

Policy and Performance Scrutiny Review Committee

REPORT OF THE POLICY AND PERFORMANCE SCRUTINY COMMITTEE

SCRUTINY INTO THAMES WATER'S RESPONSE TO BURST WATER MAINS



London Borough of Islington
July 2017

CHAIR'S FOREWORD

There are three main lessons from the serious flooding caused by the water main burst at the Angel on 5th December 2016 and the subsequent burst of the water main in St John's Street. First of all, the response to the emergency. Secondly, the support offered to victims of the flooding and thirdly the underlying causes, in particular the state of the Victorian water mains underneath our streets.

The Angel Tsunami

At 4.02am on Monday 5 December 2016 the Metropolitan Police reported a serious water leak near the junction of vicinity of Upper street and Islington High Street. The Police asked Islington Council to train CCTV cameras on it. The resulting film shows a leak significant enough to cover the southbound carriageway of Upper Street shortly after 4am. At 4:57am the images show a major eruption of water as the 36 inch main underneath burst beneath the Upper St and Islington High Street junction. At 4:58am Thames Water's control room registered an increase in water flow of over 200 litres per second.

At 5:01am the first of a series of 999 calls about flooding was received. A fire engine arrived on site at 5:06am (despatched from the Upper Street fire station Incident Commander called for Thames Water to attend urgently at 5:07am as it was apparent that this was a very large leak.

From 5am onwards water flowed downhill from Upper St towards Devonia Road where it built up at the rear of the garages. Around 6am, the water broke through into the gardens and around 6:30am it burst through into the basements of Nos 1-11 Devonia Road, which filled in a matter of seconds. It is extremely fortunate that no-one was killed by the sudden inrush of water to these basements. Fortunately the LFB had foreseen this risk, had called for boats and were evacuating residents immediately before the basements were flooded.

Residents were initially evacuated to the Steam Passage public house and then later to the Business Design Centre in care of Islington's Local Authority Liaison Officers (LALO). Approximately 88 properties were evacuated from the local area and two people were rescued from basement flats in Devonia Road. Flooding was at various depths up to a maximum height of 3 metres The main thoroughfare of Upper Street was closed Southbound for 12 days, though the Northbound side re-opened at approximately 2pm.

The LFB pumped out approximately 20 properties and diverted water away from the local substation to preserve power and carried out salvage operations to save property. The water gushing from the burst main was isolated around 9:30am. This was over 5 hours after it was first reported by the Metropolitan Police Service.

The Emergency Response

Was there an opportunity to avoid the risk to life caused by this burst water main? It is notable from the records kept of the 2005 burst of the same water main by Islington's Emergency Planning Officer that on that occasion the water supply to the burst main was isolated in little more than an hour. That burst took place in the middle of the day when Thames Water staff were able to get to the Angel quickly.

Opportunities to act more quickly were missed on 5th December. Better availability of information about trunk main locations could have been used to prioritise the leak when it was first seen around 4am. Thames Water's records show a large pressure spike at 5am which provided further evidence

of a trunk main burst if this wasn't already apparent from the incident commander's phone call. However, that call wasn't allocated the priority it should have received and the resources were not available close enough to the incident to respond quickly. For example, the LFB's request for sand bags resulted in them being despatched from Slough.

There did not seem to be a properly organised emergency response from Thames and we welcome Paul Cuttill's recommendations that Thames Water should have staff available throughout the capital will enable this to happen in future.

It is fortunate that after the Angel flood, Islington Council acquired some sandbags which were used during the 24th May water main burst at St John's Street.

Following the Cuttill report, we recommend that Thames Water establishes proper emergency response teams which are able to respond to an emergency within an hour and are available to respond 24 hours a day and 7 days a week. There should also be a dedicated emergency number which connects to staff in Thames Water's Control Room. Improving the integration between Thames Water and the statutory emergency services is a potential advantage of the government taking the water utilities back into public ownership.

The national review of the 2007 Floods (the Pitt Review) said that 'We are concerned that the systems, structures and protocols developed to support national coordination of multi-agency flood rescue assets remain ad-hoc. We believe that the Fire and Rescue Service should take on a leading role in this area, based on a fully funded capability. This will be most effective if supported by a statutory duty.'

Unfortunately, this was not done by the New Labour government and ministers have continued to resist calls since then. We support the FBU's campaign for the statutory duty to be agreed and funded appropriately.

Although floods caused by trunk main bursts are a different issue, we still see exactly the same ad hoc approach being applied nearly 10 years later by Thames Water. Although Thames Water is now privately owned, it still has a key role in emergency response to floods caused by trunk main bursts. The Fire Brigade puts fires out and rescues people who are unable to escape. For floods, they rescue flood victims, but are dependent on water companies to isolate the supply of mains water. Given the increasing frequency of floods and water main bursts, we recommend that Central Government finally supports the Fire Brigade, through a statutory duty, to be the primary responder to floods and with the funds to carry out this role. In London, this should include detailed maps of trunk mains being shared with the fire service and the Police so that action can be taken immediately once a significant leak occurs above a trunk main.

Infrastructure Investment

Thames Water carried out their Victorian Mains Replacement (VMR) programme from 2002 to 2013, with the aim of reducing leakage. By the end of the programme in 2013, Thames Water said that they had reduced leakage by 36%. The renewed mains were said to be fit for purpose, for at least 50 years, and were described as an efficient, cost effective and more reliable Twenty First Century network.

However, it is estimated that after 10 years the VMR programme had only replaced about one third of the Victorian water mains. Questions were asked about the replacement of 19th century water mains that still appeared to be in good condition and the programme ceased. In Autumn, when a series of eight serious water main bursts occurred in London, every single water main which burst was laid down in the 19th century. It is still said that the age of the water mains is not a cause of the

incidents, but the number of multiple incidents is striking. In Islington the same water main burst in 2005, though this flood was not assigned to the correct main in Thames Water records, resulting in it not being prioritised for monitoring equipment. It burst again in May 2017 causing major disruption and loss of water supply to many residents in Finsbury. At Leigham Vale in Lambeth, promises by Thames Water staff to prioritise repairs were made, following an earlier serious burst, but the repairs were not made.

These recent incidents indicate that the Victorian Main replacement programme made sense and should be completed, though this may take another 20 years. We should not continue to take risks in relying in Victorian engineering in the way that we have done. The achievement of the Victorians in creating our water mains was immense. They probably hoped that the mains they were laying would last into the 20th century, but they cannot have imagined that we would still be debating whether to replace their mains in the 21st century.

Thames Water will point to the complexity of having to obtain permits to carry out main replacement work and the risk that the public will not tolerate the consequent levels of disruption that are all too apparent today to bus passengers on Upper Street and Essex Road. However, Thames Water are not the only source of disruption as is evident to anyone travelling along Holloway Road in 2017 during Transport for London (TfL)'s works to bridges and gyratory systems. Better integration is needed between TfL and Thames Water and other utilities, so that the planning of these works is done jointly, and all the works needed beneath all TfL roads are carried out jointly. It would have made sense to renew the water mains below Holloway Road during the bridge works. As it is, an opportunity has been missed.

Looking After Victims

The Angel Tsunami seems a long time ago from the viewpoint of non victims, but some residents were only able to move back into their homes nearly 9 months after the 5th December flood. Thames Water deployed staff from insurance companies contracted to them, but as is always the case with insurance claims it has been difficult and stressful for victims to claim for loss of goods, some of which, such as antiques destroyed in shop basements are difficult and complex to value.

Senior Thames Water managers made commitments to ensure that no individual or business was worse off as a result of the water main burst, but victims found it very difficult to obtain compensation for the stress they experienced, the amount of time they had to spend dealing with the aftermath of the claim process and other issues, such as obtaining compensation for loss of business, which affects businesses in areas experiencing flooding, even if they were not flooded themselves.

A particular issue has been the difficulty that victims have experienced in communicating with each other. Thames Water obtained important information about the individuals affected, but it has been impossible for victims to have access to the contact details or for the council to obtain it on their behalf. Data protection rules have got in the way of helping victims. The council has better information about the 2005 flood caused by another leak from this water main simply because a council officer ran the respite centre for victims as Thames were unable to do this. There is a strong case for a neutral third party like the council to collect victim data, to enable victims to communicate with each other.

Thames Water managers have shown empathy with victims, but this has not always extended to the insurance staff and loss adjusters who work for Thames contractors. Anyone who handles insurance claims has to take a tough and sceptical view on those claims and this has shown through in the way that victims were treated. There is a case for third party support for victims.

Thames Water procedures need to be improved and made more transparent. Thames Water made goodwill payments to victims after 5th December, but the policy for this has not been published, despite victims asking for it. Thames Water committed not to charge water bills to victims, but organising this has been slow and complex. Compensation for stress, time spent on dealing with the insurance process and for loss of amenity also require clearer standards and a procedure that victims can follow. We look forward to Thames Water having better developed procedures in the future as floods are bound to occur.

COUNCILLOR RICHARD GREENING
CHAIR POLICY AND PERFORMANCE SCRUTINY COMMITTEE

Thames Water's Response to Water Mains Bursts - Scrutiny Review

Aim

To investigate the response by public services to the floods in the Angel Islington and Stoke Newington and other London Boroughs, in 2016 and early 2017 and their underlying causes, in order to reduce the risk of future floods, to better protect homes and businesses from flooding risk and to improve responses to future flooding incidents

Evidence

The review ran from December 2016 until April 2017 and evidence was received from a variety of sources

1. Presentations from Council officers – Jan Hart, Kevin O’Leary, Martin Holland, Dan Lawson – Environment and Regeneration
2. Presentation from TWA – Chris Davies, Rob Hales, Simon Hughes, Bob Collington, Nigel Dyer, James Kingston, Matthew Hackshaw, Alex Nickson
3. Residents/businesses affected by the flooding
4. Other London Boroughs – L.B.Hackney, L.B.Lewisham, L.B.Lambeth
5. Fire Brigade – Patrick Goulbourne
6. Police – Debbie Pierson, Walt Mutch
7. Presentation – TfL – Andrew Sherry, Mufu Durowuju
8. Visit to Blackheath site of flooding
9. Documentary evidence from Thames Water - Incident report, CC Water
10. Academic City University – Roger Crouch
11. OFWAT – Mark Anderson, Keith Mason, Aileen Armstrong
12. Evidence from TWA insurers Cunningham Lindsey – Jeff Hoskin, Andrew Mishen., Joseph Noel
13. Evidence from Paul Cuttill OBE

The scrutiny initiation document (SID) is attached - **Appendix A**

A letter from residents of Devonian Road to Thames Water regarding the flood - **Appendix B**

Notes of the evidence of the witness sessions - **Appendix C**

Timeline of Events of Upper Street Flooding Incident – **Appendix D**

History of Major Bursts in last 12 months – **Appendix E**

Objectives/Scope of the Review

The objectives of the review were as follows –

1. To understand the risks we face in Islington and Hackney, as a result of our aging water supply, including but not limited to those caused by climate change
2. To review Thames Water response to reducing those risks and their progress on investment in new infrastructure
3. To understand the impact of flooding on individual residents and businesses in the Angel and identify measures which could be taken to reduce the damage and disruption caused in the future and to liaise with other London Boroughs suffering similar incidents
4. To review the responses to flooding caused by water mains bursts by public bodies, by Thames Water and by private sector bodies, such as insurance companies, covering both the immediate emergency and longer term support

5. To recommend improvements to the long term prevention and short term response to flooding in Islington and Hackney in liaison with other London Boroughs suffering recent flooding incidents
6. To identify any similarities between the recent flood incidents across London Boroughs and to recommend improvements that can be made by Thames Water in order to minimise the threat of flooding in the future
7. To investigate the position of residents/businesses in respect of claims made to Thames Water for uninsured loss and compensation that have suffered as a result of the recent flooding

RECOMMENDATIONS

That the Executive be recommended to approve the following recommendations to be forwarded to the appropriate agencies –

Thames Water

(a) That improved emergency response arrangements be instituted, these should include the following -

- Procedures for identifying major leaks in the Thames Water control room and directing emergency response teams on site need to be more effective to ensure major trunk main bursts are dealt with more speedily**
- Identifying information received more effectively, in order to assess whether the leak is a major trunk mains leak, and if this is the case, effective communication channels be put in place with the Fire Brigade and other appropriate partners for them to attend on site as quickly as possible**
- Improving the provision and location of emergency response team arrangements, so that they are more accessible in the event of major trunk main bursts – this could necessitate a team located in a control centre in inner London – and that the possibility of a ‘blue light’ service from the Police be investigated where a major incident is declared – see recommendation (w) below**
- A dedicated emergency response line be instituted, in order that the Public can report leaks directly to Thames Water, if they wish to do so. There should also be a dedicated ‘emergency hotline’ introduced for the Fire Brigade to call in the event of major burst mains**
- Developing with the Police, TfL, Fire Brigade and Local Authorities an effective communications strategy for informing the Public where leaks can be reported, and that such leaks should be reported as soon as possible, in order that appropriate action can be taken**
- Develop and publish performance and attendance standards, both in relation to major and minor pipe bursts**
- Develop with the Fire Brigade, Police, TfL and Local Authorities an effective early warning system for residents at risk of flooding, so that when an incident occurs, the danger to residents can be reduced**

(b) That improved technologies be investigated and be put in place to detect the likelihood of bursts on the major trunk mains in Islington, and in addition sensors be installed on the pipes in the major trunk mains in Islington, particularly Upper Street and Essex Road, with immediate effect

(c) That Thames Water, when submitting their case to OFWAT for their future 5 year investment plans, should prioritise the phased improvement of ageing Victorian pipe replacement on major trunk mains in Islington, this to be completed within a specified period to be determined and published by Thames Water, but we propose 15 years, given the problems that major bursts on these roads cause to businesses and residents. Any replacement programme should take account of any increase that may

result in increased costs for customers. In the interim Thames Water should ensure that monitoring takes place to minimise the risk of future flooding.

- (d) That relevant policies regarding clean up/insurance/compensation and goodwill payments should be properly communicated and most importantly be available on the company website. Policies should set out clearly what businesses and residents affected by flooding due to burst mains can expect. Compensation for inconvenience should be formally recognised and a corporate policy be established to ensure that this is fairly and consistently applied. This should cover goodwill payments, expenses and indirect business losses (e.g. from reduced footfall in a flooded area)
- (e) That, given residents and businesses concern at the insensitive handling of some insurance claims, there should be improved communication with residents and businesses in dealing with insurers and the handling of claims (possibly by the provision of a laminated information sheet) following flooding incidents
- (f) That Thames Water should also issue guidance to businesses and properties on the remedial measures necessary, following flooding incidents, in order to ensure properties are properly dried out and residents and businesses can move back in to their premises as soon as possible
- (g) That Thames Water adopt a suitable communications policy, including the use of social media, in order to inform residents and businesses and other interested parties, of developments when leaks occur, and to give any appropriate information needed
- (h) That the Committee welcome Thames Water commitment to share with the Fire Brigade and the appropriate Local Authority, information on the location of the major trunk mains in the borough. This will assist, not only in major flooding situations, but in mapping GIS information on the Local Flood Risk Management strategy and afford the Council a better overview of the risks of flooding in the borough and to take any appropriate measures. Thames Water should also develop a GIS application that will enable staff and other partners to identify the level of risk that a major burst mains will cause in order to inform staff responsible for handling and assessing incidents of flooding
- (i) That the Committee welcome Thames Water commitment to ensure businesses and residents are materially not worse off, as a result of the Upper Street flood. The Committee hope that relevant payments of compensation and other appropriate losses take place as soon as possible
- (j) That Thames Water work with the Angel BID and local businesses to organise a suitable programme of reopening events, including the provision of capital and revenue investment in the Camden Passage area, together with appropriate publicity, to ensure residents and visitors are aware that businesses are open for trading
- (k) That Thames Water take account of resident's concerns, surrounding the security of premises in the aftermath of major flooding, and that such security measures should be improved in future – this should form part of a major incident protocol or standard operating procedure

- (l) That the Committee welcome the findings of the Cuttill Review and be kept informed of progress of implementation of the recommendations and the Strategic Review that they are undertaking**
- (m) That Thames Water should reduce the number of customers affected by water mains bursts and publish the numbers of bursts that have occurred and a performance target for such bursts**
- (n) That Thames Water, in conjunction with TfL, (and other public utilities), review the current arrangements for co-ordination of works, with a view to establishing a more effective means of collaboration across London. This should include sub-regional and borough by borough working, as appropriate**

GLA/TfL/Fire Brigade

- (o) That TfL ensure, when future flooding incidents occur, that there is a better communication process in place to make the Public and businesses aware of diversions in place following such incident**
- (p) That TfL, when planning major construction schemes, such as the Bridge works at Holloway Road and the gyratory scheme at Highbury Corner, should consult with other Public utilities and the Council to co-ordinate any works that are necessary, such as major trunks mains replacement, to minimise any future disruption to residents and road users – see also recommendation (n) above**
- (q) That, in view of the fact that a bus driver first reported a minor leak at the site of the Upper Street burst at 3.57a.m. and that Thames Water had not been alerted to this leak until notified by the Fire Brigade at 5.07a.m., there should be an improved method of communication established between TfL, Police, Fire Brigade and the Council. (See recommendation (a) above).The delays in Thames Water responding to this situation led to Thames Water not being on site for some hours and this had exacerbated the devastation caused by the major trunk mains burst**
- (r) That support be given to the case for the major investment in replacing ageing Victorian pipework in London on major trunk mains, and work with Thames Water and other public utilities take place, to ensure this is managed in a way that causes least disruption, for as short a time as possible, to residents, businesses and commuters**
- (s) That a Pan London investigation be carried out on the frequency of leaks in London Boroughs, in order to establish the extent of the leaks, particularly major bursts, to strengthen the case for increased investment in the replacement of ageing pipes to OFWAT. Any recommendation should take account of the independent review undertaken on behalf of Thames Water into major bursts in London**
- (t) That the Mayor, GLA and London Boroughs support the campaign for the Fire Brigade to become the statutory Emergency Response Service for flooding, as recommended in the Pitt review in 2008. This is in view of the recent major bursts resulting in severe flooding and given the fact that such occurrences are more likely in the future due to the ageing Victorian trunk mains network across London**

- (u) That the London Plan should include provision, when planning permission for basements is being requested, to ensure that a risk assessment is carried out prior to approval to ensure the risk to life of flooding is minimised**

Islington Council

- (v) That the Council hold a stock of 350 sandbags, on an individual borough basis, and also investigate the provision of sandbags with neighbouring boroughs**
- (w) That the Council involve public utilities with other partners in emergency planning sessions, including Thames Water, and that any non-attendance is recorded and reported to senior management within their respective organisations. This would result in increased liaison and information could be better co-ordinated and disseminated**
- (x) That the Council compile a list of high rise blocks (over 6 metres) that will be vulnerable to loss of water in the event of a flooding situation. In addition, liaison should take place with Thames Water as to whether any situation of a reduction in water pressure is likely to impact on properties so that the Council can put in place contingency measures to supply water to residents**

OFWAT

- (y) That OFWAT ensure that in any future strategy that is agreed for the Thames Water 5 year investment plan, they prioritise ageing pipe replacement on major trunk mains in Islington to be completed within 15 years, and installation of new technologies to ensure that the risk of major flooding from major trunk mains is reduced**
- (z) That OFWAT ensure that Thames Water has adequate policies in place, in order that they can respond effectively in emergency situations and that their compensation policies, as a result of flooding, are clearly set out and easily accessible and that Thames Water deal with claims for compensation speedily and sympathetically**
- (aa) That OFWAT should be given power to set targets for the number of people inconvenienced by water mains bursts per year/and or five year period, (corresponding to the funding cycle) and a statutory compensation scheme covering inconvenience to customers be introduced**

Police

- (bb) That the Police, where there are major incidents of flooding, provide a 'blue light' service to Thames Water emergency teams to enable them to reach the scene, as quickly as possible. Thames Water should ensure that emergency response teams are located in appropriate locations to enable this to be possible (see recommendation (a) above**

MAIN FINDINGS

(a) Incidents of Upper Street and Stoke Newington major bursts

- 1.1 The Committee commenced its scrutiny, in order to investigate the response by public utilities/services to the floods in Angel Islington and Stoke Newington in early December 2016, and their underlying causes. The aim was to reduce the risk of flooding in the future, and to improve the protection of homes and businesses from risk, and to improve responses to future flooding incidents. The scrutiny also took evidence from other London Boroughs, and the Chair attended the GLA Environment Committee concerning recent major flooding incidents that had taken place in the London area, with a view to forming joint recommendations that could go forward to Thames Water. This is in addition to the local recommendations that the Committee make, as a result of the specific major floods in Islington that had taken place.
- 1.2 The Committee initially received a presentation from Council officers on the incident in Upper Street flood, at its meeting on 20 December 2016, and it was decided that the Committee would, with L.B.Hackney, hold a joint borough session with Thames Water and TfL, (who are responsible for roads in both of Islington and Hackney, where the burst pipes occurred) to investigate the reasons for and the response to the flooding that occurred in Upper Street and Stoke Newington. Following this each borough then would follow up individually, with their own separate review into these events.
- 1.3 The Committee were informed that there had been a number of recent incidents of flooding across London between October to December 2016, These incidents included major bursts in Islington, Hackney, Lambeth, Bexley and Lewisham.
- 1.4 In relation to the incident in Upper Street, the Committee were informed that the Council's Emergency Planning team had responded quickly to the incident in Upper Street, and that following the incident being originally reported by a bus driver and the Police around 4.00a.m., the leak was then detected by CCTV and by 5.45a.m., an emergency action plan had been put in place, and an incident room had been set up.
- 1.5 The Committee were informed that two Local Authority Liaison Officers (LALO'S) were on call and attended the site. LALO's have to live within an hour of Islington and those on call were alerted to attend and were on site within 40 minutes of being alerted. The Council also has 30/40 volunteers who are able to assist, if needed, and there were other LALO' s made available, who assisted on site.
- 1.6 Initial help was provided by the Steam Passage public house, which was able to provide refuge for flooded residents and business owners. In addition, a rest centre had then been opened for businesses and residents at the Business Design Centre. Thames Water had taken responsibility from 8.30a.m. on the day of the incident. There had been 88 properties affected in total and 8 residents had to be moved into temporary accommodation. The Fire Brigade and Police had also attended at the scene of the incident.
- 1.7 In the aftermath of the incident the Council had initially cleared the road debris etc. from the scene, and the costs had been reimbursed by Thames Water. Upper Street was reopened northbound in the afternoon following the incident, after checks had been made that the carriageway had not been undermined by floodwater. The southbound carriageway of Upper Street remained closed until 16 December, with southbound buses subjected to major diversions throughout the period.

1.8 Thames Water had subsequently had a number of contractors on site, and extra resources had been put in place until properties had been secured. Thames Water had been available at the Business Design Centre until 19 December, and they had then moved to 222 Upper Street in order to assist residents and businesses with their concerns/enquiries, and had organised weekly sessions.

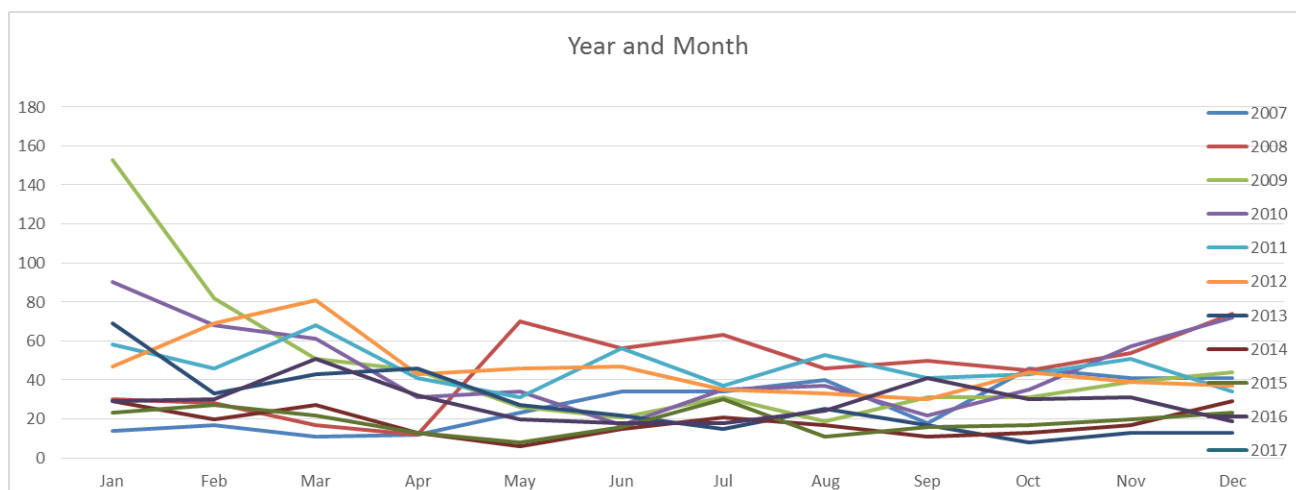
1.9 Some residents raised issues in relation to the security measures put in place by Thames Water following the flood, where businesses had not been secured effectively, and this was another area of investigation that the Committee felt needed to be raised with Thames Water. Residents and businesses, together with other emergency response authorities involved, were extremely complimentary of the actions of the Emergency Planning team of the Council that attended the incident and the Committee welcomed this.

1.10 The Committee were concerned that the recent burst pipe in Upper Street was in close proximity to other burst pipes in Upper Street over recent years. The Committee noted that Council officers did meet with Thames Water on a regular basis, and that the recent Thames Water strategy has been to reduce water pressure to one bar to attempt to minimise leakage and bursts. The Committee also noted that the incident in Stoke Newington had been in an area where there had also been bursts in recent years.

1.11 The Committee were also informed that there had also been another burst pipe in Upper Street over the Xmas period, although this had been of a smaller nature, and also a burst pipe in Tufnell Park Road on 4 January 2017 together with a number of other more minor bursts in the Islington area in January 2017.

1.12 The Committee received information on the leaks experienced in Islington as detailed below -

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2007	14	17	11	12	23	34	34	40	18	46	41	41	331
2008	30	28	17	12	70	56	63	46	50	45	54	74	545
2009	153	82	51	45	26	21	31	19	31	31	39	44	573
2010	90	68	61	31	34	17	35	37	22	35	57	72	559
2011	58	46	68	41	31	56	37	53	41	43	51	34	559
2012	47	69	81	43	46	47	35	33	30	44	39	37	551
2013	69	33	43	46	27	22	15	25	17	8	13	13	331
2014	29	20	27	13	6	15	21	17	11	13	17	29	218
2015	23	27	22	13	8	16	30	11	16	17	20	23	226
2016	29	30	51	32	20	18	18	24	41	30	31	19	343
2017	28												28
Average	52	42	43	29	29	30	32	31	28	31	36	39	





1.13 The Committee were also aware of other major burst mains that had occurred across London over the past 12 months, and as stated earlier, felt that it would be useful to liaise with other London Boroughs, that had also suffered as a result of major bursts, to learn any common lessons, and look to make recommendations that could improve Thames Water and other services responses to flooding situations in the future.

1.14 The Committee therefore also held meetings with L.B.Lambeth and L.B. Lewisham, in addition To L.B.Hackney, to discuss the recent bursts in major trunk mains in their respective boroughs and whether common factors had been present in these incidents that would have accounted for these bursts. This is dealt with in more detail in the recommendations to the report, and form part of a Pan London approach, in presenting certain recommendations for improvement to Thames Water.

(b) Evidence from Thames Water in relation to major bursts in Upper Street and Hackney, TfL, Fire Brigade, Police and Council officers Thames Water Asset Management strategy etc.

2.1. The Committee received evidence from Thames Water and TfL at a joint meeting with L.B.Hackney on 18 January 2017, and considered reports on the flooding incidents in Upper Street and Stoke Newington and the approach that Thames Water had taken to deal with

these emergencies and its strategic approach to dealing with major burst pipes.

- 2.2. Members were informed that the incident on Upper Street had taken place on 5 December 2016 and had resulted in a 36" trunk road main burst pipe, leading to the full closure of Upper Street and numerous businesses and residents had been flooded.
- 2.3. It was noted that TfL had asked Thames Water to work 'round the clock' to complete the repair works, and the northbound carriageway remained closed until 16 December. This closure resulted in serious disruption, on the first morning in particular, with southbound traffic moving beyond Highbury Corner, which caused considerable inconvenience to bus users. One lane southbound reopened on 16 December, and the site was completely cleared and reopened on 17 December.
- 2.4. During the course of the works TfL acted to prevent other works taking place on TfL roads that would have conflicted with the closure and kept the Council's street works team informed of the works, and used Variable message signs (VMS), to inform road users about the closure.
- 2.5. TfL informed the Committee that in the event of an emergency, the normal permitting permissions to carry out works were not needed by Thames Water.
- 2.6. Thames Water stated that they had had loss adjustors on site quickly, and had provided for evacuation and provision of temporary accommodation, where necessary, with the assistance of the Local Authority. There had been a facility provided at the Business Design Centre, where Thames Water staff had been based. to assist residents and businesses and this had been relocated to 222 Upper Street to deal with ongoing issues. It was noted that in Stoke Newington 20/22 businesses had been affected and in the Upper Street burst 18 residents had had to be moved into temporary accommodation and there had been 104 insurance claims by residents. A considerable number of businesses had also been affected
- 2.7. In relation to ongoing problems of dampness in flooded properties, Thames Water stated that they had provided advice, dehumidifiers and other necessary equipment, in order to assist the drying out of properties.
- 2.8. In the Stoke Newington flood, Thames Water had attended a leak on 6 December and was unsuccessful in identifying the source of the leak. On 9 December Thames Water had communicated that the leak may be on the main trunk main. The main burst had occurred on 11 December and had resulted in the full closure of the A10 Stoke Newington High Street, at the junction with Northwood Road. Numerous businesses and residents were flooded.
- 2.9. TfL had requested Thames Water to complete the works as quickly as possible, and although the northbound carriageway was reopened within a short space of time, the southbound carriageway remained closed until 23 December. This resulted in serious disruption and inconvenience to bus passengers. The road was reopened on 23 December and TfL had kept the street works section at L.B.Hackney informed of the works, and once again had used VMS at strategic locations to inform road users about the closure. However, in both these cases TfL had to make emergency/urgent traffic regulations orders, following discussions with the boroughs involved.
- 2.10. Reference was made to the Stoke Newington flood and that this in fact that the leak had initially been reported some days earlier, and despite Thames Water being on site they had not identified that this leak was likely to develop into a major burst.
- 2.11. Members expressed concern that when leaks were reported there appeared to be little feedback or communication from Thames Water about what action was being taken. There

needed both to be an improvement in this, and the speed in which response teams arrived at the site in question.

- 2.12. The Committee noted the statement of Thames Water that they were looking to make more use of social media, in order to keep the public and customers informed, in order to improve the situation. The Committee welcomed this and hoped that this should assist in improving the situation and discussion should take place with TfL, the Police and Local Authorities and effective communications strategy as to where leaks should be reported and for these organisations to be able to co-ordinate an effective response.
- 2.13. The Committee were also concerned that a number of bus users had been confused about the revised diversion arrangements, caused by the flooding, and TfL stated that they would look at their website to see if the information available could be improved, and other appropriate measures put in place.
- 2.14. The Committee were informed that Thames Water and TfL did engage on a regular basis at senior management level, with respect to their performance, response to incidents and future maintenance of assets, however due to the recent spate of major bursts the Chief Executives of TfL and Thames Water had now agreed to conduct more high level negotiations in this regard. It was added that there is currently an investigation being conducted into the maintenance and replacement of Thames assets, and the Committee await a report on this at some future date. This is referred to in more detail below.
- 2.15. Thames Water confirmed that they did have discussions, on a regular basis, with TfL and Local Authorities to look at the best way to manage road closures and pipe works, however they had investigated the recent major bursts and there appeared to be no common factor involved in the last 8 major bursts. The Committee considered that a pan London investigation should be taken to ascertain whether there has been an increase in burst pipes in recent years, and once again this is referred to in more detail, later in the report.
- 2.16. The Committee questioned Thames Water as to whether it was felt that heavy, constant traffic loads had an effect on ageing Victorian pipes, and whether they felt that the excessive vibration was causing bursts. Thames Water responded that they did not feel that this was the case.
- 2.17. Thames Water informed the Committee that many of these Victorian pipes were over 150 years old and could have been subjected to contamination and, in addition, the standard of quality control of pipes laid this length of time ago may be variable.
- 2.18. Thames Water informed the Committee that they did have a modelling strategy, in order to predict the likely degradation of the network, and to allocate pipe replacement pipe work prioritisation. Thames operated on a 5 year plan for investment, and they referred to the fact that the Strategic review, which is currently being commissioned on this, will inform this plan.
- 2.19. Thames Water added that they had commissioned an independent review into the recent leaks, headed by an industry expert, Paul Cuttill O.B.E. and that this investigated the reasons for the major leaks in the past 12 months, and to ascertain if there were any patterns to the bursts, and lessons that can be learnt. This would assist in building a case with the economic regulator to look at investing in assets in the future. Thames stated that the economic regulator set the amount of money that Thames Water could invest in assets in the future. This is based on guidance from the Department of Environment, and is closely controlled. There needed to be a prioritisation of investment plans, which included water quality, availability of water supply etc. and there were a number of different competing priorities that

had to be assessed. The findings of the Cuttill review are outlined later in the report.

- 2.20. In addition, the Committee noted Thames Water statement that, whilst one small section of a pipe may be leaking, the surrounding pipe may be in excellent condition, and wholesale replacement of piping had to be considered carefully, as this may prove to be an inefficient use of resources and a costly way of remedying leaks.
- 2.21. Thames Water stated that the mains replacement strategy had been changed in recent years, and the process of wholesale replacement of pipes had been discontinued, as this was felt to be an inefficient use of resources. This was as a result of Thames Water finding that they were replacing pipes that were still in excellent condition, and they needed to justify their 5 year plan to the economic regulator. Thames Water informed the Committee that just to replace the Upper Street and Stoke Newington piping alone would cost in excess of £10m, and wholesale pipe replacement would have massive implications on traffic flow and disruption to London, leading to possible 'gridlock'.
- 2.22. Thames Water added that the target is to replace 700km of pipe within the next 3/4 years of the current 5 year plan. Members expressed concern at this level of progress, and that on this basis it would take Thames over 100 years to replace all the Victorian piping in London. It was noted that some of these pipes were already presently over 150 years old, and that this rate of progress is clearly unacceptable.
- 2.23. The Committee were informed that to date, approximately one third of the Victorian pipework in Islington on major trunk mains has been replaced. Whilst noting this statement, the Committee felt that due to the age of the pipes involved, the Committee should recommend that all major trunk mains pipework in Islington are replaced within a specified period, we suggest the next 15 years, in order to minimise the risk of future major flooding in the borough.
- 2.24. The Committee were of the view that there needed to be improved co-ordination between the public utilities, Local Authorities and TfL in order that where major construction projects, such as the works to the Bridge in Holloway Road and to the Highbury Corner gyratory system are taking place, pipe replacement and other works can also take place at the same time, minimising disruption to both residents and commuters.
- 2.25. The Committee also questioned Thames Water, concerning their emergency response to the Upper Street burst, as it had transpired that their emergency teams had taken nearly 2 hours to reach the scene, and then some hours to actually stop the leak, and that if they had responded more speedily the damage to property and businesses could have been reduced.
- 2.26. Thames Water stated that they did have 24/7 Emergency Response teams to deal with emergency situations, and the length of time to reach the Upper Street flood had been due to crews having to get across London to the Upper Street site. In addition, there is also the need for Thames Water to carry out safety inspections in respect of voids, and to identify any possible water contamination before the leaking pipe can be turned off. The Committee noted that these Victorian pipes had a system of valves, which needed to be turned off slowly and carefully, and this involved a lengthy process and considerable skill from the Thames response teams involved. This process alone could take between 2-4 hours.
- 2.27. The Committee expressed concern that the valves had taken so long to turn off and that this operation required more than one person to physically turn the valves off. Thames Water responded that they were exploring new technology solutions to assist in improving this situation, and that a new system called SYNIRIX was being utilised, in order to detect pressure changes in the pipe and to monitor and identify leaks at an earlier stage. It was noted that Thames Water did have a Research and Development team looking into

development of new technologies to assist in detecting and remedying leaks.

- 2.28. In addition, Thames Water were now embarking on a strategy that would be informed by a Strategic Review report that would be produced in Summer 2017, to improve performance, which included the independent review, referred to earlier, to look at recent bursts and patterns of such bursts, what could be done better to respond to these, and to look at new technology, such as the insertion of plastic piping within the old Victorian piping and ways new technology can be made available to monitor and identify such risks at an earlier stage. Thames Water informed the Committee that the piping installed, following the Upper Street burst, involved the insertion of a high quality plastic pipe into the existing Victorian piping, and that this plastic piping is extremely strong and met stringent quality standards.
- 2.29. The Committee were of the view that Thames Water should look to improve its emergency response, so that major bursts can be responded to as quickly as possible. In addition, where a major incident is declared, discussions should take place to ascertain whether the Police could offer a 'blue light' service to Thames Water staff, in order to get them to the scene of a major flooding incident as quickly as possible.
- 2.30. The Committee also noted the evidence given by Thames Water that their control centre in Reading had established that there had been a 'surge' in the system at an early stage, indicating that a major flood was occurring, before they had been notified by the Fire Brigade. However, they had not linked this to the report of the flood in Upper Street initially. Therefore, it had taken some time to despatch the emergency response team. The Committee are of the view that there should be improved procedures in place in future, for circumstances such as this.
- 2.31. The Committee were also of the view that Thames Water should also establish attendance and performance standards, in relation to both major and minor bursts, and develop an early warning system, in liaison with the Police, Fire Brigade and TfL, to inform residents of potential danger in the result of a major flooding incident.
- 2.32. The Committee also recommend that Thames Water share information on the location of the major trunk mains in the borough, which will assist not only in flooding situations, but in mapping GIS information on the Local Flood Risk Management strategy and afford the Council and Thames Water a better overview of the risks of flooding in the borough, and to take appropriate measures.
- 2.33. The Committee noted Thames Water statement that they had not paid a dividend to their shareholders in the last 18 months, and a large amount of its profits were reinvested. Thames Water stated that it reinvested 80% of its profits. However, the Committee expressed concern that Thames Water, in view of the fact that they increased profits by 29% in the previous year, should invest more in their asset management, and had a duty to residents and businesses to do this.
- 2.34. The Committee reiterated that Thames Water should be doing more to reinvest their profits into asset management, and in the past 5 years alone, it is estimated that Islington residents had paid over £180m in water bills, and that this is without the contribution from businesses and the Committee were of the view that this lack of investment was not acceptable.
- 2.35. The Chair also gave evidence to the GLA in relation to the recent flooding incident in Upper Street, as part of the GLA's investigation in relation to the problems of major bursts across London in recent months. In addition, co-ordinated work between London Boroughs and the GLA took place and a series of joint recommendations have been made to Thames Water, separately from the Committee's recommendations, although these to a large extent reflected

in our and other individual Borough's recommendations. This is dealt with later in the report.

- 2.36. The Committee also received evidence from the Fire Brigade and Police in relation to the emergency response to the Upper Street flood.
- 2.37. The Committee noted that the first call had been made to the Fire Brigade control room at 5.01a.m., to the Fire Brigade Control room and a crew was despatched at 5.03a.m. However, it was noted that a bus driver had reported a small leak to TfL at 3.57a.m., but that this information did not appear to have been passed on to Thames Water or to the Fire Brigade. At 6.48a.m. the Fire Brigade stated that they had requested the attendance of the electrical authority, in view of the fact that there was a substation near the scene that was at risk of flooding.
- 2.38. At 8.26a.m. it was then reported that multiple properties had flooded, and a multi-agency tactical meeting had taken place and no casualties had been identified. A Thames Water operative arrived on site to establish the location of the valves and shortly after the Police declared a major incident.
- 2.39. The Fire Brigade and Police outlined their response to the flooding incident, and the evacuation process. The Committee noted that pumping equipment and boats had been despatched to the incident, however flooding had increased, and by 9.54 a.m. the flooding covered an area 600 metres by 300 metres, and had resulted in the flooding of residential and commercial areas, up to a depth of 3 metres. These included properties in Devonian Road, Colebrooke Row and Charlton Place. A systematic search of properties had taken place, and approximately 50 residents were evacuated to the rescue centre at the Steam Passage.
- 2.40. Sandbags had been requested around 5.20/5.30a.m. from the Council, and Thames Water and TfL and the Police were contacted about road closures. Members expressed concern that the Council did not hold sufficient stocks of sandbags, and that Thames Water had their depot at Slough, and it had taken a number of hours for these to be available on site. Members felt that this is clearly unacceptable, and that it may have been possible to divert water away from the basements in Devonian Road, if these sandbags had arrived at a much earlier stage.
- 2.41. It was noted that the Council were now looking to hold stocks of sandbags in the future, and that the Director of Environment and Regeneration would be discussing a Pan London approach to sharing provision of sandbags, or whether new technology systems could be made available. The Panel were pleased to note that the Council has now managed to secure a site at Vale Royal to hold a stock of sandbags.
- 2.42. It was noted that by 11.23 a.m. a systematic search of the premises had then taken place and pumping operations were still continuing in Devonian Road and Colebrooke Row. Reference was made to the local knowledge of the fire crews, and that this had contributed to dealing more effectively with the situation. It was noted that if Thames Water provided details of major trunk mains in the borough, this would be useful information for the Fire Brigade and the Local Authority in dealing with any future flooding situations, and also in compiling a flood risk strategy.
- 2.43. The Fire Brigade then informed the Committee that at 16.37p.m. it was then decided in respect of the flood that no further Fire Brigade presence was required and the duty of care had been passed over to Thames Water.
- 2.44. Members were informed that the Fire Brigade currently did not have statutory responsibility for flooding and that the Fire Brigade were currently lobbying the Government to have statutory responsibility for flooding. Members were of the view that this should be supported by the

Mayor, the GLA and London Boroughs. In addition it is felt that a Pan London investigation should take place to look at the frequency of leaks across London, and this could inform the case for improved investment in replacing the Victorian pipework to OFWAT and support any recommendations from the independent review initiated by Thames Water.

- 2.45. It was also felt that it would be useful if the public utility companies were able to be involved in Emergency Planning meetings that currently took place between the Council, Fire Brigade and the Police and TfL should also be encouraged to attend these.
- 2.46. The Committee noted that there had only been 17 calls received from the Public to the Fire Brigade, in relation to the Upper Street flood, and that this is low given the magnitude of the flooding that had occurred. The Committee heard that CCTV had picked up the flooding increasing and that there could have possibly been a speedier response if the situation had been reported earlier. It was felt that there needed to be a communications strategy put in place that informed the Public that if they see any leaks these should be reported immediately and where these could be reported.
- 2.47. The Committee were concerned however, to be informed that Thames Water did not have an emergency response number, and were of the view that this should be instituted in future, if this has already not taken place.
- 2.48. The Committee also considered the issue of smart metering that is being introduced by Thames Water and, it was noted that, whilst this would identify leakage from an individual customer's premises, it would not identify the issue of leakage in trunk mains, and in any case, would take a number of years to implement.
- 2.49. A precise timeline of events relating to the Upper Street flood is attached at Appendix D to the report.
- 2.50. During the course of the scrutiny review the Committee received evidence on other bursts that had taken place in the borough in St. John's Street where our Emergency Plan officers were informed that another 36" main ruptured on St. John's Street, between Rosebery Avenue and Spencer Street, which flooded to Skinner Street. One business was affected with a flooded basement, however no residential properties were affected by any flooding. The burst caused significant disruption with water supply issues to many residents in the local area. Bottled water was supplied to blocks and properties and water was restored to all blocks on 25 May. However, issues of concern were that Thames Water did not provide sandbags and had informed the Fire Brigade that they did not provide them, therefore the Council had stepped in and provided these.
- 2.51. A further area of concern is that the Thames Water 'clean up' team who had been requested to attend had not done so, even after a few hours, and the Council had to organise LBI Environmental Services staff to attend and carry out the works.
- 2.52. There were also further minor bursts in Copenhagen Street, one opposite Haverstock Street. Thames Water attended the site and water was turned off for the whole of Tiber Gardens/Treaty Street Estate. LBI Highways deployed sandbags in order to prevent water getting into any households. Housing operations and Housing direct attended and assisted in providing bottled water to residents and letters of information regarding the burst. Water was restored to the estate between 15:00 -16:00. Emergency Planning and LALO officers attended. Once again Thames Water did not provide sandbags to the site and the Council had to activate its on call process and LBI Highways distributed the Council's emergency stock. Sandbags did arrive from Thames Water 6 hours later. There was also a burst at Copenhagen Street, at the junction with Bemerton Street. Thames Water did attend the site and water was

turned off. Thames Water also confirmed that no properties had been impacted with loss of water and sandbags were not required.

- 2.53. The Committee expressed concern that Thames Water, despite all the concerns expressed in relation to the flood at Upper Street, had still not provided sandbags in sufficient time, nor had their clean up team arrived promptly at the St. John's Street burst, leaving Council staff to clean up the mess.

(c) Compensation Issues – Residents and Businesses Upper Street

- 3.1. The Committee heard concerns from residents and businesses concerning the lack of progress and problems in dealing with Thames Water's insurers in relation to compensation claims, in order that businesses could be 'up and running' and residents back into their homes, as soon as possible, as a result of the damage caused by the flood.
- 3.2. Thames Water organised a meeting on 1 February 2017 for residents to consider these issues and other related concerns and the Chair of Policy and Performance, Councillor Greening, (who Chaired the meeting), attended this meeting, together with other Members of the Committee.
- 3.3. Thames Water also organised a second separate meeting with businesses on 13 February 2017.
- 3.4. Thames Water made a presentation to both meetings on details of the flooding in Upper Street.
- 3.5. The Committee were concerned at issues raised by residents and businesses relating to the problems that they were experiencing in processing insurance claims. Whilst the Committee were not able to investigate details of individual insurance claims, they did feel it is essential that compensation claims were dealt with speedily and fairly, in order that businesses could be operating again as soon as possible. The Committee did however feel that as Thames Water were responsible for any uninsured losses, Thames Water's insurers should progress these claims as quickly as possible.
- 3.6. Thames Water informed the meeting that they had already made a goodwill gesture of £1000 to residents and that a meeting would shortly be taking place with the Thames Chief Executive, in order to discuss any further possible payments. In addition, payment of water bills for residents and businesses had been suspended and Thames were investigating provision of counselling services for residents and businesses, who had suffered emotionally and mentally, from the flooding.
- 3.7. Thames Water indicated that they did have a number of policies relating to compensation that covered flood situations, however these did not always provide sufficient recompense, and that was the reason why discussions were taking place with the Thames Water Chief Executive in relation to the Upper Street flood, in view of the major impact that the flooding had caused.
- 3.8. Thames Water stated that their loss adjusters were available to deal with claims or problems, however residents expressed concern at the potential for higher premiums, given that there had been 3 bursts in the Upper Street area in recent years. Cunningham Lindsey, Thames Water's loss adjusters, stated that they did not feel this would be the case, given the nature of the flooding, and the fact that these had occurred over a number of year. In addition, residents expressed concern at the loss of items that were of considerable

personal value, which they could not be recompensed adequately for.

- 3.9. Residents noted that the Upper Street pipe is still not in operation, until relining takes place, and that the water is being re-routed through the Essex Road mains. Residents expressed concern that the Essex Road mains had a history of previous leaks, which would put residents in Devonia Road at risk again of flooding. Thames Water undertook to survey the Upper Street and Essex Road pipes, within 2 weeks, and inform residents of the outcome.
- 3.10. Residents expressed concern that it was only good fortune that no residents had been killed in the flood, given that the level of water in some cases rose to 3 metres and that Thames Water should have an emergency plan in place to deal with areas at risk of flooding, where it is known that there are properties with basements. Thames Water responded that they were looking into this, however local knowledge of properties was needed in order to do this. The view was expressed that this information could be found on flood maps and also that Thames Water knew where the major trunk mains were in the borough, so that it should be possible to provide this information. The Committee were of the view that therefore the sharing of information with the Council and the Fire Brigade, and vice versa, was vital.
- 3.11. Concern was also expressed that sandbags, which could have been used to divert the water had not arrived in time to be of use, as Thames Water had these stored in their depot in Slough, and it had taken some considerable time for them to arrive at the flood scene. Our recommendations on this are dealt with separately in the report.
- 3.12. In response to a question, Thames Water stated that to replace the piping concerned, as a result of the last major 8 bursts, would cost in the region of £55m.
- 3.13. Thames Water informed residents that pipe replacement is based on risk, and whilst leak detection methods are employed, this would still not have detected the fault that had occurred in the Upper Street pipe, where one wall of the pipe had thinned from the outside, which had led to the eventual burst.
- 3.14. Thames Water reported that extensive damage had been caused by the Upper Street flooding to seven neighbouring streets, and that eighteen residents had had to be accommodated on the first night of the flood and 10 residents were still in temporary accommodation.
- 3.15. Concern was expressed at the length of time it had taken to turn the valves to the pipe off, and Thames Water reiterated that each valve had taken approximately an hour to turn off. Thames Water added that there is no 'magic wand' to resolve this situation, and although they are looking at alternatives, installing an automatic solution to turning off the valves would involve severe disruption when installation took place, and would need approval from the economic regulator.
- 3.16. At the meeting on 13 February, businesses were informed that Thames Water were extremely apologetic to those affected by the flood, and that Thames Water stated that were doing everything that they possibly could to prevent a similar situation happening again.
- 3.17. Thames Water explained that the section of pipe that had burst, had originally been installed in 1854. It is currently out of use, whilst this section of the pipe is being relined, and sensors had already been installed.
- 3.18. It was noted that survey work would be started on 15 February to sections of the pipe in Upper Street, between the Pentonville Road and Islington Green junctions, Islington Green between Upper Street and St.Peter's Street junctions and St.John's Street, between the

junctions of Owen Street and Pentonville Road. This work will take place between the hours of 10p.m and 6.00a.m. to minimise disruption.

- 3.19. Thames Water made a commitment to businesses that it was their intention that no business would be materially worse off as a result of the flood, and nor did Thames Water wish to see anyone suffer materially, financially or otherwise.
- 3.20. It was stated that any losses to businesses that are not fully met by the loss adjustors will be supplemented, met by a payment from Thames Water.
- 3.21. Businesses expressed concern about attitude of the company, Willis Towers Watson, who were acting on behalf of Thames Water loss adjustors, Cunningham Lindsey, towards businesses who were making claims or requesting information. It was noted that whilst Cunningham Lindsey had not experienced problems in the past in using this company, the level of the flooding claims in this instance was of far greater magnitude than any other major burst that had been experienced. However, the Committee were pleased to note that Cunningham Lindsey had undertaken to feedback these concerns to Willis Towers Watson and, in future, to deal with individual business claims personally, in order to resolve these.
- 3.22. Concern was also expressed by businesses at the rude and dismissive attitude shown to them by Willis Towers Watson and their lack of sympathy in dealing with claims. This had not helped the process and Cunningham Lindsey reiterated their commitment to deal with individual claims from then on. Cunningham Lindsey also stated that they would ensure that responses were made to businesses within a satisfactory timescale and also, where payments are agreed, that these are made within 7 working days.
- 3.23. Businesses also expressed concern that they had been given conflicting advice on the day of the flood, concerning how to deal with their claims, and concerning the disposal of items damaged in the flood. In addition, some businesses had been told to contact their own insurer and some had been advised to contact Thames Water insurers. Cunningham Lindsey stated that the advice on who businesses should contact would depend on businesses individual insurance policies, however, Thames Water and Cunningham Lindsey were committed to learning from mistakes in this incident, and that in future, they would make necessary improvements. The Committee propose that in any future similar incidents that Thames Water should provide written advice and information, for example on a laminated sheet, for businesses and residents, on how to deal with claims following floods and the appropriate people to contact.
- 3.24. Discussion took place as to the level of compensation businesses would receive for loss of trading over the busy Christmas period, and how the loss adjustors/Thames Water would decide on an appropriate sum to be paid, taking into account that many businesses were still not open for trading.
- 3.25. Businesses enquired as to how the loss adjustors would calculate the appropriate hourly rate payable to businesses, in order to compensate them for the many hours that they had had to spend dealing with insurance issues, organising building work to their premises, and other issues relating to the flood. Cunningham Lindsey stated that they would hold discussions with businesses in this regard, and appropriate payments would be made, based on their individual circumstances, and it was noted that traders tended to operate on a 33% profit margin.
- 3.26. At a further meeting with residents and businesses on 22 March, the Committee were extremely concerned that the promises made at the previous meetings with businesses and residents were not being abided by and many had still not received any payments or interim

payments and also had difficulty in dealing with the loss adjustors and getting a contact name in Thames Water who they could discuss claims with effectively.

- 3.27. The Committee were of the view that Thames Water should provide a timescale for payment of claims and a contact person in Thames Water who they could discuss claims with in the event of difficulties. It was also felt that details of properties affected by flooding should be provided by Thames Water, in order that the payment of claims and compensation could be monitored.
- 3.28. Businesses also expressed concern at the length of time that it had taken for Thames Water to arrive at the scene of the flood at Upper Street, and in addition, when they were initially on site, they were not then really in control of the situation and that their response had been reactive, rather than proactive. Thames Water stated that they appreciated that they needed to learn lessons for the future from the Upper Street flood, and how to respond more appropriately in such circumstances.
- 3.29. In addition, the security of premises, particularly business premises, was raised as an area of concern and the Committee felt that Thames Water needed to ensure procedures around this, in the aftermath of a major flood, are improved.
- 3.30. In addition, businesses were concerned as to where the emergency operatives, who had attended the site, on the day of the incident had come from, when they had first been notified to attend the site, and why they had taken so long to arrive on site and when they had first been contacted.
- 3.31. Thames Water stated that whilst they did not have this information available, it needed to be recognised that when the operatives had arrived on site a number of checks had had to be made, and whilst Thames Water had known where the valves that needed to be turned off were located, the actual process of turning them off was a lengthy one. Thames Water did state that they had been informed at 5.10a.m. on 5 December that there was a flood in Upper Street, and that the first Thames Water operative had been on site at 6.15a.m., however they were not able to state where they had come from. (This issue is further referred to later in the report). Businesses were concerned that at this time (which was over 2 months since the incident occurred, and given that similar questions had been asked at the meeting of Policy and Performance Scrutiny Committee on 18 January, Thames Water still did not have some of the information available that had been requested. Thames Water responded that at that point that they still did not could not clarify why it had taken Thames operatives so long to get to the scene of the flood.
- 3.32. Discussion took place as to the reopening event that Thames Water were sponsoring for businesses in the Angel area, and that it was hoped that additional measures could be put in place to encourage trade back into the area, following the loss of trade due to the flooding. This was especially important given the extent of the trade lost over the busy Christmas period and the reputational damage to businesses. It was stated that discussions would take place between Thames Water, the London Angel Business Improvement District and businesses as to the format that this should take.
- 3.33. The Committee welcomed Thames Water commitment to sponsoring the reopening and hoped that this would result in improving trade and in improving the area for business opportunities.
- 3.34. A further meeting was arranged by Thames Water for residents and businesses on 29 March.

- 3.35. The Committee noted that Thames Water had undertaken to reimburse any rise in premiums that had arisen as a result of the flood for residents, in respect of the Upper Street mains burst, and that discussions were taking place with the Council and TfL concerning road closures. It was stated that any road closures should take account of businesses footfall and commuters needing access to Upper Street.
- 3.36. The Committee also welcomed the commitment of Thames Water that no resident would pay water bills for one year, and that any payments already made would be reimbursed and that they would hold regular meetings with business and residents representatives to discuss issues of concern.

(d) Evidence of OFWAT

- 4.1. The Committee received evidence from OFWAT on 20 April 2017.
- 4.2. The Committee questioned OFWAT in relation to the regulator's views in relation to the incidents of major bursts in recent months and the performance of Thames Water and the investment strategy that Thames Water were pursuing, in order to replace the ageing Victorian water mains, particularly in London.
- 4.3. OFWAT informed the Committee of their role as the independent regulator and that Thames Water had to be accountable and take responsibility for delivering a good service to its customers. A pricing review took place every 5 years and Thames Water had to submit a Business Plan, which is scrutinised by OFWAT to ensure that there is an efficient service being provided and that effective standards were in place. In addition, Thames Water had to demonstrate that accurate information is being provided, and how the service is being delivered. Penalties could be imposed if Thames did not deliver services to a satisfactory standard.
- 4.4. OFWAT stated that they wished to state that funding had been made available to Thames Water, in their 2014 business plan, and all Thames funding proposals had been approved, and therefore lack of funding had not contributed to the major burst incidents that had occurred in London during recent months.
- 4.5. OFWAT referred to the fact that high level discussions were now taking place between Thames Water and themselves, given that the handling of communications had been a problem during the Upper Street flood, in particular, and that this needed to be improved, especially making more use of social media.
- 4.6. Thames Water were required to meet Key Performance Indicators by OFWAT and one of these related to water supply. However, it was noted that whilst Thames Water had met this specific KPI in 2015, this may not be the case in 2016, due to the major bursts that had occurred although this data is still to be assessed. However, it was noted that there is no specific KPI that measured the number of burst pipes that occurred. OFWAT did have the power to fine a company up to 10% of annual turnover, if they did not meet their statutory obligations.
- 4.7. The Committee raised the issue of the slow process of Thames Water dealing with insurance claims, and it was noted that whilst OFWAT did not have involvement with issues such as this, they would discuss the matter with Thames Water to endeavour to get them to deal with the claims as speedily and sympathetically as possible. It was noted that due to the Upper Street flood 2 businesses had had to close, and Thames Water had not undertaken, as yet, to pay any compensation for the stress that had been caused to residents and

businesses, as a result of the flood, OFWAT stated that if there were disputes with Thames Water on compensation/claims these could only be resolved as a result of Court action.

- 4.8. The Committee were informed that following the flood in Herne Hill in L.B.Lambeth and that similarly traders had had to close, because of the slow insurance processes of Thames Water.
- 4.9. The Committee informed OFWAT of the considerable length of time that Thames Water emergency response team had taken to respond to the Upper Street flooding, which had exacerbated the flooding situation and potentially could have led to a loss of life. OFWAT undertook to look into emergency response provision with Thames Water.

(e) Consideration of Independent Report into the Thames Water Trunk Mains Forensic Review (The Cuttill report)

- 5.1. The Committee, during the duration of the scrutiny process, received the independent review, referred to earlier, conducted by Paul Cuttill OBE an industry expert, on behalf of Thames Water, in respect of the recent 8 major trunk mains bursts in London.
- 5.2. The report looked at the causes of each burst, asset condition, location and environment, and whether any patterns of failure could be identified, the impact on customers, the wider community and the cost, the immediate response from Thames Water and whether improvements were needed. In addition, the review looked at whether changes were needed to the network configuration, pumping and control regimes.
- 5.3. The key findings of the report included, the need to improve the understanding of the network and the need for improvements in managing existing data and knowledge, focusing on improving the management of planned works, and better use of local knowledge. In addition the report identified the need to accelerate the roll out of monitoring units, where bursts occur, or are likely to happen and to refresh how alarms are prioritised. There is also a need to increase the capacity to analyse data, and to work with partners to develop new, innovative ways of assessing the condition of pipes, improve communication with both customers and within the company, after bursts have happened, and improve the capacity to deal with multiple incidents and how Thames Water needed to learn from incidents after they have taken place to inform future incidents.
- 5.4. The Committee were informed that Thames Water had welcomed the findings of the review, and that will focus on implementing the recommendations and seek to identify and repair the mains at the highest risk. In addition, Thames Water had already begun implementing the recommendations and are finalising an implementation plan to ensure that the recommendations are delivered.
- 5.5. In terms of investment, Thames Water are committing an additional £97m into the trunk main network, over and above what was included in the 2015/19 Business Plan, and this included the investment in Upper Street to reline the trunk main, and to deploy surveying and monitoring equipment at additional locations.
- 5.6. The Committee noted that in terms of customer care, Thames Water were implementing the changes needed to ensure there is a world class recovery service for customers, and this will focus on customer communication channels, on site presence, after care and is aimed to

complete this project by the end of 2018/19.

- 5.7. The next steps include the recommendations of the Forensic Review being fed into the Thames Water Trunk Mains Strategic Review, and this is composed of 5 sub work streams which will design the changes needed to address the Forensic Review recommendations and this when completed will be shared with stakeholders. At present only 18% of the network is monitored and this needs to be improved and this is one of the recommendations of the review. The Committee will consider this Strategic Review at a future meeting.
- 5.8. The Committee noted that the review had highlighted that there is a large amount of knowledge in relation to the network, retained by a relatively small number of staff at Thames Water, and training is required to spread this knowledge to a wider group of staff, however this is likely to take 2/3 years to complete. In addition, it was noted that the Strategic Review will look in more detail at the appropriate level of investment required in relation to replacing the ageing Victorian pipework, but it is recognised that the current rate of replacement needed to be improved. There is also a need to ensure that in the interim Thames Water responded effectively to emergency situations, when they occurred.
- 5.9. The Committee were also informed that there is also a need to improve the communications flow to the Control Room at Thames Water headquarters at Reading, and there need to be an improvement in call handling from the call agents who took emergency and no supply calls, which included more training and the possible separation of retail and no supply/emergency calls and it was noted that Thames Water were looking at this.
- 5.10. The Committee were of the view that Thames Water should investigate the introduction of a GIS application on phones that could inform Thames operatives and the Control Room of potential risks in areas where a major flood will cause a potential loss of life. Thames Water stated that they were refining their modelling techniques, looking at consequence models and developing a social media plan, however the introduction of a GIS application is something that could be looked at in the future.
- 5.11. The Committee also questioned why the issue of customer compensation/insurance claims issues had not been included in the terms of reference of the review, and it was stated that the review had been time limited and the scope of the review had not provided for this.

(f) Joint Recommendations of London Boroughs/GLA

- 6.1. As stated earlier in the report the Committee also held meetings with other London Boroughs and the GLA, in relation to the recent major bursts on trunk mains in London in order to formulate some joint recommendations that could be made to Thames Water to reduce the number of major bursts and improve performance in responding to them.
- 6.2. This has resulted in a number of joint recommendations, independent of each borough's individual scrutiny process, that will be put forward. Inter alia, by the GLA to Thames Water and these are included in our recommendations.

CONCLUSION

- 7.1. The Committee received a wide range of evidence in relation, not only to the incident in Upper Street, but in respect of other major burst water mains across London.
- 7.2. Our wide ranging recommendations are designed to put in place systems, that if adopted, should minimise the risk of major flooding in the future, and especially to the many residents and businesses in Upper Street and the surrounding area, who have suffered three major bursts in recent years. Other issues are also dealt with, such as improved co-operation and procedures. Many of our recommendations tie in with the findings of Paul Cuttill O.B.E. in his Forensic Review into the 8 recent major bursts in London, and we are confident that our findings address similar issues to that which he found in conducting his review.
- 7.3. Compensation, insurance problems and replacement of the ageing Victorian pipework were also issues that we addressed and we hope that measures can be put in place to ensure that these are resolved as soon as possible.
- 7.4. The Committee would like to thank all the witnesses that gave evidence and especially to praise the fortitude of residents and businesses and Council Emergency Planning staff for the work that they have had to do as a result of the flood and in its aftermath. In addition the Committee would wish to thank L.B.'s Lambeth, Lewisham, Hackney and the GLA for their co-operation into the scrutiny and the formulation of joint recommendations to Thames Water.
- 7.5. The Committee would also like to place on record their thanks for the prompt action of the Police and the Fire Brigade on the day of the flood and without their and the Council's Emergency Services team response the situation could well been far worse.

MEMBERSHIP OF THE POLICY AND PERFORMANCE SCRUTINY COMMITTEE – 2016/17/18

COUNCILLORS 2016/17

**Councillor Richard Greening – Chair
Councillor Clare Jeapes – Vice Chair
Councillor Jilani Chowdhury
Councillor Gary Heather
Councillor Una O’Halloran
Councillor Mick O’Sullivan
Councillor Gary Doolan
Councillor Osh Gantly
Councillor Nick Wayne
Councillor Caroline Russell
Councillor James Court
Councillor Alice Perry-until Feb 17
Councillor Rowena Champion
Councillor Martin Klute
Councillor Troy Gallagher –from Feb17
Councillor Theresa Debono**

Substitutes

**Councillors:
Satnam Gill
Mouna Hamitouche
Dave Poyser
Marian Spall
Angela Picknell**

COUNCILLORS 2017/18

**Councillor Richard Greening - Chair
Councillor Clare Jeapes – Vice Chair
Councillor Jilani Chowdhury
Councillor Theresa Debono
Councillor Gary Doolan
Councillor Martin Klute
Councillor Una O’Halloran
Councillor Mick O’Sullivan
Councillor Caroline Russell
Councillor Troy Gallagher
Councillor Robert Khan
Councillor Alice Perry
Councillor Gary Heather
Councillor Flora Williamson
Councillor Paul Smith
Councillor Rowena Champion**

Substitutes:

**Councillors;
Mouna Hamitouche
Marian Spall
Angela Picknell
Nick Wayne
James Court
Olly Parker
Satnam Gill OBE
Nurullah Turan**

Acknowledgements: The Committee would like to thank all the witnesses who gave evidence to the review.

Officer Support:

Peter Moore – Democratic Services

Lead Officers: Kevin O’Leary and Martin Holland– Environment and Regeneration

APPENDIX A

TERMS OF REFERENCE (SCRUTINY REVIEW INITIATION DOCUMENT)	
Review: Thames Water's Response to Water Mains Bursts	
Scrutiny Review Committee: Subcommittee / Task & Finish Group(s) reporting to Islington Policy & Performance Committee Living in Hackney Commission	
Lead Officers:	L.B.Islington - Kevin O'Leary, Martin Holland – Environment and Regeneration – Thomas Thorn – L.B.Hackney
Overall aim	
To investigate the response by public services to the floods in Angel Islington and Stoke Newington in early December 2016 and their underlying causes in order to reduce the risk of flooding, to better protect homes and businesses from flooding risk and to improve responses to future flooding incidents.	
Objectives of the review:	
<ol style="list-style-type: none"> 1. To understand the risks we face in Islington and Hackney as a result of our aging water supply, including but not limited to those caused by climate change 2. To review Thames Water's response to reducing those risks and their progress on investment in new infrastructure. 3. To understand the impact of flooding on individual residents and businesses in Angel and identify measures which could be taken to reduce the damage and disruption caused by floods in the future and to liaise with other London Boroughs suffering similar incidents 4. To review the responses to flooding caused by water main bursts by public bodies, by Thames Water and by private sector bodies such as insurance companies, covering both the immediate emergency and longer term support 5. To recommend improvements to the long term prevention and short term response to flooding in Islington in liaison with other London Boroughs suffering recent similar incidents 6. To identify any similarities between the recent flood incidents across London Boroughs and to recommend improvements that can be made by Thames Water in order to minimise the threat of flooding in the future 7. To investigate the position of residents/businesses in respect of claims made to Thames Water for uninsured loss and compensation that have suffered as a result of the recent flooding 	
Scope of the Review	
To review the current situation within Islington and Hackney and examine how others deal with flood risk within London	
Types of evidence will be assessed by the review: (add additional categories as needed)	
1. Documentary submissions:	

- a. Thames Water strategic and emergency plans
- b. Thames Water Corporate Plan/Pressure Management Strategy
- c. Thames Water internal review reports on recent flooding incidents at Angel and Stoke Newington

2. It is proposed that witness evidence be taken from:

- a. Affected residents in the Angel
- b. Affected businesses in the Angel, including Angel Business Improvement District
- c. Emergency services including Fire Brigade, Police and local authority Emergency Response teams
- d. Thames Water
- e. Local Authority Streetworks
- f. Transport for London
- g. Insurance companies (tbc)

3. Visits

- a. Flooded areas in Angel and Stoke Newington

Additional Information:

18th January Thames Water evidence focusing on strategic issues

Dates tbc Thames Water meeting local communities / flood victims in Angel and in Stoke Newington
 – other evidence sessions to be arranged

Programme

Key output:	To be submitted to Committee on:
1. Terms of Reference (Scrutiny Initiation Document)	20th December 2016
2. Timetable	December 2016- May 2017
3. Interim Report	June 2017
4. Final Report	July 2017

LETTER TO THAMES WATER FROM RESIDENTS OF DEVONIA ROAD

- APPENDIX B

On behalf the residents of
1- 11 Devonia Road
London N1

[REDACTED]
CEO
Thames Water plc
Clearwater Court
Vastern Road
Reading RG1 8DB

13 February 2017

Dear [REDACTED]

Re: Thames Water trunk mains burst at Upper Street, Islington, 5th December 2016

We are writing in our capacity as residents of the six houses in Devonia Road that were flooded by the water main which burst on Upper Street in Islington the early morning on Monday 5th December 2016.

We wish to place with on record with you a summary of events as we experienced them in order to document the real, not notional, risks to resident safety arising from the fragility of Islington's trunk water mains. We also want to put forward some general observations on the systemic risk they pose.

A catastrophic event and dangerous occurrence

It is worth summarising the events of Monday 5th December, from the perspective of the residents of Devonia Road.

At some time between 4am-5am, an arterial trunk pipe burst in Upper Street, Islington. The topography and road layout in the area of the burst water main caused the escaping water to flow downhill, channelled down Charlton Place and across Colebrooke Row and then down a private road, where it built up very rapidly in an area confined by closed garages and garden walls.

By 6am a huge pool of water, estimated at between 7-8 feet in height, burst through the garages and garden wall at the rear of No 1 Devonia Road. Like a tsunami, it poured into the garden of No 1 and rapidly built up against the rear of the house. At approximately 6.30am the water had sufficient force to cause its conservatory (whose windows are strengthened by reinforced security glass) to explode. The power with which the water entered the house ripped the radiators of the wall and flung them to the far end of the room. The water level rose from about one inch to over seven feet high; within seconds it had almost reached the ceiling.

At about the same time the force of water knocked down the lateral garden wall between No 1 and its immediate neighbour (No 3). In turn it then knocked down - like a set of dominoes - the lateral walls between Numbers 3, 5, 7, 9 and 11.

In every one of these houses, the water first flowed into the gardens and then wreaked catastrophic destruction, entering the basements of each house with enormous force and rapidity.

At about 6.30am, the police and fire services warned residents to evacuate with immediate effect. This was just minutes before the conservatory at No 1 exploded. The residents of No 1 narrowly escaped serious injury or death; they had just been down to the lower ground floor to rescue their dog when the conservatory exploded.

At No. 5, similarly protected by having large double-glazed security windows, the water built up and then smashed through the interior with sufficient force to drive a washing machine and its adjacent dryer through a solid concrete-block wall and then across the basement area in the front of the house.

In No 7, the occupant's bedroom is in the basement; it was sheer chance that when the water flooded in, she had gone upstairs to make tea. Suffering at the time from a hip problem, she would have been unable to escape in time.

In No 9, the residents were attempting to rescue items from their basement when the water broke through. The force and power of the water entering No 9 was captured in a number of striking and horrifying photographs as they escaped.

In No. 11a the residents lived entirely in the basement flat. It is very fortunate that they were away on holiday at the time. The high water line left by the flood - at seven feet - has been recorded: had they been asleep there at the time they would have been at risk.

In all these houses, it was only luck that prevented serious injury and perhaps death by drowning or blunt force trauma.

Thames Waters legal position in case of future bursts

As affected residents, we were given a frank and sympathetic presentation by your colleague [REDACTED] at the Business Design Centre, Islington, on 1st February 2017. His presentation showed considerable understanding of the sequence of events and an explanation of the works proposed to reduce any risk of any repetition. He stated that the proposed relining of the water main meant that the chance of reoccurrence was "very, very slim."

It was accepted that the burst on 5th December 2016 was not an isolated incident. Bursts from nearby points in the trunk main occurred in 1999 and again in 2005 so Thames Water had been on notice that there were weaknesses in this specific area. We trust the Board of Thames Water is mindful of this situation.

Had there been fatalities on 5th December the legal position of Thames Water could have been very precarious in terms of legal responsibility for those deaths. However, our purpose in writing is not to debate Thames Water's legal responsibility for hypothetical fatalities. It is to ensure that we place with you a formal record of our profound concerns.

There is no question that if any occupier of any of the affected houses had been in their basement level at this time, there would have been injuries and, indeed, fatalities. This was not just a burst water main; it ought to be recorded as a notifiable dangerous occurrence.

And given the topography and road configuration on Upper Street and the surrounding roads, we remain concerned that any future water main burst in the locality could result in a repetition of this catastrophe.

A systemic issue

Our larger concern extends to the systemic issue which was outlined in [REDACTED] presentation: parts of the trunk main network are now between 100 and 150 years old, made of cast iron, subject to corrosion, and to stresses that were not anticipated at the time the mains were laid.

It was indicated that the financial and logistical difficulties of replacement mean that it will take decades of consistent work for the trunk main to be replaced or relined, and therefore decades of disruption to London's transport system. Whilst we understand the nature of the difficulties, we are concerned at the limited extent of the work currently envisaged as a response to this recent burst.

Thames Water intends to reline the main for a length of 800 metres along Upper Street between the Angel junction and Islington Green. This leaves untouched the trunk main that runs further north - - - under Upper Street, and the other trunk main that runs under Essex Road; while surveys of these stretches are said to be planned, there has been no commitment to replace or reline these pipes.

So it is entirely reasonable to view it as a serious risk that a burst in either of these mains is likely to result in a similarly catastrophic flood in this or neighbouring areas. We hope you and the Board will give serious attention to this risk.

We know that the network is extremely old and increasingly fragile. This state of fragility can only exacerbate. The risk of major bursts will increase as the age of the network increases and becomes increasingly weak. Currently, there are no tools available to inspect the state of the trunk main pipes efficiently and thoroughly. There is no present plan to address and remove this inherent risk. It is real, not notional. But, from the explanations given to us, it appears as though the risk is in fact incapable of being mitigated due to the size, scale and complexity of the replacement task.

We would like to express our personal appreciation of [REDACTED] honest discussion of the issues with us. We would urge the Board of Thames Water to address them. We trust you will engage with other bodies - such as Parliament, the Mayor of London's Office, the Health & Safety Executive, OFWAT and others (copied here) - to raise awareness of the dangers posed by the antique condition of London's trunk main infrastructure.

We would welcome your considered response.

Yours sincerely

[REDACTED]

[REDACTED] Joanna Willett
9 Devonian Road
London N1 8JQ

On behalf of [REDACTED]

EVIDENCE SESSIONS OF THE COMMITTEE – APPENDIX C

NOTE OF A MEETING WITH THAMES WATER AND RESIDENTS – UPPER STREET FLOOD – MONDAY 13 FEBRUARY 2017 – 6.30P.M. – BUSINESS DESIGN CENTRE

PRESENT: Thames Water – Nigel Dyer- Chief Executive Thames Infrastructure, Matthew Hackshaw, Chris Davis, James Kingston, Cecilia Larkin, Cunningham Lindsey Andrew Mishen, Joseph Noel, Jeff Hoskin.

Councillors – Richard Greening, Rowena Champion, Clare Jeapes and Caroline Russell
London Angel Business Improvement District – Jackie Ambrosini
Businesses affected by the Upper Street flood

Councillor Richard Greening in the Chair

Matthew Hackshaw opened the meeting describing the structure of the event. Nigel Dyer then made a presentation to the meeting concerning the circumstances around the flooding incident.

Nigel Dyer made a sincere apology on behalf of Thames Water to those affected by the flood. He said that ‘Thames Water were doing everything they possibly can to prevent this situation happening again.’

Nigel Dyer explained that the main which burst had originally been installed in 1854. It was currently out of use while this 800 metre section of pipe is being relined by Thames Water. Sensors had already been put on it.

The following main points were then made -

1.Nigel Dyer stated that survey work would be started on 15 February in Upper Street, between the Pentonville Road and Islington Green junctions, Islington Green between the Upper Street and St.Peter’s Street junctions, and St.John’s Street between the junctions of Owen Street and Pentonville Road. This work will take place between the hours of 10pm. and 6.00a.m.

2.Nigel Dyer made a commitment to businesses that it was their intention that no business will be worse off as a result of the flood or to see anyone suffer materially or otherwise and that any losses to businesses that are not met by the loss adjustors would be supplemented met by a payment from Thames Water

3.Concern was expressed that businesses had lost trade over the busy Xmas period and that some of their stock was difficult to value as they were the experts in that field. Cunningham Lindsey, the loss adjustors, stated that they would consult on valuations and make an offer. Nigel Dyer stated that Thames would make up the balance with one cheque being payable to businesses and he committed to ensuring that no business would be worse off as a result of the flood. In response to a question it was stated that the traders in Camden Passage worked to a profit margin of around 33% and it was reiterated that traders would be recompensed and not worse off as a result of the flood.

4.Concern was expressed at the attitude shown by some staff at Willis Towers Watson, (WTW) (who were acting for Cunningham Lindsey), to businesses that had contacted them on some of the claims and that this was not acceptable. Businesses expressed the view that WTW should have had a representative present that evening to respond to the criticisms made. Cunningham Lindsey responded that WTW had been invited to attend,

but they had stated that they were not able to do so. Cunningham Lindsey stated that they would raise these concerns with WTW, and that whilst this problem has not arisen in the past, if businesses wished to raise these issues with Cunningham Lindsey after the meeting they would take these up and deal with them

5. Concern was also expressed that on the day of the flood conflicting information had been given to businesses about removing items from their premises, which had led to disputes about the cost of items and disposal of items. It was stated that Thames should provide written advice or information, (for example on a laminated sheet) for businesses and residents for any future incidents on how to deal with claims following floods and who to contact in this regard and Thames and Cunningham Lindsey undertook to do this. It was noted that Thames admitted that this was the biggest incident that they had dealt with. They committed to learning from their mistakes to better handle future incidents

6. Reference was made to the fact that some businesses had been informed that they should go through their own insurers, whilst others had been told to contact Thames insurers. Cunningham Lindsey stated that the advice that would have been given to businesses was dependent on the type of policy that they had, and individual questions on any claims and building costs for works could be raised individually following the meeting with them

7. Discussion took place as to the level of compensation businesses would get for loss of trading over the busy Xmas period, how the loss adjustors/Thames would decide on an appropriate sum to be paid, taking into account the fact that many businesses were still not open for trading and the many hours that businesses had to put in completing forms and arranging work for their premises etc., Businesses enquired how the loss adjustors would calculate the appropriate hourly rate payable that businesses should be entitled to in relation to dealing with such issues regarding the flood. Cunningham Lindsey stated that these discussions would be held with individual businesses and appropriate payments made dependent on circumstances

8. Reference was made to differing levels of compensation paid to businesses and the fact that when this was queried with WTW they had been rude and dismissive. Cunningham Lindsey stated that they would raise this with WTW, however in view of the concerns raised, businesses would now be able to deal with Cunningham Lindsey directly

9. Businesses expressed concern that despite completing information on the day of the flood, detailing contact details etc. for the insurers and Thames, no direct contact had been made by Thames with businesses since the incident. It was added that businesses had been left to deal with WTW, who had been unhelpful in many instances, and often failed to respond in a satisfactory timescale. Cunningham Lindsey reiterated that they would now deal with businesses in the future to resolve individual claims, however this was the first time that problems had arisen with their use of WTW, when they had acted on behalf of Cunningham Lindsey. Cunningham Lindsey stated that they would inform WTW that they needed to respond in a satisfactory timescale to businesses and also make payments, where agreed, within 7 working days

10. Concern was expressed that on the morning of the flood that Thames, when arriving on scene, were not really in control of the situation and that their response had been reactive, rather than proactive, and Thames needed to learn lessons from this for future flooding situations

11.Reference was made to the meeting of the Policy and Performance Scrutiny Committee taking place at the Town Hall at 6.00p.m. on 8 March and that Thames would be reporting back in relation to the circumstances around the flood and an update on the independent review of major bursts that is taking place

12.A business representative queried where the emergency operatives who attended the site had come from and why they had taken so long to arrive on site. In addition, she enquired when they had first been first contacted about the flood, the area that they had had to come from, given the delays in getting to the flood, and whether Thames had known where the valves were located that needed to be turned off. Thames responded that they did know the location of the valves, however it was a lengthy manual operation involving 4 people to turn off each valve. Thames stated that they did not have available the information as to where the emergency operatives had attended from and residents expressed concern that this information was still not available some weeks after the incident

13.Thames stated that they had been informed at 5.10 a.m. on 5 December that there was a flood in Upper Street and the first Thames operative had been on site at 6.15a.m. However a number of checks had to take place before the valves could be turned off. This had taken some hours as it took 4 men to turn off each valve and each valve had to be turned manually 73 times

14.Discussion took place in relation to the reopening event for businesses in the Angel area that was to be funded by Thames Water and the additional measures that Thames could put in place to encourage trade back into the area following the loss of trade, (especially the loss of trade over the crucial Xmas period) and the damage to reputation, due to the flood. Suggestions included – Festive lights, Entrance lights to Camden Passage, Press releases in local press, Evening Standard and the Metro, contributions towards London in Bloom exhibit, advertising on websites/flyers, information in hotels in the area on Camden Passage traders, and also advertising in the Antiques Trade Gazetteer. It was agreed that the final list of additional measures should be the subject of discussion between Jackie Ambrosini of the Angel London BID, Pauline Coakley Webb of Pierrepont Passage and Matthew Hackshaw of Thames and a consensus view agreed

15.Businesses also expressed the view that the meeting that had been held that evening should have been held earlier and that this may have helped businesses to raise issues of concern previously

16.The Chair stated that a meeting between businesses and the Policy and Performance Scrutiny Committee (PPS) would be held later in March and that details would be notified through Jackie Ambrosini at the Angel BID. A meeting would be held with the PPS Committee and Thames on March 8 at 6p.m.

NOTES OF MEETING ON FLOODING SCRUTINY WITH L.B.LEWISHAM AND L.B.LAMBETH – FRIDAY 03 FEBRUARY 2017

Present: Councillors: Richard Greening, Una O'Halloran – L.B.Islington

Alan Hall, Alan Smith, Kevin Bonnavia, Amanda De Ryk - LB.Lewisham
Andy Wilson- L.B. Lambeth

Officers from all the boroughs were present.

During discussion Members from the respective boroughs outlined details of the recent floods in their respective boroughs

The following main points were made –

- Thames took some time in all boroughs in turning the valves off to stop the trunk mains leak – consequently the emergency response being completed took longer than it should
- There appeared to have been previous leaks in many of the areas that had been subject to recent major bursts
- There appeared to be insufficient funding to provide the necessary improvements to infrastructure
- Concern was expressed that Thames often used the excuse of requiring permitting permission from Local Authorities to carry out works, however this is not necessary in an emergency situation
- In terms of getting to an emergency it was felt that Thames should have a 'blue light' system in the same way as the emergency services as a major burst could constitute a threat to life
- Thames were reluctant to share information in relation to their piping network and this needed to be addressed
- There needed to be improved communication channels by both Thames and Local Authorities when bursts took place
- Information on the recent 8 major bursts that Thames have referred to needs to be collected so that a Pan London approach can be taken
- Members felt that there the Council and Fire Brigade should be made aware by Thames of where the turn off valves were located

Members agreed the following –

- That whilst individual Councils would progress their own separate scrutiny investigations there should be a Pan London report produced through London Councils to highlight the common factors experienced by all Councils affected by major bursts and this be taken up through the LSN. Case studies could be used to support the report
- Details of the 8 recent major bursts should be requested from Thames in order to identify which boroughs should liaise on this report
- OFWAT should give evidence
- Evidence should be taken from other public utilities about flooding on their services
- Information on siting of valves on major trunk roads should be made available to Councils and the Fire Brigade
- Thames idea of smart metering to reduce leakage would take a number of years to implement and would not deal with the issue of leakage on trunks roads, only with customer leakages

- It was noted that in Lewisham Thames applied for over 1900 permits in the last year but ended up cancelling over 1000 of them which caused a lot of unnecessary work for the authority

NOTE OF A MEETING WITH FIRE BRIGADE/POLICE – FRIDAY 3 FEBRUARY 2017 -3.00P.M.

Present: Patrick Golbourne – Fire Brigade Commander Islington
Debbie Pierson, Walt Mutch – Islington Police

Councillors – Richard Greening, Clare Jeapes, Rowena Champion, Una O’Halloran

Kevin O’Leary and Dan Lawson – L.B.Islington Environment and Regeneration

During discussion the following main points were made –

- The first call to LFB had been made at 05:01:29 to the LFB control room and at 05:03:05 a crew was despatched to the verified address
- The first crew arrived on scene at 05:06:54 and Thames Water were contacted at 05:07:49 with an estimated time of arrival within 2 hours, which is their standard response time. At 05:20:23 a request was made to the Police and TfL for road closures and at 05:34:33 a request was made to the Council for 120 sandbags
- At 05:40:04 the Watch Manager reported that a burst water main of unknown size had burst and there was flooding to a depth of 0.5 metres affecting an area of 100 metres and operational support unit was requested to control the flow of water
- Information was received that the pipe is a 36” mains pipe and LFB provides pumps and a Fire Rescue unit with one boat. Properties in Charlton Terrace flooded to depth of 8 feet
- 0:51:53 message received from Thames Water to say technician on way and sending 150 sandbags and LALO requested for rehousing of tenants
- At 06:03:20 an offensive tactical mode has been adopted and all FRU’s must carry boats due to flooding and LUL informed of close proximity to tunnels
- At 06:30:35 flooding has spread to an area of 460 metres by 150 metres flooding multiple residential and commercial properties and basements in Charlton Terrace flooded to a depth of 2 metres People evacuated to Steam Passage Public House
- At 06:48:17 LFB request attendance of electrical authority as substation at Shalford Court is flooded to depth of 300 ml. Thames and Local Authority to increase supply of sandbags from 150 to 500. At 07:21:05 received notification that first sandbags en route from Slough with an eta of 1hr 30 mins and second lorry being loaded and departing 40 mins with total delivery of 700 sandbags
- At 08:26:28 reported that multiple properties now flooded. A multi- agency tactical meeting had been held at 07:45 and no casualties had been identified, evacuation to Steam Passage and that Thames operative be on site to establish water valve location at 08:45 and next tactical co-ordination group meeting scheduled for 09:00. Now been declared a major incident
- At 0:9:45:44 attendance of structural engineer requested
- At 09:54:48 flooding now approximately 600 metres by 300 metres in Devonia Road, Duncan Terrace, Colebrooke Row and Charlton Place, affecting 80 residential and commercial properties flooded to various depths up to a maximum of 3 metres. Pumping operations and systematic search of premises in progress. Approximately 50 residents evacuated to rest centre
- At 11:23:47 systematic search of all premises completed and pumping operations continuing in Devonia Road and Colebrooke Row and lightweight pumps, submersible pumps, dry suits and PFD’s in used

- At 12:32:51 progress made in pumping out properties and water levels subsiding and next tactical co-ordination group meeting scheduled for 1:30 and phase moved into tactical mode
- At 12:13:13 LFB Commander report that 36" water main had burst and outlined situation that had occurred. Water supply now isolated and electricity supply isolated to approximately 601 properties by UK power networks and 20 properties pumped out by Fire Brigade. One elderly female resident rescued and carried to safety. Approx 100 residents evacuate under care of Local Authority. Major incident had been declared by Police
- At 16:37:35 co- ordination group meeting concluded and no further Fire Brigade presence required. Duty of care left with Thames Water
- It was noted that at present LFB did not have responsibility for the statutory Flood response and that they were lobbying the Government on this matter
- In response to a question it was stated that there is a need for sandbags to be more readily available and that the Local Authority were making arrangements in this regard
- Discussion took place as to the first report of the leak, which was at 03:57 by a bus driver and at this stage it was a very small leak. Just after 04:00 a.m. this was reported to TfL to contact Thames Water but it is unclear if this happened. It was noted that it was felt that TfL could have acted more speedily in the situation and
- Reference was made to the local knowledge of Fire Brigade crews and that this is valuable when dealing with a situation like the flood at Upper Street as they were aware where the fire hydrants were
- Discussion took place as to whether Thames were able to share their plans of the locations with LFB and the Local Authority and it was stated that there were security implications with this but this is being looked at
- The view was expressed that whilst 17 calls had been received from the Fire Brigade in respect of the flood given the magnitude of the flooding there needs to be a communications message to the Public that they should report any leak immediately
- Members were informed that it would be useful if the public utility companies were involved in the tactical emergency planning meetings that took place with the Local Authority, Fire Brigade and the Police
- It was noted that the Fire Brigade had an excellent relationship with the Emergency Planning team at the Local Authority
- It was noted that discussion of provision of sandbags could be discussed at the London wide Directors of Environment meeting to see if a system of sandbag distribution on a shared basis is possible or whether other new technology systems are available

NOTES OF A MEETING TO DISCUSS UPPER STREET FLOOD WITH EMERGENCY PLANNING TEAM – 07 FEBRUARY 2017 – 3.00P.M.

Present : Councillor Richard Greening

Daniel Lawson – Emergency Planning – Environment and Regeneration Department

Councillor Richard Greening in the Chair

During discussion the following main points were made –

- It was noted that the Police first reported the leak as a result of checking the CCTV. TfL had initially reported the leak to the Police and at around 4.58a.m. the Fire Brigade were contacted. It was not known whether TfL had contacted Thames at this stage or if they had contacted them
- It was stated that 2 Local Authority Liaison Officers (LALO's) were on call and were alerted to attend on site and additional staff were on standby and there are also 30/40 volunteers who are available to assist if needed
- LALO's have to live within an hour of Islington and it took them 40 minutes to get on site. The Borough Emergency Control centre (BEC) opened at 7.00a.m. at 222 Upper Street
- There was initially a rest centre for residents set up at the Steam Passage and this was moved to the Business Design Centre later in the morning at 8.30a.m.
- LALO's were able to obtain medication for residents who needed this and could not get back to their properties because of flooding
- There had been problems with some media representatives who were present pretending to be residents and this is an area that would be looked at in future to ensure measures were in place to deal with such situations
- The BEC received regular updates on what was happening on site and sent pumps to the site and staff to assist the Police with traffic management
- Once the situation was in actual recovery stage the BEC organised street environmental services to go on site and clean and make safe footpaths and roads and these were safe to open within 36 hours of the flooding. A member of staff from Building Control was also sent down in order to check that buildings were structurally sound
- In terms of going forward and lessons learnt it was felt that the Council were looking into the stocking of sandbags, and that a request would be made for Thames to provide information on where main trunk mains were situated

It was stated that once the internal incident report had been completed by the Emergency Planning it would be circulated to Members

**NOTE OF PUBLIC MEETING WITH THAMES WATER AND RESIDENTS – FLOODING
SCRUTINY REVIEW- BUSINESS DESIGN CENTRE – MONDAY 1 FEBRUARY 2017 – 6.30P.M.**

PRESENT: Councillors Richard Greening, Una O’Halloran, Alice Perry and Caroline Russell

Thames Water : Bob Collingham, Chris Davis, Matthew Hackshaw, Cecilia Larkin, Simon Hughes, James Kingston

Residents of flooded area and Christine Lovett and Jackie Ambrosini – Business Improvement District

Councillor Richard Greening in the Chair

The Chair outlined the proposed format of the meeting and it was noted that Thames Water loss adjusters and insurers were available following the meeting if residents wished to raise individual concerns with them.

It was noted that a separate meeting with businesses had been arranged for 13 February at the Business Design Centre.

Thames Water made a presentation to the Committee details of the flooding incident and Thames response It was noted that Thames had arrived on site at 7.45a.m. and that the valves that needed to be shut off had finally been shut off at 9.15a.m. 4 men were needed to shut off each of the 4 valves as these were complex to shut down. It was noted that Thames took 4 hours 20 mins from when the leak was first reported to closing down the mains.

It was noted that the burst pipe was laid in approximately 1850-1875 and that an 800 metre section of the pipe that had burst is being relined. However pipe replacement did come with the implications of disruption for residents and businesses and road closures and planning will need to take place with TfL, the Council and residents and businesses.

An independent review into all the recent major bursts is taking place led by Paul Cutill OBE who is an industry expert.

Thames apologised to residents and businesses for the flood and that they would need to submit a case to OFWAT for increased funding for pipe replacement and it was hoped that the independent review would support this.

It was noted that the burst pipe in Upper Street is currently not back in operation until pipe relining is completed. Thames reported that to reline $\frac{3}{4}$ km of piping will take 4 months at an estimated cost of £5m, High tech sensors had been installed.

Thames stated that they did not want to see residents or businesses to be massively out of pocket due to the flooding and already had made a goodwill payment of £1000 and a meeting was taking place with the Chief Executive to look at other measures and he would report back on the outcome. In addition residents and businesses will not have to pay water bills until the situation is resolved.

In response to a question it was stated that to replace the piping concerned in the last 8 major bursts would cost in the region of £55m and this was far in excess of any compensation/insurance

payments made as a result and a case has to be made to the economic regulator to increase investment in the 5 year plan for pipe replacement.

It was stated that Thames had made a £300m profit in the last financial year and had reinvested 80% of its profits and had not paid a dividend to shareholders. Pipe replacement was based on risk and whilst leak detection measures are deployed these do not detect all risks, such as in Upper Street, where one wall of the pipe had got thinner and had led to the eventual burst. In some locations the detection method used is difficult to use and can take time. Other new technology techniques were being looked at.

In response to a question it was stated that the water had been re-routed to the Essex Road mains, however residents expressed concern that this section of pipe had had a history of previous bursts. Thames undertook to survey both the Essex Road and Upper Street main pipes to assess risks of bursts within the next 2 weeks and residents would be updated with the results.

Thames stated that extensive damage has been caused to seven neighbouring streets as a result of the flood. Around 54 residential and 44 commercial properties had been affected. Eighteen residents had been accommodated on the first night and 10 tenants are still in temporary accommodation. Staff on site had included technicians and out of hours co-ordinator, senior local management team, loss adjusters, customer liaison, a clean up team and repair team on 24/7 rota.

A resident stated that it had taken a long time to turn the valves off to stop the leak and enquired whether this timescale could be improved. Thames stated that operatives had to turn the valves off manually and that if they were not turned off properly this could cause a hydraulic shock wave and cause further bursts along the pipe and each valve closing took approximately an hour. The system would be looked at but there is no 'magic wand' to reduce the time taken. Any automatic solution would be a long process and would need approval from the economic regulator and involve severe disruption to install.

Discussion took place as to the emotional stress that has been caused to residents and businesses and that discussions had taken place at Thames with a view to providing such services if future events occurred.

It was stated that the leak had first been reported to Thames at 5.07a.m. although CCTV had picked up the first leak at 4.00a.m. Thames stated that as part of the review of the incident they would be looking at how co-operation with other agencies could be improved.

Residents expressed the view that it was good fortune that no residents were killed in the flood and that where there are basement properties there should be a special response in place to deal with these situations. Thames responded that they were looking at this however local knowledge of properties would be needed for this. The view was expressed that the information could be found on flood maps and Thames stated that they would be doing this as part of their modelling process. In addition residents were informed that the Council's consultation on the flood plan was taking place and residents were welcome to contribute to this.

Reference was made to the fact that there had been 3 previous floods in the Upper Street area in recent years and the future risks needed to be assessed.

In response to a question it was stated that the Emergency Services would always respond faster to events like this than Thames and they liaised with them to get appropriate information to enable them to respond. Thames do have sandbags stocks, however they arrived too late to be effective in this instance.

Thames stated that they had visited properties in Devonia Road on the day of the flood.

Thames stated that in regard to whether they had a compensation policy that Thames had a range of policies and one that covered flooding situations, however this did not always provided sufficient recompense and he would be discussing the flood in Upper Street with Thames Chief Executive given the individual circumstances.

The Chair thanked everyone for attending.

NOTES OF A MEETING WITH RESIDENTS AND BUSINESSES – WEDNESDAY 29 MARCH 2017 – 7.30 P.M. – BUSINESS DESIGN CENTRE

Present: Councillors: Richard Greening and Una O'Halloran
Thames Water – Simon Hughes, Nigel Dyer, James Kingston, Mark Matthews, Neil Hancock, Matthew Hackshaw, Tina Enright, Andrew Missen, Mark French, Cecilia Larkin
Christine Lovett – Angel BID
Residents and Businesses affected by the flood

During discussion the following main points were made –

- Discussion took place as to insurers raising premiums for residents because of outstanding claims, as a result of the flood. Thames Water undertook to ensure they would repay any rise in premiums arising as a result of the Upper Street flood to residents
- Favourable consideration to be given by Thames Water to payment of £1k compensation to the resident of 7b Devonia Road who had only been offered £30 to date
- Noted that work to reline Essex Road/Upper Street main trunk mains to start in April. The initial work from St.Peters Street to the war memorial will take about 6 weeks and works will take 18 weeks in 3 separate 6 week sections. Discussion took place as to the road closures proposed and diversions of buses and that this is currently under consideration with TfL and the Council. It was stated that TfL were pressing for a 24 hour closure, but concern was expressed that any agreed scheme should take account of businesses footfall and commuters needing access to Upper Street and not involve full closure of Upper Street unless absolutely necessary
- Welcomed the commitment from Thames Water senior managers to meet with representatives and businesses on a regular basis – possibly fortnightly – to ensure any outstanding problems can be raised and progressed, given the difficulties experienced with Willis Towers Watson – residents and businesses to nominate representatives to attend such meetings. Thames Water stated that they wished to process claims as quickly as possible and that they appreciated residents and businesses concern at the apparent lack of progress with their insurers
- Noted that work to the gardens will take place in Devonia Road very shortly and permissions had now been given in relation to the garage access
- Thames Water to provide a redacted list of claims settled and those that are still outstanding and any interim payments made, plus information that the insurers still need in order to settle claims, in order that they can be progressed and completed within the specified period
- Welcomed Thames Water commitment that no resident will pay water bills for one year and that any payments already made will be reimbursed
- Bob Collington to be requested to attend next meeting arranged by Thames Water for residents and businesses

Flood Timeline – Appendix D

Source	Time	Exact	Event	Comment
LBI Emergency	04:02	Exact	Islington Council CCTV receive report of leak in Upper Street from Metropolitan Police Service (MPS)	
LBI Emergency	04:04	Exact	CCTV commence search for the leak via Upper Street cameras	
LBI Emergency	04:06	Exact	CCTV finds the leak and transfer live images to MPS control (Bow and Islington).	At this stage the leak appears significant and it creates a puddle several inches deep on the southbound carriageway of Upper St. Vehicles continue driving through the water leak and splash water onto the northbound carriageway. The water level appears stable until 4:57am when a much larger burst in the trunk main occurs.
LBI Emergency	04:57	Exact	CCTV images show the significant leak suddenly become a bad burst with water gushing upwards from the ground at 4:57am as the 36inch main burst.	Water can be seen erupting from below the pavement at the entrance to Camden Passage between 352 Upper St (John Laurie Antiques) and 353 Upper St (Knight Frank Estate Agents).
Devonia Rd residents	04:57	Exact	The topography and road layout in the area of the burst water main caused the escaping water to flow downhill, channelled down Charlton Place and across Colebrooke Row and then down a private road, where it built up very rapidly in an area confined by closed garages and garden walls.	Residents give an approximate time for this, which CCTV confirms to be 4:57am when the leak volume increases dramatically and for the first time water reaches the junction between Charlton Place and Upper St
TW Bob C	04:58	Exact	TW Water Control report flow increased by 20% from normal approx. 100 million litres per day (MLD) up to peak flow of 122.58 MLD	Implied that leak was 22.5m litres per day or 260 litres per second
LFB Incident Summary	05:01	Exact	London Fire Brigade (LFB) via its London Operations Centre (LOC) at Merton received the first 999 call to a burst water main outside 42-44 Upper street.	42-44 Upper Street is on the other side of Upper St, directly opposite the entrance to Camden Passage where the burst occurs.
LFB Incident Log	05:03	Exact	LFB dispatched the nearest appliance which was A301 from Islington Fire Station	
LFB Incident Log	05:06	Exact	LFB at the scene with appliance A301	
LBI Emergency	05:07	Exact	LFB requested the urgent attendance of Thames Water. Thames confirmed attendance would be within 2 hours.	
TW Bob C	05:07	Exact	Fire brigade reported a bad burst outside 44 Upper Street - 30822133 raised.	
LBI Emergency	05:20	Exact	LFB requested Police attendance for traffic and road closures (CAD 897).	
TW Bob C	05:30	Exact	TW Dispatch starts calling available Network Service Technicians (NSTs) on Standby jobs were allocated once contact was made.	
TW Bob C	05:30	Exact	Water Operations Control Duty Manager (OCDM) aware	
LFB Incident Summary	05:30	Approx	Around this time the LOC began to receive multiple/ additional calls to flooding in the area. Thirteen other calls were received and the LOC mobilised F241 Shoreditch fire station to a flooding at 37 Colebrook Row, Islington N1 8AF	
LBI Emergency	05:30	Exact	Transport for London informed by LFB. (Ref 98)	
LBI Emergency	05:34	Exact	LFB request Islington Council to provide 120 bags of sand. Request passed to Highways who can provide a small amount as LBI do not hold sand bags. LFB request Thames Water to provide sandbags.	

LFB Incident Log	05:40	Exact	From Watch Manager Thorpe o/s 356 Upper street Islington. One burst water main of unknown size flooding to a depth of 0.5 meters effecting an area of 100 metres of upper street, flooding approximately 15 commercial, 10 residential properties. Request urgent attendance of water authority to isolate supply. Request operational support unit to control flow of water. Upper street closed from Camden passage to Essex road Tactical mode is Oscar (Offensive)	
LFB Incident Log	05:41	Exact	Islington council will call back with eta if and when for sand	
LBI Emergency	05:45	Exact	LBI Emergency Planning informed of burst water main. LBI Crisis Response Plan activated.	
LBI Emergency	05:48	Exact	4 fire appliances, 3 Fire Rescue Units (1 with Boat).	
LBI Emergency	05:49	Exact	Thames water confirms this is a 36 inch pipe which has failed.	
LBI Emergency	05:50	Exact	LFB confirm properties in Charlton place now flooded to a depth of 8 feet.	
LBI Emergency	05:51	Exact	Thames water confirms to LFB they are sending a technician ASAP and a truck with 150 bags of sand.	
LBI Emergency	05:54	Exact	LFB request LALO for rehousing of residents.	
Devonia Rd residents	06:00	Approx	By 6am a huge pool of water, estimated at between 7-8 feet in height, burst through the garages and garden wall at the rear of No 1 Devonia Road. Like a tsunami, it poured into the garden of No 1 and rapidly built up against the rear of the house.	
LFB Incident Log	06:00	Exact	Local authority calling back for ETA for Louise Brown LALO	
LFB Incident Log	06:03	Exact	Watch manager Coltress is now Incident Commander tactical mode Oscar, (offensive)	
LFB Incident Log	06:03	Exact	Make FRUs 3 all must carry boats tactical mode Oscar, (offensive)	
TW Bob C	06:09	Exact	Between 06:09 & 06:12 Jobs raised for 4 x NSTs by TW Scheduling	
Twitter	06:10	Exact	First tweet sent by @thameswater: #N1 We are aware of a burst water main on Upper Street our team are on their way	
TW Bob C	06:15	Exact	1st TW NST on route	where did the NSTs travel from?
LBI Emergency	06:16	Exact	London Underground informed by LFB due to proximity of tunnels. (ref 11)	
TW Bob C	06:19	Exact	2nd TW NST on route	where did the NSTs travel from?
Devonia Rd residents	06:30	Approx	At about 6.30am, the police and fire services warned residents to evacuate with immediate effect. This was just minutes before the conservatory at No 1 exploded.	
LBI Emergency	06:30	Exact	LFB confirm an area of 460 meters by 150 meters affected with multiple residential and commercial properties involved. Basements in Charlton place flooded to a depth of over 2 meters. 50 People evacuated by Brigade and Police to the Steam Passage tavern as a refuge.	
LFB Incident Log	06:30	Exact	From Watch manager Coltress at 341 Upper street Islington. An area of 460 meters by 150 meters from City road to Islington green affected. Multiple residential and commercial properties involved. Basements in Charlton place flooded to a depth of 2 meters. 50 People evacuated by Brigade and Police to the Steam Passage tavern as a refuge. This will be a protracted incident. Water rescue level 2 implemented. Tactical mode is Oscar (Offensive)	
Devonia Rd residents	06:33	Exact	At approximately 6.30am the water had sufficient force to cause the conservatory at 1 Devonia Road (whose windows are strengthened by reinforced security glass) to explode. The power with which the water entered the house ripped the radiators off the wall and flung them to the far end of the room. The water level rose from about one inch to over seven feet high; within seconds it had almost reached the ceiling. At about the same time the force of water knocked down the lateral garden wall between No 1 and its immediate neighbour (No 3). In turn it then knocked down - like a set of dominoes - the lateral	Time assumed to be 06:33 in light of above comment timed at 6:30 just "minutes before conservatory exploded"

			walls between Numbers 3, 5, 7, 9 and 11.	
LFB Incident Log	06:34	Exact	Station Manager Eager is now incident commander	
LFB Incident Log	06:35	Exact	From Station Manager Eager make pumps 6	
TW Bob C	06:43	Exact	Felipe Estacio Network Optimisation Manager onsite	
LBI Emergency	06:48	Exact	LFB request attendance of electrical authority as substation 44736 at Shalford Court is flooded to a depth of 300ml.	
TW Bob C	06:49	Exact	TW Scheduling report 3rd NST on route	where did the NSTs travel from?
TW Bob C	06:50	Exact	Loss adjusters called by TW Scheduling	
LBI Emergency	07:00	Exact	Islington Council Borough Emergency Control Centre (BECC) opened.	
LBI Emergency	07:05	Exact	LFB request Thames Water increase sand bags from 150 to 500, request eta.	
LFB Incident Log	07:16	Exact	Group Manager Sutcliffe is now Incident Commander	
LFB Incident Log	07:17	Exact	From Group Manager Sutcliffe Make operational support units one	
LBI Emergency	07:21	Exact	First Thames Water lorry with sandbags en-route from slough (eta 1 hour 30 minutes). Second lorry is being loaded will depart in 40 minutes. Delivery will be 700 sand bags in total.	
TW Bob C	07:23	Exact	Felipe Estacio attended Gold Command	
LBI Emergency	07:23	Exact	LFB request attendance of hazardous materials and environmental protection officer.	
TW Bob C	07:27	Exact	First no water call reported from a customer at 49 Gerrard Road, Update raised.	
TW Bob C	07:29	Exact	TW Scheduling report 4th NST on route	where did the NSTs travel from?
LBI Emergency	07:30	Exact	Emergency Planning inform on-call LBI Media officer.	
LBI Emergency	07:40	Exact	Emergency Planning inform on-call director and public protection director.	
LFB Incident Log	07:45	Exact	Multi Agency Tactical coordination group meeting in progress.	
TW Bob C	08:02	Exact	First NST on site	
TW Bob C	08:04	Exact	First tweet from a customer: You were told about the mains burst in N1 4 hours ago and still the water is flooding out. ETA for water turn off?	
TW Bob C	08:11	Exact	Field Operations Specialist on site (James St Jean)	
LBI Emergency	08:11	Exact	Major Incident declared by Met Police	
LBI Emergency	08:15	Exact	Emergency Planning activate British Red Cross for rest centre.	
LFB Incident Log	08:26	Exact	From Group Manager Sutcliffe 36 inch main burst in roadway at 352 Upper Street. Multiple properties flooded in surrounding area. No casualties identified. Steam Passage tavern remains in use as reception centre. Water Authority representative to establish water valve isolation at 08:45hrs. Next tactical coordination group meeting scheduled for 09:00hrs.	
TW Bob C	08:30	Exact	1st Valve Shut	
Twitter	08:37	Exact	#N1 Teams are onsite and working to stop flooding to properties	
TW Bob C	08:45	Exact	St Johns Road Valve Shut	
LBI Emergency	08:45	Exact	Thames Water isolates the water supply to failed pipe.	
TW Bob C	08:46	Exact	Pump was shut down What does this mean as final valve not shut until 09:15?	
LBI Emergency	08:49	Exact	LFB request the attendance of TFL and British Transport Police. (ref 97)	
LFB Incident Log	09:00	Exact	Borough Commander Goulbome is now Incident Commander	
TW Bob C	09:15	Exact	Main shut. Final valve (Claremont valve) shut at 09:15	
LFB Incident Summary	09:30	Approx	The water was isolated to the burst main at approximately 09:30hrs.	
LFB Incident Log	09:45	Exact	From Group Manager Goulbome request attendance of dangerous structure engineer	
LFB	09:50	Exact	From Group Manager Goulbome request attendance of	

Incident Log			Press officer	
LBI Emergency	09:54	Exact	LFB update that 36 inch burst water main now affecting an area of approximately 600 meters by 300 meters in Devonia road, Duncan Terrace, Colebrook row and Charlton Place. Affecting approximately 80 residential and commercial properties, flooded to various depths up to a maximum of 3 meters. Pumping operations and systematic search of all premises in progress. Approximately 50 residents evacuated to rest centre in care of local authority.	
Twitter	10:06	Exact	#N1 Burst main has been stopped, repair teams and loss adjustors in the area to provide support to those affected by flooding	
LBI Emergency	10:30	Exact	Rest Centre opened at Business Design Centre.	
LFB Incident Log	10:52	Exact	From Group Manager Goulbome Tactical coordination group meeting concluded, next meeting scheduled for 11:30	
LBI Emergency	11:10	Exact	Emergency Planning request building control to attend site to assess wall damage.	
LBI Emergency	11:15	Exact	Emergency Planning place street cleaning crews on standby to begin cleaning once water subside.	
LBI Emergency	11:23	Exact	LFB confirm the systematic search of premises in Devonia road, Charlton place, Colebrooke road and Duncan Terrace is now complete. Pumping operations continue in Devonia road and Colebrooke road using Lightweight Pumps, Submersible pumps.	
LBI Emergency	12:32	Exact	LFB confirms steady progress being made pumping out properties in Devonia road and Duncan terrace. Water levels are beginning to subside.	
LBI Emergency	12:45	Exact	Full survey will be carried out to assess northbound carriageway integrity.	
LFB Incident Log	13:57	Exact	From Group Manager Goulbome Tactical coordination group meeting concluded, next meeting scheduled for 16:00	
LFB Incident Log	14:13	Exact	From Group Manager Goulbome outside 352 Upper street. One 36 inch water burst on roadway flooding an area of 600 metres by 300 metres. Approximately 80 Domestic and commercial properties and one electrical substation flooded up to a maximum depth of 3 metres. Water supply to burst main isolated by Thames water. Electricity supply isolated to approximately 601 properties by UK Power networks, Light Weight Portable pumps, Submersible pumps, Large spill kit, dry suits, PFDs, Approximately 20 properties pumped out by Brigade, One elderly female rescued and carried to safety by Brigade from number 16 Colebrook road, One elderly female rescued and carried to safety by Brigade from number 7 Devonia road, Approximately 100 residents evacuated to business design centre under care of Islington local authority, level 2 water rescue, salvage operations, Major incident declared by Metropolitan Police service, Same as all calls, Tactical mode Oscar (Offensive)	
Twitter	14:23	Exact	#N1 Update: Our team have started work to repair the 36" pipe on Upper St. One side is now open to traffic.	
Twitter	14:31	Exact	Here's what Upper St and the surrounding areas looked like earlier today https://twitter.com/thameswater/status/805781630321356800/video/1	
LFB Incident Log	15:37	Exact	Station Manager Impey is now Incident Commander Tactical mode Oscar (Offensive)	
LBI Emergency	16:37	Exact	LFB handover incident site to Thames Water.	
LFB Incident Log	16:37	Exact	From Station Manager Impey Tactical coordination group meeting concluded. No further Brigade attendance required. Duty of care left with Thames Water.	
LBI Emergency	18:20	Exact	Islington Council handover management of Rest Centre to Thames Water.	
LBI Emergency	19:00	Exact	Islington Council Borough Emergency Control Centre (BECC) closed.	
LFB	20:50	Exact	Incident closed	

Copy of Thames Water Bursts 2016 – Appendix E

No	TW src	Date	Location	Event	Impact	Borough
1	both	10-Oct-16	Crayford Road, Dartford	Burst was from 12" and 18" diameter pipes laid in the 1880s	Substantial flooding to homes and businesses in Crayford, and water supplies to some customers were interrupted	Bexley
2	both	15-Oct-16	Leigham Vale, SW2	Burst was from a 21" diameter pipe laid in the 1890s	1st of two floods in 2 months	Lambeth
	Mark Mathews	25-Oct-16	Camberwell New Road	Burst on 30" main Laid in the 1870s	Caused significant local flooding but flooding was almost entirely external (foyer of one property was flooded but not significantly).	Southwark
3	both	26-Nov-16	Lee High Road, Lewisham	Burst was from a 24" diameter pipe laid in the 1860s	52 properties were flooded and customers in the surrounding area were without water or experienced low pressure for a short period – the full number affected is still be verified. A coach became stuck in a sinkhole – all passengers were evacuated safely	Lewisham
4	both	05-Dec-16	Upper Street, Angel, Islington	Burst was from a 36" diameter pipe laid in 1850s	Significant flooding in the area, Around 54 residential and 44 commercial properties affected.	Islington
5	both	10-Dec-16	Lee Road, Blackheath	This was caused by a trunk main laid in the 1860s.	Burst main flooded 10 businesses and 8 homes in Meadowcourt Road.	Lewisham

6	both	11-Dec-16	Northwold Road, Stoke Newington	Burst was from a 30" diameter pipe laid in the 1860s	Estimated 150 properties had to be evacuated, 20 homes and businesses were flooded	Hackney
7	both	16-Dec-16	Leigham Vale, SW2	Burst was from a 21" diameter pipe laid in the 1890s	Around 25 properties affected by flooding – these were affected twice in two months	Lambeth