Flood Risk Management Annual Report

Report of the Assistant Director Highways and Infrastructure - April 2020

1. Introduction

A scrutiny review of Flood Risk Management (FRM) and Response was published in June 2010. This set out 12 recommendations which were completed in 2010. In June 2010, The Flood and Water Management Act passed into law conveying new responsibilities and making Birmingham City Council a Lead Local Flood Authority (LLFA). This report highlights progress in addressing these statutory responsibilities and provides an update on other flood risk management related issues.

This report also provides an update into areas for improvement identified in the review of the May 2018 flooding conducted by members of the Sustainability & Transport O&S Committee on 19th July 2018.

1.1 Climate Emergency

On 11th June 2019, Birmingham City Council (BCC) announced a climate emergency and made the commitment to reduce the city's carbon emissions and limit Birmingham's contribution to climate change, with an aspiration to become net zero carbon by 2030. The impact of climate change will not just be felt afar, and the impact on Birmingham residents of increased extreme weather events, including flooding, droughts and heatwave is likely to be profound, with increasing risks to both life and property. Given our global footprint and the diversity of the city, the climate crisis will hit at the heart of families and communities within the city.

The Flood Risk Management team is mindful of the changes and impacts upon infrastructure, people and places and works with our local contractors and PFI partner to pre-emptively clear and monitor high risk structures and assets which have a significant effect on flood risk.

We are working with communities, our Private Finance Initiative (PFI) partner and our Flood Action Groups to provide sandbags, provide cyclical maintenance to high risk structures and additional clearing of gullies and trash screens in advance of a storm or flood event to proactively decrease the impact of surface water flooding across our area. Some areas are more challenging than others and require community buy-in and co-operation to access busy roads and gullies on residential streets.

The Flood Risk Management team also monitor weather alerts and are pro-active in terms of responding to weather alerts and have an out of hours rota for added contingency during evenings and weekends. Names and numbers of the appropriate staff are shared with the Control Room and this worked with good effect for both Storm Dennis and Storm Ciara. The team, when health and safety / resources allow, also actively monitor flood levels on-site and work alongside other risk management authorities in flood events to ensure a multi-agency led approach and co-operation with partner organisations such as the emergency services, the Environment Agency and Severn Trent Water.

1.2 COVID-19 Contingency

In light of the current COVID-19 pandemic, the Flood Risk Management Team are increasing team resilience by being able to work in an agile fashion, work remotely and have a contingency plan in place for remote working, covering essential work and communication channels.

Additional emergency IT needs have been identified and provided to ensure that all members of the team are able to fulfil their roles in case of flood during the pandemic. There is also contingency in case of a flood event during the pandemic, and the team are able to double-man the out of hours rota to provide essential cover. The Resilience Team are working with the Council to ensure that the wider Council is prepared and have contingency for vulnerable and 'at risk' people during this period.

2. Flood and Water Management Act Duties

The following work has been undertaken to fulfil the Lead Local Flood Authority duties under the Flood and Water Management Act.

2.1 Local Flood Risk Management Strategy

The Local Flood Risk Management Strategy, October 2017, which states the strategic direction for the management of flood risk across Birmingham is being updated for 2020, to reflect recent flood events, future pipeline of schemes and states out intent to work with partners to address, manage and mitigate against flood risk.

By strengthening collaborative working arrangements to improve flood risk management, Birmingham City Council as Lead Local Flood Authority can deliver more schemes and drainage improvements and share best available data and good practice, supported by partners and other risk management authorities.

2.2 Cooperation with other Flood Risk Management Authorities

The Lead Local Flood Authority continues to co-operate extensively with other risk management authorities (RMAs) at various levels as established in the 3 tiered flood risk management governance structure.

2.2.1 Strategic Flood Risk Management Board

The Strategic Board last met in December 2017 and due to the loss of a number of Flood Risk Management staff it was not possible to convene a meeting during 2018. The Strategic Board then met on 30th April 2019 and 4th December 2019. The Strategic Board acts as the focus and political driver for partnership activity. Due to the Flood Risk Manager now in post, this board will re-commence later in 2020, COVID-19 permitting.

2.2.2 Birmingham Water Group

The Birmingham Water Group met in June 2018, December 2018 and on 7th November 2019. The Birmingham Water Group is the officer led partnership working to deliver flood risk management improvements across the City and will re- commence later this year, COVID-19 permitting.

2.2.3 Project Groups

The Lead Local Flood Authority has worked with partners on a number of projects as follows:

River Rea Partnership

The Rea Catchment Partnership, led by the Environment Agency has recently completed construction of two flood risk management schemes in the City:

- **Selly Park North Flood Risk Management Scheme:**

  The Selly Park North flood risk management scheme is now fully operational with only landscaping to be finalised once adjacent development have been completed. The Environment Agency has worked in partnership with Calthorpe Estates, Birmingham City Council and other organisations have developed the Selly Park Flood Risk Management Scheme to help reduce the risk of flooding. The overall scheme costs were in excess of £4 million, including contributions, and protects 150 properties.

  The area of Selly Park North has a history of flooding from the Bourn Brook severely affecting the area in 2008 and more recently in June 2016. The scheme reduces flood risk to 150 properties in the area. The scheme involved deepening and widening an existing flood water storage area near the Bourn Brook Walkway on Harborne Lane, Harborne. This increased the capacity of the storage area and offered wildlife and ecology improvements. Flow improvement works were also carried out at the Pebble Mill development site creating an overland flow route to direct flows into a new bypass culvert running underneath the Pershore Road. This has reduced the risk of fluvial flood water getting onto the highway and into properties. The Environment Agency, Severn Trent Water and Birmingham City Council are continuing to look at the residual risk of surface water flooding.

  Construction of the scheme completed July 2019 with landscaping scheduled for completion once adjacent development has completed.

- **Selly Park South Flood Risk Management Scheme**

  Construction has completed on the Environment Agency's £2.4 million flood risk management scheme in Selly Park South, with landscaping to be completed. The Environment Agency has worked in partnership with St Andrew's Healthcare, Birmingham City Council and other organisations to develop the Selly Park Flood Risk Management Scheme to help reduce the risk of flooding. The overall scheme costs were £2.4 million, affording protection to 200 properties.

  The area of Selly Park South has a history of flooding from the River Rea, most notably in 2008 when some residents were forced to move out of their homes as a result of flood damage. This scheme will help protect more than 200 properties in the area from fluvial flooding. The Environment Agency, Severn Trent Water and Birmingham City Council are looking at the residual risk of surface water flooding.

  The scheme included the construction of an embankment on public open space, immediately upstream of Dogpool Lane bridge to help hold water during extreme heavy rainfall events. Bank levels were also raised downstream of the bridge to reduce the risk of flood water getting into properties.

The **River Rea Partnership** is currently undertaking the following strategic study:

- **Upper Bourn Brook Study**

  The Environment Agency, Severn Trent Water and Birmingham City Council are working together on a catchment wide study to understand the flood risk and develop flood mitigation options for the upper Bourne Brook catchment. The study covers the catchment upstream of Harborne Lane, Selly Oak, taking in Quinton, Woodgate, Bartley Green and Harborne. The study is at an early stage, initial modelling has been undertaken and high level options are being investigated. Once this is complete the Environment Agency will prepare a Strategic Business Case on behalf of the partnership with a view to securing funding to further develop the options.

River Tame Strategy

The River Tame Flood Risk Management Strategy sets out the strategic approach to flood risk management on the River Tame by considering opportunities to manage flood risk across a wide area, while providing environmental benefits. The Environment Agency is currently delivering two schemes under this strategy.

- **Perry Barr and Witton flood risk management scheme**

  A key part of the River Tame Strategy is the implementation of the Perry Barr and Witton flood risk management scheme which is to be delivered over 2 phases. There are approximately 1,400 properties at risk from this section of the River Tame, including 950 residential properties. Phase 1 of the scheme was completed in spring 2017, bringing new flood walls, flood gates and flow conveyance improvements from Brookvale Road in Witton down to Gravelly Park Industrial Estate in Aston. Improvement works to culverts under the railway line in this area are currently outstanding, but will be completed as part of Phase 2. The improved flood wall and flood gates in Witton successfully stopped properties from flooding in May 2018. Construction work for Phase 2 started in late January 2018. The work here will increase flood storage capacity in the Sandwell Valley and take approximately 36 months to complete. Birmingham City Council has made a contribution of £600k to this scheme in early 2019 to the £32 Million scheme, with the scheme affording protection to 1400 properties.

- **Bromford and Castle Vale flood risk management scheme**

  The final scheme identified as part of the River Tame Flood Risk Management Strategy is the Bromford and Castle Vale flood risk management scheme which will better protect more than 900 homes and businesses from flood risk, as part of a £17 million pound scheme. The scheme involves raising flood walls and constructing new ones as well as building earth embankments. A cycling route will be provided along the south bank linking up with the existing networks at Bromford Road and Chester Road. Construction work started in January 2020 with works expected to take approximately 18 months to complete. Vegetation clearance started at the end of 2019, with additional groundworks and temporary works commenced 2020. The sod cutting event, scheduled for March 2020 was to mark the construction of the main bund which is the most prominent feature of the scheme.

2.3 Investigation and Publication of Reports of Flooding Incidents

2.3.1 Significant Flood Events

The winter of 2019 / 2020 was characterised by excessive, persistent rainfall which led to very wet saturated ground conditions with nation-wide flooding from named storms and persistent, heavy rain. 1,200 properties were flooded across Yorkshire, Lincolnshire and the Midlands from late autumn up to December 2019. In November, nearly all areas of England received above average rainfall, with some catchments receiving over double the average monthly total. For most areas, it was the wettest November on record, and the third consecutive month with widespread wet conditions. 2019 was noted to be the wettest autumn across England since 2000, and the fifth wettest on record. By the end of November, soils were wetter than average for the time of year across nearly all of the country. By December, monthly mean flows were classed as above normal or higher at over three-quarters of English rivers. The total reservoir stocks across England increased during December and were at 91% of capacity at the end of the month.

Storm Dennis, Storm Ciara and ongoing wet weather caused 3910 properties across the Country to flood in February and March 2020 affecting Yorkshire, Cumbria, Lancashire and the River Severn corridor. Neighbouring areas such as Staffordshire and Shropshire experienced widespread property flooding and extensive disruption on roads, rail and built-up areas.

Groundwater and river levels rose steadily and caused problems with surface water systems and other drainage runs were unable to discharge in high water. Surface water flooding and storm damage was experienced throughout Winter 2019/20, with major roads such as the M6, M42 and A38 in Staffordshire affected and flooded tracks led to the closure of Snow Hill station.

It is testament to the pre-emptive efforts of the Flood Risk Management Team, and our private finance initiative (PFI) partner and contractors, to pre-emptively cleanse and clear high risk structures affecting flood risk and to attentively monitor river levels and surface water flooding across the City, especially in areas along the River Cole corridor. Our judgement, local knowledge and engineer experience noted that when river levels were dropping, therefore sandbags were not required at that time. It is these informed judgements that can we utilise to apply resources appropriately and take a risk-based approach to areas at high risk.

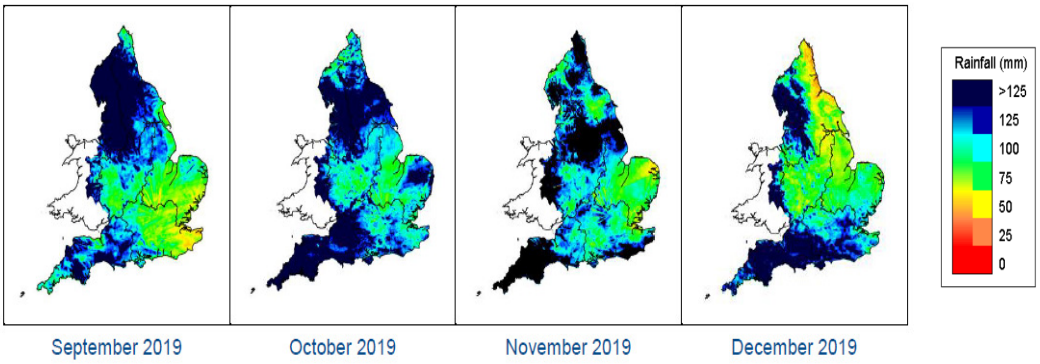

Figure 1: Monthly rainfall across England and Wales: September - December 2019 (Source: Met Office Crown Copyright, 2020.

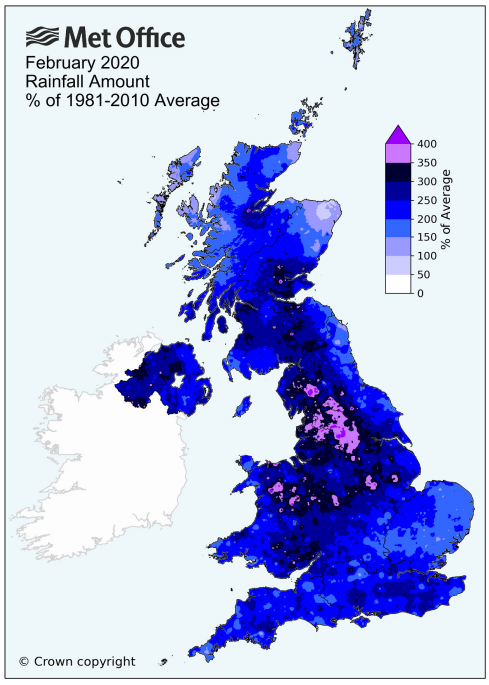

Figure 2: February 2020 Rainfall Amount: % of 1981 – 2010 average

During the Flood Event

Birmingham City Council received a high number of calls during the autumn - winter ongoing events, which reported widespread flooding of gardens and highways. During the flood events, the Lead Local Flood Authority co-ordinated with multiple Risk Management Authorities (RMAs) to ensure that the impact of flooding was managed effectively and the risk to people and properties was mitigated as far as reasonably practicable.

Although Birmingham was not as adversely affected as other areas, the Lead Local Flood Authority and Private Finance Initiative (PFI) partner arranged pre-emptive maintenance on high risk structures and sandbag contingency for both Storm Dennis and Storm Ciara. Social media communication and liaison with affected Flood Groups ensured that our Flood Action Groups were prepared and site visits were undertaken to monitor river levels to inform whether sandbags should be deployed to pre-arranged areas.

Flood Event Investigations

In 2016 and 2018, a significant number of flooding incidents were reported to Birmingham City Council. Immediately following the events, Birmingham City Council distributed approximately 2,000 'Flood Surveys' to all residents within, or in close proximity to, all areas where flooding was reported.

Flood surveys are important as they provide accounts of duration and depth of flooding along with any other pertinent information. These responses can accurately report internal property flooding, flooding to gardens and flooding to highways and surrounding areas.

Detailed Investigation and Analysis

The Lead Local Flood Authority conducts detailed investigation and individual location analysis of each area where a property experienced internal flooding. These investigations typically include a review of existing infrastructure and topography, identification of predominant flow paths, site visits and local knowledge gathering. Through a detailed analysis, the Lead Local Flood Authority has identified the types of flooding that occurred at each location during the events of both June 2016 and May 2018.

Step 4: Recommended Actions

Following analysis of affected areas, the Lead Local Flood Authority works in collaboration with other Risk Management Authorities to identify opportunities and options to mitigate flood risk, as the potential that a similar rainfall event will result in similar outcomes.

2.3.2 Section 19 Flooding Investigation Report

The Flood and Water Management Act places a duty on Lead Local Flood Authorities to investigate incidents of flooding and this is set out in Section 19 of the act and the investigations are therefore typically termed '*Section 19 Reports*.' The final May 2018 report was published on 30th August 2019 following sign off by the Strategic Flood Risk Management Board as per the previous Section 19 report into the May 2016 flooding.

Birmingham City Council and other Risk Management Authorities continue to progress the actions identified in the May 2016 Section 19 Report.

2.3.3 Flooded Sites Action Tracker

Flood events are tracked in a Flooded Sites Action Tracker. A copy of the most recent tracker is attached in Appendix A. As a result of the May 2018 flooding the number of locations on the tracker has increased substantially. However plans are in place for the majority of locations, but solutions range from works in the current year, through to proposals for longer term national and regional grant funding.

2.4 Register of Flood Risk Management Assets

Birmingham City Council continues to maintain a register of structures or features which, in the opinion of the authority, are likely to have a significant effect on a flood risk in its area. This register can be viewed online.

A number of assets have been inspected over the last 12 months in line with the inspection frequency set out in the asset register. Where an issue with an asset has been identified the asset owner has been notified and asked to undertake the necessary maintenance works.

The team is also in the process of developing our own Hydraulic Maintenance of Structures (HMOS) database to identify the maintenance priority of structures from potential blockages and the resultant extent of flooding if no cyclical maintenance is undertaken in high risk areas. This database is to be used as the main driver to develop and promote a FRM Capital Programme of works.

2.5 Consenting Works on Ordinary Watercourses

Birmingham City Council as Lead Local Flood Authority is the Authority responsible for regulating activities on ordinary watercourses in Birmingham. As a result Birmingham City Council is legally responsible for dealing with applications for ordinary watercourse land drainage consents. In 2019, six applications were received.

2.6 Works to Manage Flood Risk

The Lead Local Flood Authority has delivered a number of capital and revenue schemes. These works are funded from a variety of funding mechanisms and a considerable number of flood risk management works have been delivered internally on behalf of other Birmingham City Council service areas. Most notably the Flood Risk Management Team works routinely with our Leisure services team to provide consultancy services for drainage and environmental improvement works as well as arranging statutory inspections under the Reservoir Act 1975 in order that the Council's large raised reservoirs are managed in accordance with the Act.

The following works have been progressed since January 2019.

2.6.1 Grant Funded: Flood Defence Grant in Aid and/or Local Levy

Property flood resilience measures: (e.g. fitting of flood doors to properties) and local investigation / measures

- **Pitcairn Close -** currently on site.
- **Pretoria Road -** currently on site / Gates being ordered.
- **Handsworth Wood Modelling - c**omplete. Property Flood Resilience likely.
- **Henlow Road Modelling - c**omplete
- **Moor Green Modelling -** complete
- **Slade Road, Erdington** - complete
- **Fisher Close, Frankley** - complete
- **Billesley Lane, Moseley** - complete

2.6.2 Works Funded by Flood Risk Management Revenue Budget

Routine clearance to all strategic grill structures (frequencies vary from weekly to 6-monthly depending on the criticality of the asset) and additional grill clearance following severe weather:

2.6.3 City Wide

Sandbag distribution to Flood Action Groups.

- **Selly Park South**
- **Selly Park North**
- **Northfield**
- **Sparkhill**

Restoring flood channel/culvert capacity by excavation, cutting back vegetation and removing major blockages:

- **Formans Rd River Cole**
- **River Cole Blockages**
- **Acheson Road to Skelcher Road**
- **Arosa Drive to Beaumont Road**
- **Eachway Lane to Malcolm Gardens**
- **Kingswood Road to Turves Green**
- **Inspecting strategic culvert structures:**

2.6.4 Inspection & maintenance work to flood defence assets:

- **Reynolds Road, Hockley Brook**
- **Overdale Road, Quinton**
- **Pensby Close, Springfield**
- **Mellors Close, Harborne**
- **Eachlehurst Road, Walmley Ash**
- **Hassop Road, Perry Beeches**

2.6.5 Works provided for other BCC Departments

On behalf of the Local Planning Authority:

- **Sustainable Drainage and permeability / suitability checks** - To inform Sustainable Urban Drainage Strategy (SuDS) suitability for the Strategic Housing Land Availability Assessment (SHLAA) sites on behalf of the Local Planning Authority. The Flood Risk Management team have processed approximately 20 pre-application requests.

On behalf of Housing:

- **Merrits Brook adjacent to Rhayader Road, Shenley Fields –** Removing blockages and restoring flood channel capacity.
- **Fisher Close –** Excavate and removal of silt to restore storage capacity of pool**.**

On behalf of City Centre Management Team:

- **Birmingham Central Library –** Jetting clear blockages in pipework to alleviate flooding to Library.

On behalf of Bereavement:

- **Brandwood End Cemetery, Brandwood** – Construction of kerb drainage and land drainage at two locations within the cemetery to pick up over land flow and alleviate localised flooding.

On behalf of Leisure:

- **Ackers Culvert, Tysley** – Removal of silt from disused mill leat and grouting up.
- **Bayston Road Brandwood, -** Restoring flood channel capacity and providing free outfall for public surface water sewer.
- **Broad Lane Allotments, Brandwood –** Installing kerbing and gullies to direct overland flow away from flood affected housing.
- **Cannon Hill Park, Edgbaston –** Removal of unsafe boating platform.
- **Dawberry Fields Brook, Lifford** – Removal of blockage and restoration flood channel capacity.
- **Forge Farm Allotments, Sutton Coldfield –** Jetting sewers to alleviate flooding within the allotments.
- **Geranium Grove and Bell Lane recreational Land –** Removal of blockage and restoration of flood channel.
- **Hatchford Brook, Sheldon** – Rebuilding eroded bank, and bank stabilisation to protect footpath.
- **Perry Common Public Open Space –** Cutting and collecting of all herbaceous and shrub vegetation adjacent to brook
- **Rectory Road, Sutton Coldfield** – Jetting clear Rectory Road pool outlet to remove blockage and stop pool overflowing.
- **Sarehole Mill, Springfield -** Restoring flood channel capacity and removing debris on river Cole banks.
- **Sparkbrook, Sparkhill**, - Removal of blockages, bank stabilisation and restoration of flood channel.
- **Square Close, Woodgate Valley** - Removal of blockages, bank stabilisation and restoration of flood channel.
- **Stephens Pool, Sutton Coldfield** - Environmental works to pool to restore flood capacity, Stabilise edges by using large boulder stones, repairs to exiting outfall structure.
- **Tennal Lane allotments brook** - Removal of blockages, bank stabilisation and restoration of flood channel.
- **West Heath Recreation ground, West Heath** - Removal of blockages, restoration of flood channel including providing free outfalls to surface water sewer outlets.
- **Westley Brook, Sheldon** – Removing debris in watercourse and replacing existing Brocken fencing with new.

On behalf of Highways

- **Cincinnati Drive Section 38 agreement** – technical advice for highway Sustainable Urban Drainage Strategies (SuDS) adoption.

2.6.6 Reservoir Works provided for BCC Leisure Services

- **Bracebridge Reservoir, Sutton Coldfield** – Repairing erosion on crest of dam.
- **Lifford Reservoir, Kings Norton** - Maintenance work to spillway and Dam. Design work to provide a minimum flood freeboard of 0.6m under design flood conditions, in the form of raising the low spots in the crest.
- **Longmoor Reservoir, Sutton Coldfield** – Safety works to spillway and refurbishment works to existing penstock
- **Manor Farm Park Pool, Shenley Fields**, Work to lower reservoir, remove fish, take silt samples and prepare to remove silt to improve water quality
- **Perry Reservoir by-pass channel** – Structural repairs and strengthening of canalised section of Brook in Perry Park.
- **Reservoir Act 1975 Section 10 and 12** - Inspections City Wide.
- **Salford Reservoir, Aston**- Removal of self-seeded saplings on downstream edge of crest to secure integrity of dam as instructed by Reservoir Engineer.
- **Shenley Fields Pool, Shenley Fields** – Partial jetting of feeder pipework and closed-circuit television (CCTV) condition Survey.
- **Wyndley Reservoir, Sutton Coldfield -** Work to stabilise high level ditch to restore flow over existing weir structure, and stop water levels droppings to weir spillway and maintenance work to penstock.

3. Flood Risk Regulations Duties

The Flood Risk Regulations implement the EU Floods Directive in England. They provide a framework for managing flood risk over a 6 year cycle, comprising:

- Preliminary Flood Risk Assessment (PFRA)
- identification of areas of potential significant risk, referred to as Flood Risk Areas (FRAs)
- mapping of flood hazards and risk and
- Flood Risk Management Plans (FRMPs), setting out measures and actions to reduce the risk

Lead Local Flood Authorities worked with the Environment Agency to publish the first set of Flood Risk Management Plans, covering the 10 river basin districts in England, on 17 March 2016. These plans set out how Risk Management Authorities are working together, and with communities, to manage flood and coastal risk over the next 6 years up to December 2021.

For the next Flood Risk Management Plan update in 2021, we are currently working with the Environment Agency to amend, transition and bring forward measures for the next 6 year cycle. Birmingham is noted, along with other large, dense conurbations as a Flood Risk Area, as there are a significant number of people, infrastructure and businesses, susceptible to a range of sources of flood risk. The Environment Agency have also designated Spark Hill as a Fluvial (River) Flood Risk Area, from the River Cole, and duly updating the Flood Risk Measures for this area.

4. Statutory Consultee Role for Planning

The Lead Local Flood Authority is a statutory consultee for surface water on major developments (10 dwellings or more; or equivalent non-residential or mixed development). Local planning decisions are expected to ensure that Sustainable Urban Drainage Strategies (SuDS) for the management of runoff are put in place unless demonstrated to be inappropriate and that the sustainable drainage system should be designed to ensure that the maintenance and operation requirements are economically proportionate.

The number of applications, discharge of conditions and pre-app enquiries in between 2016 and 2018 is as follows:

Year	Total No. of Applications	Major Planning Applications	Pre-App/General Enquiries	Discharge of Condition
2017	405	185	94	126
2018	392	140	83	169
2019	577	274	59	322

The statutory consultee role ensures that proposed developments and surface water drainage schemes are future-proofed in line with the National Planning Policy Framework (NPPF), with appropriate climate change allowances and conforms to the Council's planning policies, Birmingham Development Plan, Big City Plan, and other planning documents.

We are working with planning colleagues to improve ways of working and to form a framework for enhanced responses and to inform planning applications more efficiently and effectively. We are discussing validation requirements, and the provision of standing advice for low-risk applications to lessen the burden on the statutory planning role within the Flood Risk Management team and to provide timely advice back to the planning teams. In turn, we are assisting the enforcement officers with high-profile cases to advise on drainage issues and likely causes of flooding. In the future, we hope to work with Planning and Planning enforcement to act as an internal consultee / consultant to advise upon unpermitted and any development not in accordance with the approved details, which impact upon flood risk or drainage. The Flood Risk Management team also act as facilitator between the Council and other risk management authorities and can use the Flood Risk Management team's experience to better inform and warn those at flood risk.

By informing Birmingham City Council policy, it is through strategic planning policies where we can inform major development most effectively – and having an over-riding drainage and flood risk policy such as TP6 helps to detail the surface water rates and volumes and required planning mitigation to ensure a high quality and sustainable development.

5. Funding

5.1 Funding Streams

Funding for Lead Local Flood Authority

Funding for Lead Local Flood Authorities to meet the duties under the Flood Water Management Act is provided to Birmingham City Council as part of its annual settlement.

Revenue Budget

A small budget is provided to support flood management responsibilities, these include land drainage, maintenance of ordinary watercourses and emergency response. This budget has reduced over recent years in line with City Council budget cuts.

Flood Defence Grant in Aid - Partnership Funding

In the past, flood risk management schemes were generally funded by central government through the Flood Defence Grant in Aid (FDGIA) process which allocated funding to projects nationally based on cost/benefit prioritisation. This led to only schemes that scored highly in terms of benefits outweighing costs being taken forward.

From 2012 a revised approach has been undertaken. Funding levels for each scheme, paid by central government as Flood Defence Grant in Aid, relate directly to the benefits the scheme delivers, including number of households protected, damages prevented, deprivation, environmental benefits and amenity improvement. If the FDGIA does not cover the cost of the scheme, in order to proceed the scheme cost can be reduced and/or local contributions would need to be found. In 2020, the Environment Agency have advised that a new Partnership Calculator will be available, with improved grant rates for surface water schemes. At this point, we have not had sight or used the new calculator, as due to be published later this year.

Local Levy

The City Council pays levies to the Environment Agency as Local Levy, in 2018/19 the Local Levy contribution was £288,047. The Local Levy is raised by the Regional Flood and Coastal Committee (Birmingham sits within the Trent Committee area) and is used as a locally-raised source of income to fund projects within the Trent region. It can be used to fund projects that might not be eligible for national funding or as a regional contribution to scheme costs under the partnership funding approach. For 20/2021, this figure will increase to £293,808, with a 2% increase in real terms, above current levels.

DEFRA Boosting Action for Surface Water

DEFRA's national project called Boosting Action in Surface Water is a competitive funding stream working in conjunction with Lead Local Flood Authorities who have put forward successful bids which are elevated and assured by DEFRA. Birmingham City Council have been successful in one bid for Druid's Heath and will be improving mapping and modelling in this area by the end of March 2021.

5.2 Funding Pressures

Historic reductions in budget due to savings requirements have made it increasingly difficult to fulfil the duties under the Flood and Water Management Act, carry out the statutory consultee role for planning and undertake maintenance of flood risk management assets and provide emergency response.

The Partnership Funding process has resulted in a range of funding sources being required to promote and deliver flood risk management schemes. For some schemes this includes an element of Flood Defence Grant in Aid together with an element of Local Levy but for many schemes this still leaves a shortfall which needs to be provided as third party contributions. This approach puts significant pressure on limited resources to foster agreements and collaborations to facilitate schemes. In order for these schemes to progress local contributions or contributions from beneficiaries of the schemes need to be sought.

Aligning funding sources and facilitating the promotion of projects as well as seeking new funding opportunities continues to be a major priority for the Strategic Flood Risk Management Board and Flood Risk Management team going forward into 2020/2021.

The Flood Risk Management team are a highly technical team and as from January 2020, now fully staffed with a manager in post. The team are able to cope with the majority of demands in terms of projects, schemes, planning consultations and community engagement. Whilst we endeavour to be pre-emptive, there will always be an element of having to react to conditions and weather events as they develop. Although we can prepare for the challenge of climate change, as a Council, we will also need to develop an improved understanding of our reliance upon historic

and aging infrastructure and work closely with partners, Members and communities, to upgrade systems where necessary and to find funding streams to enable us to become more resilient for the future.

6. Scrutiny: Previous Actions for Improvement

Subsequent to the flooding on 27th May 2018, Councillors Jon Hunt and Roger Harmer took a motion for debate to the Birmingham City Council meeting on 12th June 2018 calling for an inquiry into the floods of May 2018, to be carried out promptly. The motion called for the inquiry to include strong resident input and for the report to be debated as a main agenda item at a future Full City Council meeting. The review was conducted by members of the Sustainability & Transport O&S Committee on 19th July 2018. A number of areas for improvement were noted in the subsequent investigation report. Progress against each area for improvement is outlined below.

6.1 Emergency Response Procedures

Area for Improvement: ***This flood was significant and although not classified as a Major Incident and no triggers to activate the Emergency Arrangements were met, the impact was significant for all those concerned. The lack of notification and alerting by strategic partners resulted in the City Council not being able to establish the level of coordinated support it would wish. As part of a wider review, the City Council is enhancing its response and emergency arrangements, lowering the triggers to alert the Resilience team and ensuring their involvement. It is also working with strategic partners to ensure that more robust notification of incidents occurs. These changes are needed to provide residents and businesses with a more coordinated support package both during and after such flood events which meet the changing needs of residents during the recovery cycle.***

Update: The Council's Emergency Plan has been reviewed and an interim update has been issued with the latest version was published in March 2019. All core council roles within the plan have been identified and training provided and activation of the duty officer (Council) remains key to activating any of our arrangements. The proactivity of the duty officer has been increased and we are actively promoting the notification of Birmingham City Council from partners (and following up any missed notifications) by partners. In Storm Dennis and Ciara, the FRM team monitored rainfall, undertook site visits and checked river levels and informed those Flood Action Groups at risk.

6.2 Model Constitution or Model Template for Flood Action Groups

Area for Improvement: ***During the evidence gathering there was an offer of support from Paul Cobbing on behalf of the National Flood Forum to liaise with the City Council and to provide advice, mentoring and support to local residents wishing to set up a FLAG. It is hoped that Birmingham City Council will respond positively to this offer and that a model constitution or model template for FLAGS can be produced which can be made available as a resource to support local people to set up and run FLAGS in their area. However, as with any potential provision of support from the NFF to supplement the Birmingham City Council functions (either through establishing FLAGS or supporting citizens in recovery following an incident), funding will need to be identified and a clear understanding of what will be delivered for that funding will have to be agreed with the NFF and potentially other partner organisations.***

Update: The Birmingham City Council Resilience team have been supporting FLAGs as much as it can alongside their other duties, since the floods in May 2018. Birmingham City Council, working in partnership with the Environment Agency and their partners Groundwork, intend to promote the existing FLAG template prepared by the National Flood Forum. The Flood Risk Management team and Resilience team are considering how the NFF can support Birmingham City Council in

the future. With a fully staffed team from 2020, the FRM team will able to, and can further assist, communities with setting up FLAGS and attending public meetings.

6.3 Traffic Management during flood events

Area for Improvement: ***The issue of Traffic Management during flood events needs to be followed up with both West Midlands Police and National Express West Midlands and other bus operators to make sure that a mechanism is put in place to ensure that traffic is re-routed and diverted away from flooded areas during a major incident.***

Update: Whilst it remains an operational consideration of all transport providers as to their routing, when activated, there are links and mechanisms in place to engage transport providers by Birmingham City Council as part of all our arrangements, the duty officer is able to contact transport providers and will endeavour to in a prioritised way (e.g. after dealing with risk to life and similar resident issues).

6.4 River Cole Valley Partnership

Area for Improvement: ***A River Cole Valley Partnership arrangement should be pursued by the Environment Agency along the lines of the arrangements already in existence for the rivers Rea and Tame, to facilitate the provision of flood defence and flood alleviation measures along the River Cole Valley.***

Update: The Environment Agency and Birmingham City Council have been working together since the floods of 2007 to develop flood alleviation measures along the River Cole valley. Over this time a number of partnerships have been developed including a joint study with Severn Trent Water and Solihull Metropolitan Borough Council. A number of options have been examined all of which failed to meet the central government cost benefit ratio for flood defence schemes.

The Environment Agency and Birmingham City Council have worked in partnership to undertake a debris removal along the River Cole since the flood event in May 2018. This work will reduce the risk of channel blockages and improve the conveyance of flows through the river.

In addition to this, the Environment Agency has been undertaking a programme of removing Japanese knotweed along the River Cole since 2018 as part of a 5 year eradication programme. This work will reduce the risk of damage to essential flood risk infrastructure.

The Environment Agency and Birmingham City Council have had further discussions since the 2018 flooding about developing a flood risk management scheme to offer protection to properties along the River Cole corridor including reviewing the risk status of the river and potential enmainment to identify funding opportunities.

The Environment Agency has suggested that a catchment wide approach to managing flood risk needs to be taken to develop a programme for the next central government funding cycle (2021 - 2026). It has been agreed to invite Solihull and Worcestershire, as neighbouring Lead Local Flood Authorities to form a catchment Partnership with Birmingham City Council and the Environment Agency to undertake an optioneering exercise to identify potential options for reducing flood risk.

In February 2020, Birmingham City Council set up a River Cole Working Group consisting of BCC Housing, Flood Risk Management and the Environment Agency to explore a catchment-based approach, suitable alleviation measures and funding opportunities to enable a suite of options to present to wider stakeholders and adjoining Councils in the upper reaches of the River Cole catchment. This information will be used to assess the number of properties at risk of flooding within the catchment and to assess funding opportunities through Grant in Aid, Local Levy and partnership contributions.

7. Improvements

7.1 Flood Risk Management Team Pro-active Measures

The Team has a close dialogue with our Honorary Alderman who holds the Flooding Portfolio, in consultation with the Cabinet Member, and continues to work closely with elected members and other teams to address flooding concerns and issues in their respective areas. We remain supportive, and endeavour to attract funding to help allay flooding and drainage and work with other teams to improve existing and inform proposed sites through Consenting and Planning. Birmingham are represented at the Trent Regional Flood and Coastal Committee (RFCC) and the Trent Financial Sub-Committee (FSC) to ensure that we maximise and realise funding opportunities as the biggest financial contributor of Local Levy in the Trent Regional Flood and Coastal Committee. It is important that our views are heard and that we work closely with other risk management authorities in partnership.

Developing HMOS (Hydraulic maintenance of Structures) to help inform prioritisation for a capital programme of important flood risk assets, mainly related to bridge and culvert structures.

7.2 Flood Risk Management Audit

In early 2020, the Flood Risk Management team were audited for all aspects across the service area including, but not limited to:

- Co-ordination and monitoring arrangements established for flood management within the Directorate and across the Council as appropriate;
- Partnership working arrangements established with all relevant Risk Management Authorities and relevant external organisations;
- Arrangements for ensuring a Local Flood Risk Management Strategy for Birmingham has been established and is being kept up to date;
- Systems established to identify and prioritise any maintenance or improvement works required on the Council's watercourses ;

  Mechanisms in place to ensure planning applications / any new development schemes are considering and identifying all appropriate measures to address potential flooding risks;
- Drainage Section's processes for identifying and obtaining appropriate sources of external funding to help support the Council in achieving its responsibilities as a Lead Local Flood Authority and a Land Drainage Authority.

The team have worked closely with our internal auditor and had positive feedback received with regard our processes and record-keeping. We hope to use the findings of the audit to develop agreed processes with our Finance, Procurement and Legal colleagues, Due to ongoing COVID-19 concerns, the audit report is likely to be published in late April.

7.3 Consultants

Due to being fully resourced from January 2020, the Flood Risk Management team have been able to reduce reliance upon external support and Consultants. This will lessen the amount of external spend and ensure that the team can perform all statutory roles in-house and improve dialogue between the Flood Risk Management team, Planning and Housing teams. The team are highly experienced in writing business cases, developing local engineering measures and options and liaising with communities and landowners. The team will continue to upskill where required and attract funds to enable the team to develop schemes and draw on Consultant support for hydraulic modelling and other time / resource-intensive projects.

Appendix A - Flooded Sites Action Tracker