This report published on 15 June 2020 replaces the report of the same name published with the agenda on 12 June 2020

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

To: **Cabinet**

Date: **22 June 2020**

Subject: **Highway Flooding & Storm Response**

Summary:
This report summarises Kent County Council's operational response to the exceptional rainfall and storms experienced between December 2019 and February 2020.

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:

a. Note the impact of the storms and Kent County Council's immediate operational response.

b. Agree that a further report outlining the wide range of options for 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

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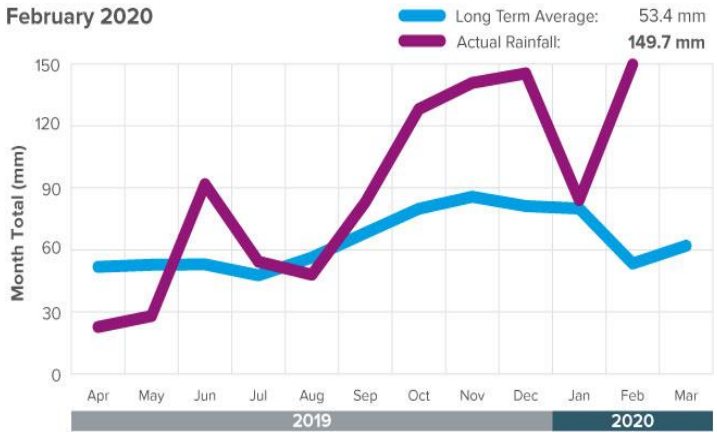
28 Feb – 01 March 2020 - Storm Jorge

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 experienced almost three times the long-term average volume for the month.



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 severe rainfall fell in West Kent, Southern Water data shows that groundwater even in Thanet remained at an exceptionally high level. Such levels of groundwater render soakaways and some other natural water/flood management methods ineffective.

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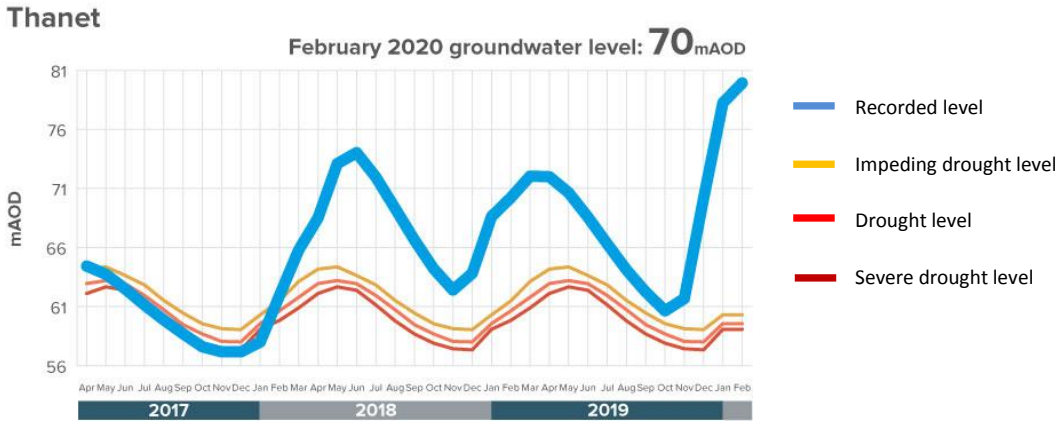

2. Community Impact

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 were fully deployed with a doubling of routine staff during significant events.

3.3 Normally, we have 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 was 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 has 20 staff covering the whole of the county.

3.9 During the period April 2019 to February 2020 they:

- 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

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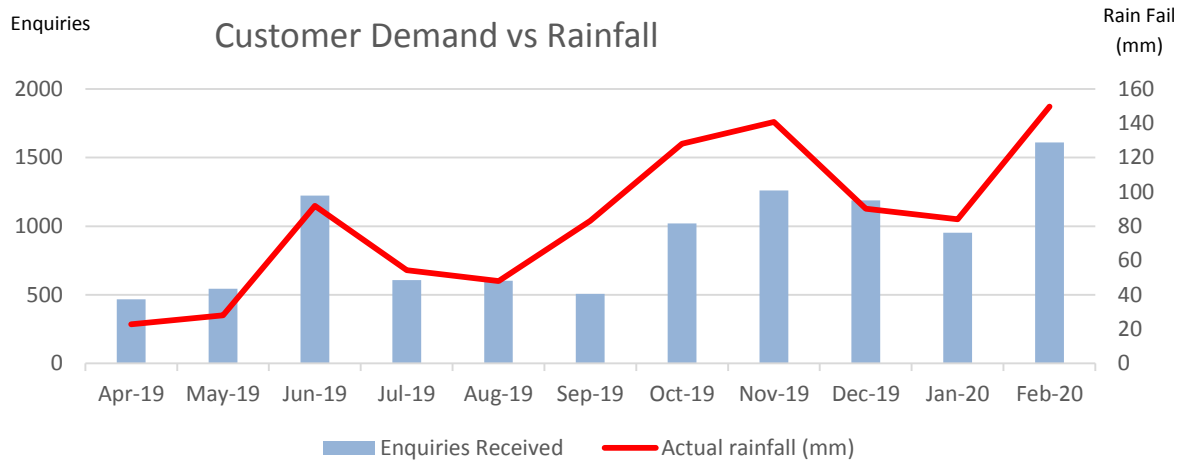
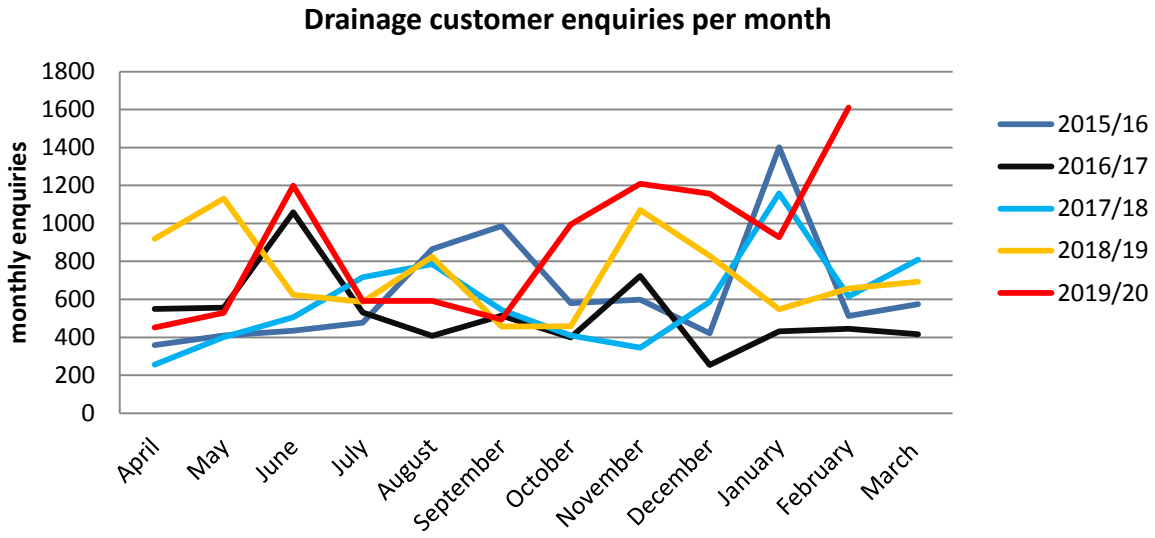


3.10 A **41%** increase in demand has been seen since 2016/2017:



4. Legacy

4.1 The majority of our systems were constructed when capacity was 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 compile reports where significant property flooding has occurred along with understanding the way flooding events progressed.

4.6 We are developing our future thinking on how to evolve and apply both our operational response and forward investment. Adapting drainage design to fully accommodate such events would not be economically viable. Future cabinet papers will consider what long term works may mitigate this risk in line with our Well Managed Highways approach. Acting in this way will ensure that we continue to maintain our Band 3 rating with the Department for Transport.

4.7 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.

4.8 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.

4.9 From this we can seek to establish measures with local landowners to reduce this ongoing nuisance and hazard to the highway.

4.10 Where appropriate we will rely upon our powers under the Highways Act to implement necessary mitigating measures.

4.11 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.

4.12 To this end, we are undertaking an 18-month trial to consider alternative cleansing regimes and mitigations.

4.13 Whilst it is expected that this would involve an increase in proactive cyclical/routine cleansing of gullies and soakaways this trial could also be extended to consider methods, alongside landowners, to mitigate and manage surface water run-off.

4.14 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.

4.15 This could provide the opportunity to publish records of gully maintenance and issues, keeping residents informed of our activities and providing reassurance about the readiness of the drainage system. This could be similar to our winter service and gritter campaigns.

4.16 A report on the trial will be prepared for the Environment & Transport Cabinet Committee.

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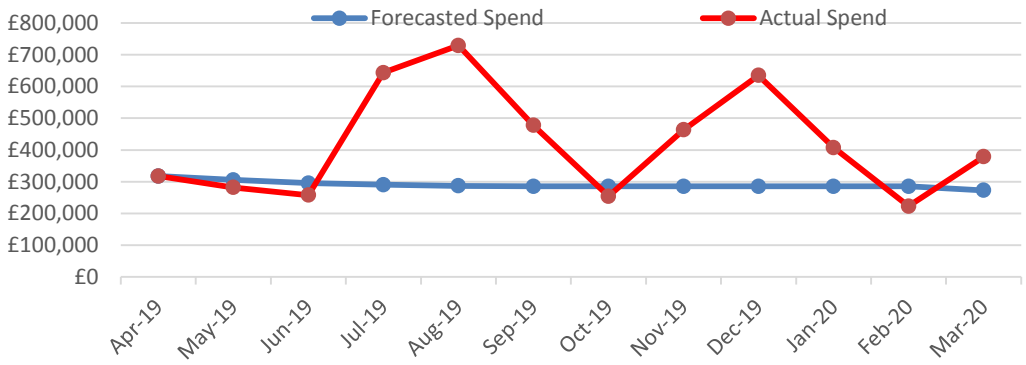
5. Financial Implications

5.1 The estimated cost of responding to the recent storm events is in the order of **over £150-200k per event**.

5.2 The allocated budget for highway drainage cleansing is £2.9m. During 2019/20 the drainage cleansing outturn cost was in excess of £5m.



5.3 In April 2019 a one-off £500k adverse weather reserve was established from 2018/19 operational underspends and was fully exhausted during 2019/20.

5.4 Due to the exceptional impact upon both drainage and local roads we have notified both the Department for Communities and Local Government and the Department of Transport of the operational impact and 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:

Cabinet is asked to:

a. Note the impact of the storms and Kent County Council's immediate operational response.

b. Agree that a further report outlining the wide range of options for flood mitigation plans and proposals be brought to a future meeting of this Cabinet.

Contact Details

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