

From: **Neil Baker Cabinet Member for Highways and Transport**
Simon Jones, Corporate Director Growth, Environment and Transport

To: **Environment & Transport Cabinet Committee – 14 September 2023**

Subject: **Drainage Infrastructure Maintenance - Report**

Classification: **Unrestricted**

Electoral Division: **Countywide**

Summary: This report details the Drainage Infrastructure Maintenance operational activity; (revenue, capital and emergency works), new initiatives and outlines some of the current and future challenges to the service.

Recommendation(s):

The Environment and Transport Cabinet Committee is asked to note the report.

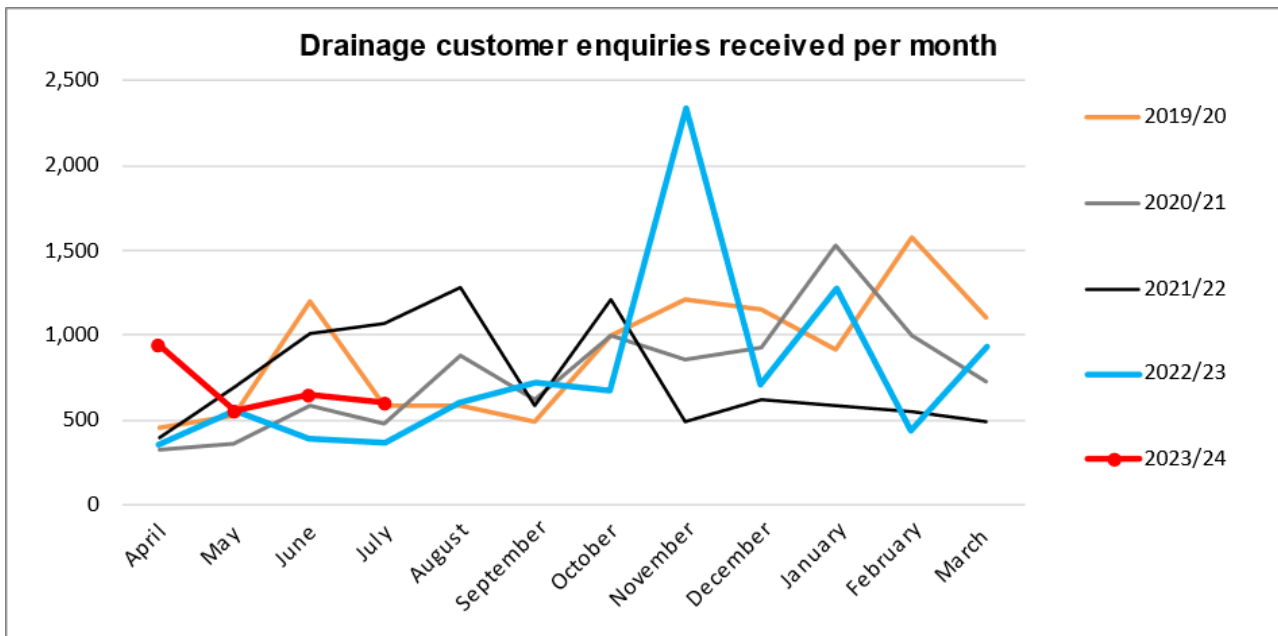
1. Introduction

- 1.1 The County Council is responsible for the maintenance of 5,400 miles of public highway including 250,000 road drains and associated drainage systems.
- 1.2 Highway Drainage is the second largest asset group after Road and Footways. The primary objectives of the highway drainage system are:
 - Removal of highway surface water from the highway to help keep roads safe and minimise problems.
 - prevent damage and make roads last longer through effective drainage.
 - minimise surface water from the highway affecting properties or land.
- 1.3 Highway flooding and drainage issues generate around 9,000 customer enquiries every year. Most drainage enquiries relate to blocked drains, carriageway flooding and flooding to private property. All drainage and flooding enquiries are risk assessed and prioritised on the basis of:
 - Risk to private property flooding (internal residential or business only)
 - Risk to Strategic and Locally Important Road (impassable flooding or impact to traffic movement)
 - Risk to area of local importance (e.g. Schools, Nurseries, GP Surgeries, Hospital, Health Centre, Residential homes etc, Controlled Pedestrian Crossings)
 - Is the speed limit above 50mph with a risk to aquaplaning or a higher risk location (e.g., bend or approach to busy junction)

1.4 Due to the varied nature of drainage issues dealt with by the County Council, the time taken to resolve a drainage enquiry varies from a few hours to several months.

1.5 Since April 2022 we have:

- received over 12,610 customer enquiries relating to drainage and flooding.
- responded to over 574 reports of flooding emergencies (2-hour response)
- inspected and cleansed over 118,905 drains on the cyclical programme.



1.6 The volume of enquiries received is influenced by the weather with peaks in demand during the winter months and flash flooding that occurs during summer months.

1.7 The drainage team currently has 25 staff covering the County. Although the team increased the size in 2019, staffing resources are limited. There is one drainage engineer per district (except Dartford and Gravesham and Thanet and Dover, where one engineer covers each pair of districts). For drainage schemes, there are two engineers covering the entire county.

2. Revenue Funded Drainage Maintenance

2.1 We recently adopted a pro-active risk-based approach, following the Well Managed Highway infrastructure and our approach to Asset Management of the Highway. This shift aims to achieve more cleansing activity per public pound by delivering a proactive risk-based service.

2.2 Our new approach considers many factors attaining to various risks across the highway network such as road hierarchy, speed limit or whether it is a known flood zone. These factors combined will produce individual risk weightings for every road.

2.3 Maintaining over 250,000 highway drains across the county we now aim to cleanse all highway drains on a countywide programme at least every three years with an annual cleansing of our Strategic Network (57000 gullies) and

High-Speed Road Network (9000 gullies); with r Minor Network (56000 gullies) adopting a risk-based approach which could involve an annual, bi annually or triannual check;

- 2.4 Since the shift in moving from a largely reactive service to a proactive service we have identified significant numbers of further works that are required to bring the asset up to standard. These works include basic maintenance such as jammed covers, broken covers, compacted silt and blocked pipes. Repairs are currently being prioritised where a higher risk is present, however outstanding defects will form part of an unfunded backlog.
- 2.5 In order to achieve a balanced budget a reduction to the service standard/intervention of £1m was agreed by Members in February 2023. This particularly affects customer enquiries, reactive gully cleansing, pipe defects such as root cutting, CCTV investigations and expensive soakaway cleansing.

3. Capital Funded Drainage Maintenance

- 3.1 The Highway Asset Management Plan (HAMP) includes a forward works programme based upon known flooding hotspots and locations of larger asset renewals, as well as assessed areas where there could be flood risks to the public highway in the future.
- 3.2 58 sites on the HAMP Forward Works Programme have been delivered since 2019. Capital investment identified under the Forward Works Programme alone has totalled over £2.68m over this period.
- 3.3 Following an increase in capital budget in 2019/20 the Drainage Team procured a framework contract for civil engineering works which commenced in May 2020 to assist with the delivery of smaller civil engineering works (generally less than £15k). The contract was highly successful and represents £7.3m of capital investment in remedying defects across 1093 individual jobs throughout the duration of the contract.
- 3.4 At the ETCC meeting of 23rd May 2023, it was resolved to agree the Capital Drainage Framework for a maximum of four years, and this commenced in August 2023. Up to £15m will be spent through the duration of the contract, inclusive of works from other teams relating to drainage and related highway works.
- 3.5 In addition to this, the team continues to use existing arrangements with Amey under the HTMC for the delivery of schemes as well as for some minor works and ironworks repairs. 16 drainage schemes are currently earmarked for delivery via Amey in the financial year 2023/24 from the HAMP Forward Works Programme with a budget of approximately £1.2m. Many of these have already been issued for delivery. A table of these works is included in Appendix A.
- 3.6 Our Forward Works Programme is treated as a live document and additional schemes and asset renewals are always being identified and added to the programme. Presently 107 sites are awaiting assessment, design works or delivery to be delivered in future years. Many schemes will take several years

to come forward once identified. A table of the forward works programme is included in Appendix B.

- 3.7 The backlog within the Forward Works Programme is significant and will affect other asset groups, due to the links between drainage and ensuring the long-term structural integrity of the carriageway.

4. Emergency Weather Events

- 4.1 Exceptional weather events including severe storms, have caused significant and continued strain upon Kent County Council's Highways operational response, critical highway infrastructure and emergency financial reserves.
- 4.2 Since January 2022 Kent has experienced several named storms. These events are managed with up to six Drainage Technicians.
- 4.3 If a Met Office weather warning is issued, individual cost codes are raised to capture costs pertaining to each storm experienced. This allows us to show pressures caused by these extreme events. Recovery relating to these events can take some months to fully resolve and return to business as usual.
- 4.4 The Drainage Flooding emergency process has recently been reviewed for implementation in Winter 2023 in response to the increased frequency of events being experienced.
- 4.5 As a result of the review, the way we manage emergencies has been aligned with the other service groups within Highways. The structure has been defined to be more consistent with Kent Resilience Forum and a more Strategic Management Lead on flooding events.

5 Improving the effectiveness of the Highway Drainage Network

- 5.1 In April 2021, the service implemented a KaarbonTech Asset Management Platform with a goal to achieve better drainage management.
- 5.2 KaarbonTech allows us to:
- Collect all asset data for drainage including pipes, catch pits, soakaways, ponds etc.
 - View asset history from Confirm and previous interfaces.
 - Create and view drainage maintenance programmes.
 - Monitor gully condition.
 - Carry out lifecycle modelling costs.
 - View live and historic rainfall data.
 - Visualise defects identified from CCTV surveys across our asset and plan for future budget bids or repairs.
- 5.3 All new roads to be adopted by the Highway Authority have a full CCTV survey of the highway drainage system to confirm they have been built to adoptable standards to ensure we obtain the maximum life span of the assets from the adoption date. This information is also then uploaded to our asset records on KaarbonTech.

- 5.4 Any key assets which are being adopted are also being uploaded to KaarbonTech to ensure this is accessible in future years.
- 5.5 To date approximately 249,600 gullies, 5469 catch pits, 6508 soakaways and 63,370 lengths of channel have been plotted in KaarbonTech.
- 5.6 Drainage is a key consideration for all highway improvement works and any amendments proposed to the highway must consult the Highway Drainage Team through the Technical Approval Process. Through the technical approval process, which was introduced 1st February 2021, we have reviewed a total of 1434 applications including:
- 269 Developer and Third-Party requests (including C2 searches which are not rechargeable)
 - 968 Technical Approval Applications
- 5.7 Monthly meetings are being held with Thames Water, identifying problematic sites and collaboratively working together to overcome flooding issues. KCC Highways is currently working collaboratively with Southern Water on the Pathfinder Project.
- 5.8 The Highway Drainage Team attends and participates in Flood Action Groups and Multi-Agency Meetings.

6. Current Challenges

- 6.1 As the Highway Authority we are the first responders to any issues affecting the public highway, even where the issue is not the Highway Authority's responsibility to resolve. Where responsibility is disputed, this can take time to resolve putting pressure on officer time and resources.
- 6.2 There is a lack of awareness of the differences between the statutory role of the Council as the Highway Authority and Lead Local Flood Authority in relation to flooding.
- 6.3 Water runoff from areas outside of the public highway (such as from fields or private land and increases in hard surfacing due to additional driveways or development), which impacts the highway. It is public perception that the Highway Authority has both the responsibility and the powers to resolve, which is unfortunately not the case. These can be a very complex matter to resolve.

7. Future Challenges

- 7.1 Climate change poses a significant risk of challenge to the Drainage Team. The most recent decade (2009-2018) has been on average 1% wetter than 1981-2010 and 5% wetter than 1961-1990 for the UK overall.
- 7.2 Winters in the UK, for the most recent decade (2009-2018), have been on average 5% wetter than 1981-2010 and 12% wetter than 1961-1990. Summers in the UK have also been wetter, by 11% and 13% respectively.

UKCP suggests significant increases in hourly precipitation extremes in the future. For example, rainfall associated with an event that occurs typically once every 2 years increases by 29% (central estimate). This has several implications for how we manage water. It is worth noting that whilst the intensity of hourly rainfall is projected to increase in the future, overall summers are projected to become drier.

7.3 All the above is likely to cause further increases in enquiry demand and emergency response.

8. Financial Implications

8.1 In 2023/24 allocated revenue budget for highway drainage cleansing is £5.5m

8.2 In 2022/23 Emergency Flood Events cost £567,000 which adds a significant strain to the revenue budget.

8.3 The allocated budget for renewals and improvements is £4,500,000 and is largely capital funded.

8.4 There is a significant backlog of works already identified in the Forward Works Programme for capital investment. It is difficult to reliably estimate the cost of delivering the full Forward Works Programme, but it is likely the backlog in the order of £7-10m. With the current level of resources and funding, it will take a minimum of 5 years to deliver the programme. This is on top of our routine repairs and improvements.

9 Recommendation(s)

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10. Appendices

Appendix A – Drainage Schemes FY 23/24

Appendix B - Drainage FWP -

<https://democracy.kent.gov.uk/documents/s120677/AppendixBDrainageFWPETCC.xlsx.pdf>

11. Contact details

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