

From: **Simon Jones, Director of Highways, Transportation & Waste**

To: **Cabinet**

Date: **23 March 2020**

Subject: **Highway Flooding & Storm Response**

Summary:

This report summaries Kent County Council's operational response to the recent storms.

2019/20 has seen numerous severe weather events alongside prolonged and persistent rainfall. This has had a significant impact upon the residents and communities of Kent with the highway service responding to an exceptional level of enquiries and requests for emergency support.

Recommendations:

Cabinet is asked to note:

- a. the impact of the storms, Kent County Council's immediate operational response and to endorse the proposals to:
 - i. Consider including an annual £500k contribution to the Adverse Weather Reserve.
 - ii. Continue to pursue central government for additional funding to cover our operational response efforts.
- b. Agree that a further report outlining the wide range of flood mitigation plans and proposals be brought to a future meeting of this Cabinet.

1. Background

1.1 During 2019 and into 2020 numerous exceptional weather events including severe storms have caused significant and continued strain upon KCC's Highways operational response, critical highway infrastructure and emergency financial reserves.

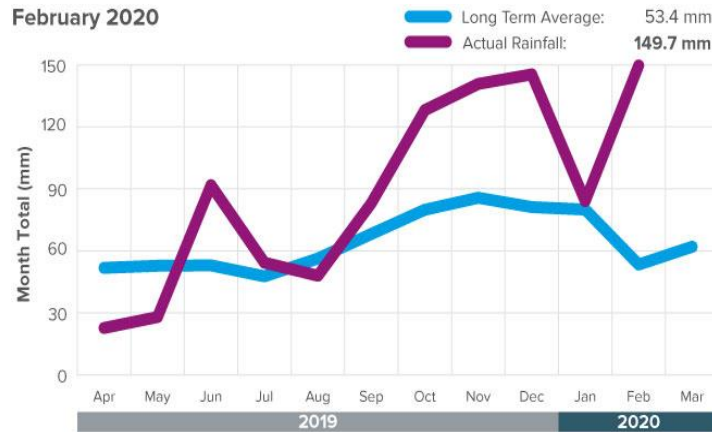
1.2 This winter has been recorded as the fifth wettest, with February 2020 being the wettest February on record for UK, England, Wales and Northern Ireland.

1.3 Most notably the following storms and exceptional rainfall events have been experienced during 2019/20:

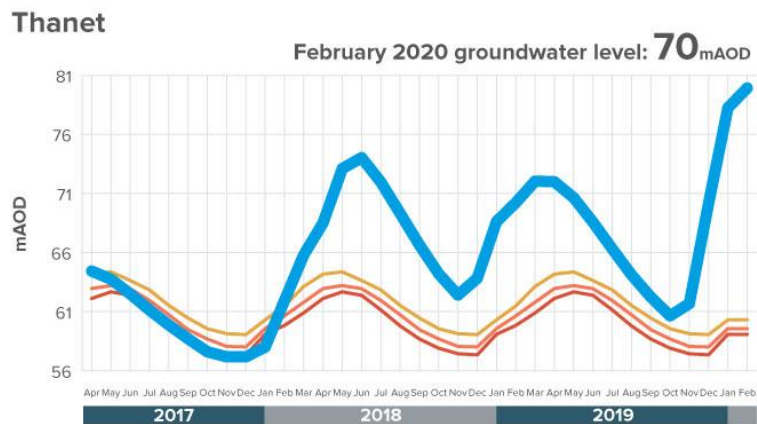
10 - 14 June 2019	- Exceptional Rainfall
26 - 27 June 2019	- Exceptional rainfall
08 - 09 December 2020	- Storm Atiyah

- 20 - 21 December 2020 - Exceptional Rainfall
- 13 - 14 January 2020 - Storm Brendan
- 08 - 09 February 2020 - Storm Ciara
- 14 - 16 February 2020 - Storm Dennis
- 28 Feb – 01 March 2020 - Storm Jorge

1.4 The impact of these events can be evidenced by the Southern Water rainfall data for 2019/20, dated February 2020. This highlights that during February Kent has experienced almost three times the average volumes.



- 1.5 Whilst these volumes demonstrate the additional strain placed upon both the drainage and highway infrastructure it has been the manner and speed in which these exceptional weather events have occurred that has caused most impact to the residents and communities of Kent.
- 1.6 The ferocity of the prolonged rainfall has led to rising river levels, excessive ground saturation, surcharging sewerage and domestic drainage systems and widespread highway flooding.
- 1.7 We have seen significant surface water run-off onto the highway, increasing the risk to the travelling public and placing unsustainable demand upon gullies, pipework and the connected subterranean infrastructure such as soakaways and Water Authority surface and foul water mains.
- 1.8 This run off has resulted in the road surface becoming fully saturated increasing the formation of new potholes whilst also accelerating an increase in the size and depth of existing defects.
- 1.9 Whilst most of the recent severe rainfall fell in West Kent, Southern Water data shows that groundwater even in Thanet remains at an exceptionally high level. Such levels of groundwater render soakaways and some other natural water/flood management methods ineffective.



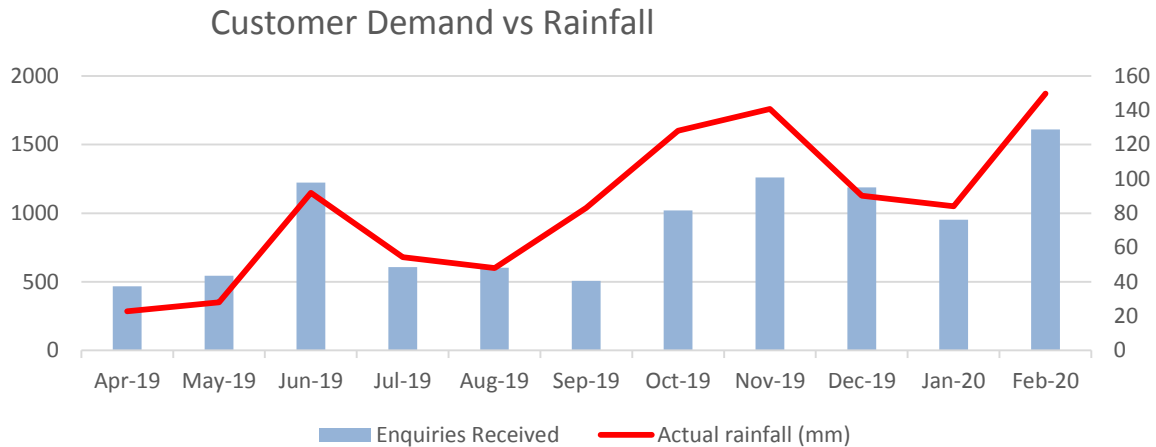
2. Community Impact

- 2.1 Mid and West Kent have been hardest hit as a result of recent storms.
- 2.2 Culverstone Valley, Vigo, Snodland, West Kingsdown, Swanley, A20 Wrotham Heath, Golden Green, Tonbridge, Five Oak Green, Lamberhurst and Yalding were amongst those most impacted.
- 2.3 Culverstone Valley and Vigo saw excessive surface water run-off from private land. Flooding in these areas affected homes and damaged both local and private roads.
- 2.4 During June the Vigo area experienced a rainfall with the probability of a once in 217-year event.
- 2.5 Similarly, West Kingsdown experienced significant surface water with ground saturation overwhelming and reducing the effectiveness of local drainage and soakaways.
- 2.6 Flooding was experienced at topographical low points within the village affecting properties and the local road network.
- 2.7 All these locations remained the subject of significant national and local press interest.

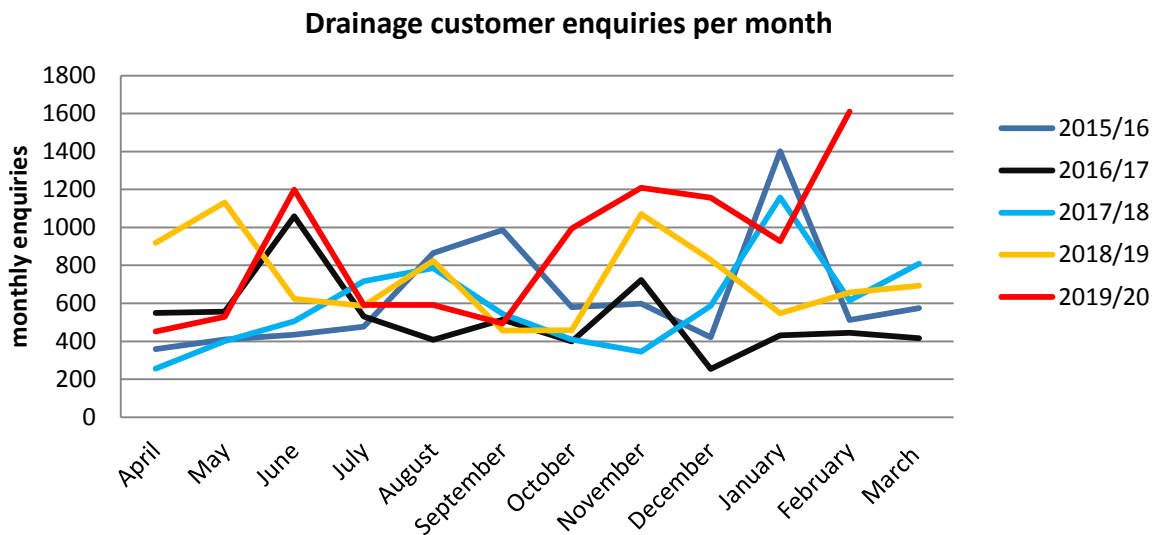
3. Operational Response

- 3.1 We aim to respond to high risk reports within 2 hours and we also provide an out of hours emergency service team to:
 - Clear highway flooding
 - Provide flood boards to warn the travelling public of flooding
 - Implement traffic management, including road closures
 - Provide disposable, absorbent bags, sandbags and the like
 - Assist with fallen trees, scaffolding and fences affecting the highway

- Emergency repairs to roads
 - Assist with on road incidents
 - Support the emergency services when necessary
- 3.2 During the recent storms these teams has been fully deployed with a doubling of routine staff during significant events.
- 3.3 Normally, we have with a weekend roster of **12 people covering out of hours but during recent storms Ciara, Brendan, Dennis and Jorge** we increased this team by a further **20 staff who were all fully deployed**.
- 3.4 We recorded well over **800 additional staff hours over the weekends of the storms**, with key suppliers also fully deployed.
- 3.5 Routinely we have between 3 and 5 tankers on standby to remove flood water, but this has needed to be more than doubled during recent periods of severe weather.
- 3.6 Whilst focus during prolonged rainfall and storms has been to manage flooding, we have also addressed issues of **hundreds of** fallen trees, **numerous** road closures and have **committed over £2.5m further works to the pothole blitz contractors to carry out the additional road repairs required due to the storm damage**.
- 3.7 The attached Appendices provide operational photographs of some of the events arising from the recent exceptional weather.
- 3.8 During normal working hours, the drainage team currently has 20 staff covering the whole of the county.
- 3.9 Since April 2019 they have:
- responded to **8,727** emergency enquiries
 - received over **10,830** customer enquiries relating to drainage and flooding
 - responded to over **1,192** reports of flooding
 - inspected over **74,000** drains on our major network
 - attended over **320** critical locations to undertake enhanced cleansing



3.10 They have seen a **41%** increase in demand since 2016/2017:



4. Legacy

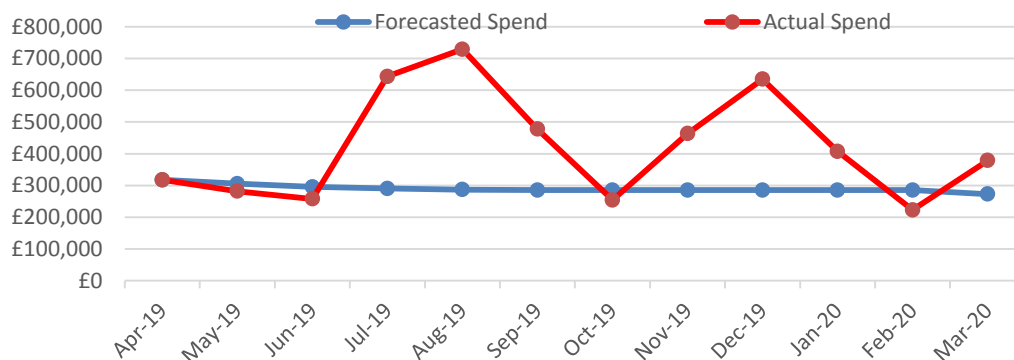
- 4.1 When the majority of our systems were constructed the capacity was likely to have been based on the volume of run-off from a storm with a 20% probability of occurring in any one year (a '1 in 5 year' event), this was a standard approach at the time.
- 4.2 Highway drainage is also only designed to manage the runoff from the road directly, it is not designed to provide a wider land drainage function.
- 4.3 We are experiencing intense rainfall events on a much more frequent basis, with some recent rainstorms having a return period of a '1 in 100-year' which exceeds our highway drainage capacities and they quickly become overwhelmed.
- 4.4 These events also exceed the capacity of the land and local drainage which leads to runoff which often flows onto the road, further increasing the burden upon highway drainage.

- 4.5 In our role as Lead Local Flood Authority under Section 19 of the Flood and Water Management Act 2010 we are currently compiling reports where significant property flooding has occurred along with understanding the way flooding events progressed.
- 4.6 We are currently developing our future thinking on how to evolve and apply both our operational response and forward investment.
- 4.7 Adapting drainage design to fully accommodate such events would not be economically viable but by undertaking a sustained and long term (10 year plus) drainage asset capital investment programme it will be possible to implement a series of integrated proactive measures to mitigate, manage and migrate the risk away from local communities and to locations better able to handle the impact.
- 4.8 This is in line with our Well Managed Highways approach and will ensure that we continue to maintain our Band 3 rating with Department for Transport.
- 4.9 There is also an obvious need to work closely with the various water and utility organisations to develop co-operative programmes to align our operational needs to their ongoing asset modernisation and water management obligations.
- 4.10 Similarly, and in view of the significant number of surface water run off events, we are proposing to develop a map of the critical locations.
- 4.11 From this we can seek to establish measures with local landowners to reduce this ongoing nuisance and hazard to the highway.
- 4.12 Where appropriate we will rely upon our powers under the Highways Act to implement necessary mitigating measures.
- 4.13 The current policy for drainage cleansing stipulates that most drains are only cleansed in response to customer enquiries. This usually means that most drains are not attended until after they have been overwhelmed.
- 4.14 It is proposed that an 18-month trial be developed which considers alternative cleansing regimes and mitigations.
- 4.15 This, in the first instance, could be targeted at established critical highway and residential hotspots.
- 4.16 Whilst it is expected that this would involve an increase in proactive cyclical/routine cleansing of gullies and soakaways this trial could also consider methods, alongside landowners, to mitigate and manage surface water run-off.

- 4.17 This would provide valuable data on how drainage performance varies under differing regimes and would allow identification of faults earlier which would allow capital improvements to be undertaken sooner.
- 4.18 During this trial we could publish the records of gully maintenance and issues, keeping residents informed of our activities and providing reassurance about the readiness of the drainage system. This would be similar to our winter service and gritter campaigns.
- 4.19 A report on the trial will be prepared for KCC's Environment & Transport Cabinet Committee.

5. Financial Implications

- 5.1 The estimated cost of responding to the recent storm events is in the order of **over £100k per event**.
- 5.2 The allocated budget for highway drainage cleansing is £2.9m. This year the drainage cleansing outturn cost will be in excess of £5m.



- 5.3 In April 2019 a one-off £500k adverse weather reserve was established from 2018/19 operational underspends.
- 5.4 Even after fully drawing down this one-off reserve and absorbing other GET underspends an in-year financial pressure remains within GET.
- 5.5 It will be necessary to call upon the emergency condition reserve to balance the GET 2019/20 budget.
- 5.6 It is **recommended** that an annual allocation of £500k is made to the adverse weather reserve to provide ongoing operational resilience.
- 5.7 Due to the exceptional impact upon both drainage and local roads we have notified the Department for Communities and Local Government of our intention to claim against the Bellwin Scheme of emergency financial assistance to local authorities.
- 5.8 If successful, this could provide funding above a threshold of circa £1.8m.

5.9 We have also advised the Department of Transport of the operational impact similarly advising them of the cost of our response. We will continue to seek government funding to recover our costs in dealing with and mitigating these types of event.

6. Recommendations:

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Contact Details

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Appendix - Culverstone Valley





Appendix –London Road & Ash Tree Close, West Kingsdown

Origin of water coming onto the Highway and flooding A20 & Ash Tree Close



Appendix –London Road & Ash Tree Close, West Kingsdown



Appendix –London Road & Ash Tree Close, West Kingsdown



Appendix – London Road & Ash Tree Close, West Kingsdown



Appendix – London Road & Ash Tree Close, West Kingsdown



Appendix – Yalding





Appendix – Storm Dennis Impact



