United Utilities “what not to flush” campaign to help reduce blockage incidents.

United Utilities network infrastructure is designed up to a 1 in 30 year storm event classification, which is line with our Regulator OFWAT guidance. Both of the storms which South Lancaster experienced in November 2017 and July 2018 were both categorised as storms above a 1 in 30 year storm event classification, and both storms would be categorised as severe weather. For the future, United Utilities are in the process of looking at Lancaster strategically, to be able to identify opportunities to provide further flood risk resilience, environmental and customer benefits; and we will continue to work with our partners through the Making Space For Water meetings and Planning Liaison meetings to provide mutually beneficial schemes.”

# Acknowledgements

This report has only been possible due to:

- The Community of South Lancaster sharing their experience of flooding which in some cases has been a recurring issue for many years. This has been done in the anticipation that action can and will be taken to alleviate flood risk.
- Those committed members of the Flood Action Group who bring local expertise and have contributed to building our collective knowledge of flooding mechanisms and potential solutions.
- The agencies who have worked with the Flood Action Group and who have contributed directly to this report.
- County Councillor Erica Lewis who has supported the Flood Action Group and local residents to raise the prominence of flooding on the local agenda and to address a number of immediate issues.
- The Community Foundation for Lancashire who have provided funding to the South Lancaster Flood Action Group which has enabled this report to be circulated to those involved in flood risk management.

# About South Lancaster Flood Action Group

As a result of the November flooding in Halton and Galgate the respective parish councils undertook to form flood action groups, but as most of South Lancaster is unparished that was not going to work for us. Instead, in South Lancaster we called further public meetings, with the intention that a flood action group could be established, and from this process the South Lancaster Flood Action Group was formed. The work of the South Lancaster Flood Action Group has only been possible because of the dedication of skilled group of volunteers, and the regular support and engagement of many residents.

Our local flood action group has made a real difference in less than a year of operation – from the raising of the bank along Cranwell Avenue, to increased maintenance of the beck and surrounding gullies, to delivering 1000s of newsletters. Actions that will help reduce flood risk, and help residents be better prepared in case of future flooding. However, we keep coming up against problems that are bigger than South Lancaster – the under-resourcing of agencies to do flood prevention work, the absence of a joined-up resident facing approach across agencies (they are often co-ordinated on a technical level, but for a resident reporting flooding the experience is fragmented), and weaknesses in the national planning frameworks that do not prioritise the avoidance of future flooding, or the reduction of risk for areas with a history of flooding.

For further information or to get involved please contact:
SouthLancasterFloodActionGroup@gmail.com

# Conclusion

Flooding and the fear of flooding is horrendous for those members of the public and businesses who are affected. There are hundreds of residents across South Lancaster that have to live with this reality on a daily basis. The South Lancaster Flood Action Group now:

- Understands the location and nature of flooding,
- Understands Agency Responsibilities,
- Has built a working relationship with key stakeholders.

The South Lancaster Flood Action group has made a real difference in less than a year of operation – from the raising of the bank along Cranwell Avenue, to increased maintenance of the beck and surrounding gullies, to delivering 1000s of newsletters; actions that will help reduce flood risk, and help residents be better prepared in case of future flooding. We do appreciate the increased attention that South Lancaster is now receiving and the proactive stance taken in advance of forecasted severe weather. However, we keep coming up against problems that are bigger than South Lancaster – the under-resourcing of agencies to do flood prevention work, the absence of a joined-up resident facing approach across agencies (they are often co-ordinated on a technical level, but for a resident reporting flooding the experience is fragmented), and weaknesses in the national planning frameworks that do not prioritise the avoidance of future flooding, or the reduction of risk for areas with a history of flooding.

We believe that there is scope for significant alleviation projects, for example, there are locations along Burrow Beck where storage of flood water is possible, capacity improvements such as channel widening and flow slowing of the catchment are all possibilities. These larger impact projects will of course help and should be vigorously pursued, and we eagerly anticipate the outcome of the Strategic Outline Case currently being developed by the Environment Agency.

Localised initiatives are also required to manage surface water flooding whether that be additional drainage opportunities to drain surface water more quickly in certain locations or storage capacity added to the current network to keep the water away from houses and businesses.

In addition to the large and medium scale activities above, a series of smaller initiatives will complete the flood risk mitigation landscape. In this category we would include:

- Community proactiveness to report issues e.g. gully blockages and to self-help were practical e.g. clearing leaves from the surface of drains.
- Regular maintenance of watercourses including vegetation management and dredging.
- The continuation of joint working between the agencies and with the community creating a proactive model of managing flood risk.

The South Lancaster Flood Action Group eagerly anticipates seeing progress on these aspects in 2019.