

To: Kent Flood Risk Management Committee – 21 July 2014

From: David Brazier, Cabinet Member, Environment and Transport
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Subject: Highway Drainage Infrastructure Repairs, Renewals and Improvements

Classification: Unrestricted

Summary: To update the Kent Flood Risk Management Committee on how highway drainage repairs, renewals and improvements are identified, prioritised and delivered. Members of the Committee are requested to note this report.

1. Background

1.1 The County Council is responsible for the maintenance of 5,400 miles of public highway including 250,000 roadside drains (gullies) and associated drainage systems.

1.2 The primary objectives of the highway drainage system are:

- Removal of surface water (from the carriageway) to maintain road safety and minimise nuisance,
- Effective sub-surface drainage to prevent damage to the structural integrity of the highway and maximise its lifespan, and,
- Minimise the impact of highway surface water on the adjacent environment including properties

1.3 In recent years we have experienced increasing numbers of prolonged and heavy rainfall events, the most recent being this winter. As prolonged, heavy rainfall events have become more frequent, the number of customer enquiries has increased year on year. The volume of customer enquiries now stands at twice that of 2009. In the last 12 months we have received around 10,000 enquiries related to drainage and flooding. Of these, 3,000 are related directly to highway flooding and a further 500 are related to incidents of highway flooding that had resulted in damage to private properties.

1.4 Drainage repairs, renewals and improvements are prioritised on the basis of the following risks:

- Highway Safety
- Internal flooding of properties
- Network disruption

2. Discussion

2.1 Highway flooding causes significant level of disruption; it affects movement of people and goods, therefore adversely affecting the local economy. It also causes significant damage to the highway network; at surface level, flood water scours the surface of the carriageway and footway, which will allow ingress of water to the layer below. In the short term it will result in cracking and development of potholes. Flood water also penetrates the lower layers of road construction washing away fine materials and in time results in large failures of the road structure which may require significant repairs or even reconstruction.

2.2 Over the past two years, we have, as part of the gully cleaning operations, been collecting information about the highway drainage system. We now know the quantum of road drains on each street and this information is used to inform planning and programming of maintenance and improvement works. The location and condition of the connecting carrier pipes and other drainage assets such as soakaways and culverts, remains largely unknown. A discrete data collection exercise would cost many hundreds of thousands of pounds so at the moment is not financially viable. Instead, when highway drainage issues arise we investigate the local system, chart its details and add the information to our asset database. The detail collected is fundamental to identifying the cause of problems, devising solutions and informing works in the future.

2.3 Highway flooding is caused by a number of factors including those listed below;

Damaged and Ageing Infrastructure

Much of the County's drainage infrastructure was installed when the roads were originally constructed, some of which date back to late 1800s/early1900s. Over the years, settlement of the soil, ingress of tree roots and road works by third parties (largely utilities) have caused damage to the highway drainage infrastructure.

Much of the highway drainage system is reliant on soakaways with an estimated 8,000 across the County. These are large perforated or deep bored chambers which collect the water from the road drains and allow it to disperse into the surrounding ground. The average lifespan of a soakaway is 20 to 30 years.

Over time, soakaways and the ground around them can become silted, soakage is reduced and the soakaway fails. When this occurs, the water can no longer drain away and instead backs up in the system, causing the road to flood.

Insufficient Capacity

Development and changes in land use have resulted in increased volumes of surface water being discharged into the drainage system. In many places the sewers are now running at capacity.

New connections into the highway drainage system are permitted however if and only if the works promoter/ developer can demonstrate that:

- There is sufficient capacity
- There are no critical issues downstream or upstream with respect to flooding or critical drainage infrastructure.

If a developer needs to connect to a highway system because it is the appropriate discharge point, he must undertake sufficient assessment to indicate the impact on the highway system, even if this requires undertaking surveys and further modelling. Any works that are need to carry additional flow need to be funded by the developer, whether it is upsizing, increasing storage or providing a complete extension.

In many areas of the county, the highway drainage system discharges into a third party sewer, for example the public surface water sewer or the combined sewer which are maintained by the local sewerage authority. There is no mechanism for us to require the party responsible for the sewer to upgrade their infrastructure so the only option is to divert the water elsewhere. Where the drainage system is owned and

maintained by the County Council, the drainage system can be altered, upgraded or replaced entirely.

Diverting or changing a drainage system often requires significant investment and in the past, cost has made schemes of this nature unaffordable. Instead, the impact of flooding due to insufficient capacity has tended to be managed by installing permanent warning signs, increasing the height of kerbs and re-profiling the road to divert water away from properties.

Land Drainage

Water being discharged from adjacent land onto the road is becoming an increasingly common cause of highway flooding.

As LLFA, the County Council also has permissive powers (not duties) to regulate ordinary watercourses, predominantly ditches. These powers consist of two parts:

- The enforcement obligations to maintain flow in a watercourse and repair watercourses, bridges and other structures in a watercourse; and
- The power to give consent for structures in the watercourse and changes to the alignment of the watercourse.

In the last 12 months we have dealt with over 250 flooding issues associated with roadside ditches and water being discharged onto the highway. Whilst we always endeavour to resolve issues amicably and in partnership with landowners, the recent increase in heavy rainfall events has made it necessary for us to take a more robust stance.

We have developed and implemented a more stringent enforcement process now utilise our powers by virtue the Highways Act 1980 to take action to stop water from flowing onto the highway and recharge the land owner for the costs incurred.

2.4 The weather this winter highlighted numerous pinch points in the drainage network. Some of these are being addressed by the implementation of an enhanced cleansing regime however in a large number of cases work is required to improve the functionality of the system.

2.5 The annual capital budget allocation in recent years has been around £2.7m. This has enabled us to complete around 800 priority minor repair and small improvements and a small number of larger improvement schemes each year. Nevertheless, there are many more sites that need attention and this has been demonstrated by the 3,500 enquiries received during the winter of 2013/14. In response, the County Council is investing an additional £3m to enable the completion of a further 120 drainage improvement schemes in 2014/15.

2.6 The KCC Local Flood Risk Management Strategy highlights that "local flooding has a significant impact on the people and economy of Kent and it is predicted to increase due to climate change, increasing development and changing land use practices." To respond to this anticipated increase in demand, the following areas have been identified as needing continued investment in the future:

- Repairs and improvements of highway drainage infrastructure
- Engagement with local communities and landowners to improve understanding of responsibility for land drainage

- The continued development of multi-agency surface water management plans to understand where local flood risks are, how they arise and to agree a set of actions to enable better management of the risks.

3. Recommendations

Prolonged and heavy rainfall events are occurring more frequently and the volume of customer enquiries are increasing year on year. The highway drainage network is deteriorating and repairs, renewals and improvements are urgently required to ensure that we can respond to the anticipated increase in demand.

It is recommended that the Kent Flood Risk Management Committee note the need for the current level of investment in highway drainage infrastructure to be maintained and potentially increased in the future.

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