



**Buckinghamshire County Council**

**Select Committee**

Transport, Environment and Communities Select Committee

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## **Report to the Transport, Environment and Communities Select Committee**

<b>Title:</b>	Update on the Transport for Buckinghamshire Gully Emptying Service
<b>Committee date:</b>	<b>06 November 2018</b>
<b>Author:</b>	Mark Averill
<b>Contact officer:</b>	01296 383306 maverill@buckscc.gov.uk
<b>Cabinet Member sign-off:</b>	<b>Cllr Mark Shaw</b>

### **Purpose of Agenda Item**

This report provides information to the Select Committee about the Transport for Buckinghamshire highway gully emptying and drainage maintenance service and covers the areas of:

- Service Overview
- Maintenance Approach
- Current Performance
- Capital Drainage Improvement Programmes
- Operational Model
- Difficulties, Challenges, Opportunities and Innovations
- Stakeholder Engagement

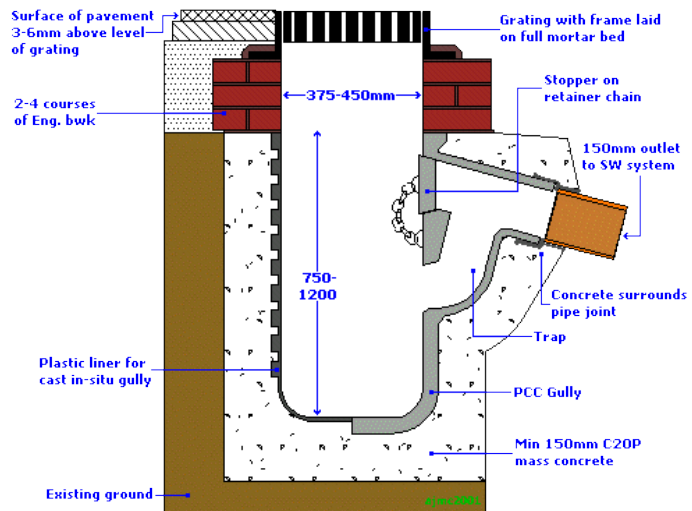
### **1. Service Overview**

1.1. The provision and maintenance of highway drainage is an integral element in sustaining a safe and sustainable road network. An effective highway drainage system should be capable of removing surface water from the road quickly and effectively, negating standing or ponding water and thus removing the potential for:

- Detriment to road safety due to increased spray, reduced visibility or loss of control due to surface water.
- Accelerated deterioration of the carriageway due to ingress of water into structural

layers, especially during periods of colder weather, when freeze/thaw cycles will promote deterioration and subsequent formation of visible defects including potholes.

- 1.2. Engineered highways will be built with some form of drainage system. Evolved highways will often have had drainage added over time. The vast majority of Buckinghamshire's highway network is evolved, especially more rural and minor roads.
- 1.3. Highway drainage can take a number of forms. Most common is a system of highway gullies and underground carrier pipes to remove water from the highway surface and transport it to outfall locations, generally watercourses. A number of alternative systems may be utilised, including filter drains, offlets/grips, soakways, boreholes etc. However, the general premise remains to remove water promptly and effectively from the road surface and to transport to outfall.
- 1.4. Buckinghamshire's highway network contains approx. 79,200 edge of carriageway gullies, connected through a series of carrier pipes to outfall locations. Although the surface asset (the gully) is well mapped, the subsurface pipe network is much less well defined. Mapping is sporadic, limited to those locations where drainage has been installed or investigated over more recent years. As a result, the majority of Buckinghamshire's underground highway drainage network remains unmapped.
- 1.5. As a consequence, where drainage is seen to be impaired and cannot be rectified through emptying of gullies alone, reliance is often placed upon the historical knowledge of local engineers and technicians. Investigative work to prompt solutions to drainage problems is a common requirement.
- 1.6. A significant percentage of Buckinghamshire's carrier pipe network is clay pipe, usually 4 inches in diameter. This pipework may often be over 50 years old, and thus becomes silted and affected by root ingress over time. The pipe diameter and condition defines the carrying capacity of the drainage system. Thus, in circumstances where rainfall may be locally very heavy or significant, ponding water may be seen regardless of any blockage or impairment to the actual system of drainage provision.
- 1.7. The adjacent diagram shows the operation of a typical trapped gully.



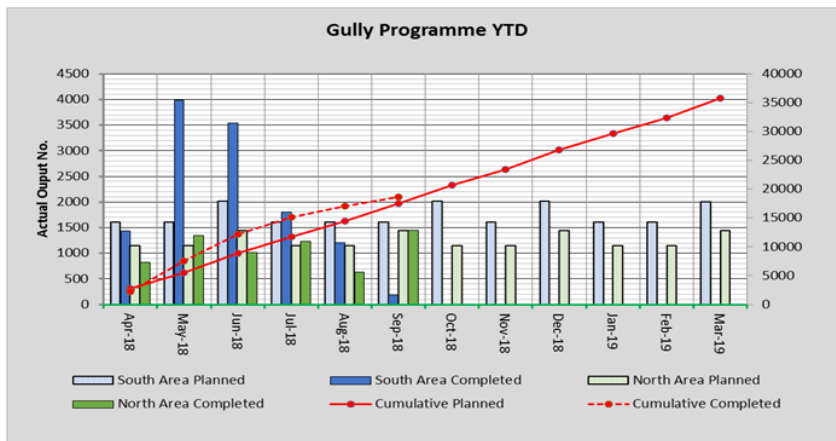
## 2. Maintenance Approach

- 2.1. The service currently utilises a cyclical approach to the maintenance of gullies, supplemented by a risk based approach to the maintenance of other drainage assets. This approach has been utilised by the majority of Highway Authorities over many years, and is consistent with national standards of good practice promoted by Central Government and as laid down in the Code of Practice, Well Managed Highway Infrastructure, (WMHI). This CoP was adopted nationally in 2017.
- 2.2. The service provision and resources available are as follows:
  - A & B roads – TfB aim to visit and empty all gullies on the 'A' and 'B' road network once during each financial year (April to March).
  - C & U roads – TfB programme an attendance once every three years (on a cyclical rota).
  - Reactive attendance - any notifications or reports of requirements for gully emptying are

risk assessed by local teams and attendance arranged within the timescales for normal defect repair dependent upon assessment classification (Emergency/Category 1/Category 2).

### 3. Current Performance

- 3.1. Over the past three years, since the current schedule has been introduced, Transport for Buckinghamshire has remained compliant with the programme and has remained on budget each year.
- 3.2. A Contract Performance Indicator is in place to measure adherence to programme. This indicator remains slightly ahead of target during financial year 2018/19

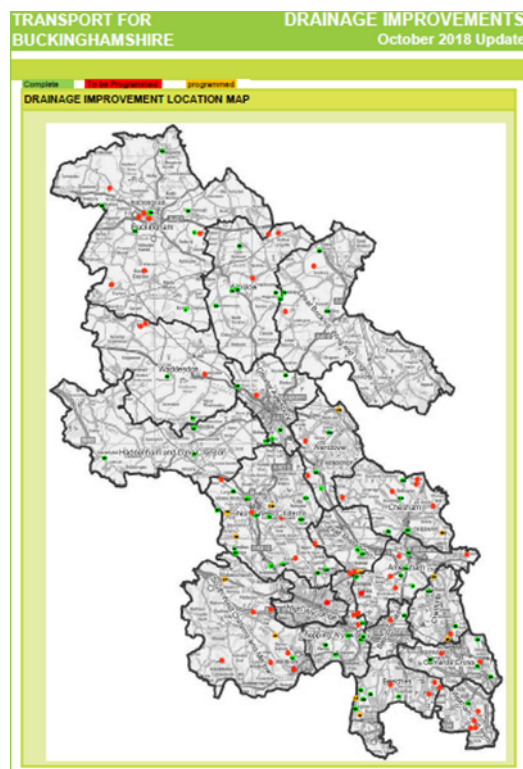


- 3.3. With this particular service however, it is very difficult to define what 'good' performance may look like, or perhaps more importantly, what 'poor' performance looks like. With a regime of emptying of at most once per year, it is inevitable that gullies will become silted and blocked between visits. Thus, a successful programme may not necessarily be reflected in lack of issues arising on the network.
- 3.4. The most vulnerable time of the year for gullies is during Autumn and early Winter, when leaf fall and increasing runoff from adjacent land can quickly cause gullies to become impeded. However, with a finite resource and operative base, it is not practically possible to target significantly more work during or immediately after this time.
- 3.5. It is considered that regardless of the size of resource availability, there will always be instances where the system of gullies and carrier pipes becomes impeded, standing water is identified and a reactive response may be required.
- 3.6. During periods of heavy countywide rainfall, multiple reports of requirements for attendance may be received concurrently. With a maximum of three teams on the network, prioritisation of most urgent work must be undertaken in such circumstances.
- 3.7. During such times reactive attendance may often result in a 'make safe' type action such as the placing of temporary signing and/or guarding, to maintain safety whilst enabling the gully emptying resources to attend the appropriate priorities.

### 4. Capital Drainage Improvement Programmes

- 4.1 Gully emptying forms only part of the overall drainage service provision in Buckinghamshire. In addition, recognising the limitation of current drainage provision and also that a solution will often require more significant improvement/upgrade works, Buckinghamshire County Council has in place annual Capital budget to enable improvement measures to be prioritised and targeted at vulnerable locations.

- 4.2 Design and construction work is prioritised using various assessment criteria. Issues that are shown to have a potential detrimental effect on safety or that may result in ingress of water to property, are given highest priority.
- 4.3 Work takes place to assess known sites across the county where road surface water and ineffective drainage is an issue, to find ways of reducing, and hopefully removing the problem. As well as more prompt removal of surface water, TfB consider ditch capacity, installing soakaways and new gully systems and upgrading pipe sizes to increase capacity.
- 4.4 Since definition of the Capital drainage programme in 2016/17 around £1.4 million has been spent on improving 45 sites across the county.
- 4.5 This budget is £1m in 2018/19, an increase of almost £300K on previous years.
- 4.6 The following map shows the location of those schemes completed over the past three years. It is evident that despite good progress there are many known improvement requirements which remain to be completed.



## 5. Operational Model

- 5.1 Transport for Buckinghamshire have three operational crews who undertake all cyclical work and also cover reactive and emergency attendances across the County. In terms of fleet, resources available to undertake the above are 2 x 18tonne medium pressure gully emptiers on contract full time (1 based in the south and 1 in the north) supplemented by a third, also based in the south, which is hired in when required to assist in either reactive or cyclical works.
- 5.2 Our gully emptier drivers, as HGV drivers, are also part of frontline winter maintenance resources and as such will be unavailable whilst precautionary or reactive salting operations are ongoing.
- 5.3 Whilst the third gully emptier assists in reactive response, there will always be some disruption to programme through both reactive and winter maintenance requirements. Emergency response requirements will always disrupt routine work schedules.

- 5.4 Operatives will attend each gully on the programme, lift the gully lid, empty the gully of silt and detritus and recharge the gully with clean water.
- 5.5 Jetting of connectors and associated carrier pipes is not routinely carried out within the cyclical programme.
- 5.6 If a gully cannot be accessed (for example, due to parked vehicles), this will be recorded as such. A second attempt will be made at a different time, following which if still inaccessible, the gully will be recorded as not accessed.
- 5.7 Locations which are known to be sensitive to parked cars etc may be letter dropped in advance and no waiting cones used to minimize the possibility of parked vehicles.
- 5.8 Gully emptying is a slow moving mobile operation which requires an operative to access the carriageway. Therefore on main roads traffic management will often be required to enable works to progress safely.
- 5.9 In such locations opportunities are taken wherever possible to combine gully emptying with other works to minimise disruption and make most use of traffic management resources. This can often prompt short term changes to the programme to accommodate such opportunities.

## **6. Difficulties, Challenges, Opportunities and Innovations**

- 6.1. Any cyclical programme which also has an element of reactive attendance will have challenges in terms of programme compliance. Although a third gully emptier to assist with reactive responses does help, often programmed cyclical works will have to be rearranged to cope with reactive requirements. Actual attendance can therefore often differ from published forward programmes.
- 6.2. Parked vehicles and difficult to access location means that around 5% of the programme each year is not completed to programme.
- 6.3. Historically, prior to 2016, gully emptying did not necessarily visit and empty all sites, concentrating on known vulnerable locations and only emptying those seen to be silted/blocked. Thus, there were a lot of silted gullies on the network at the start of the three year cycle in 2016.
- 6.4. A single silted gully or even a number of silted gullies may not in itself constitute a priority defect. Water may make its way along the channel to the next gully and thus the risk of ponding or flooding be manageable. This can be a difficult message to relay to customers.
- 6.5. Similarly, dependent upon location, the importance of a gully will vary. Gullies at the bottom of a slope or at the end of a drainage run are generally most vital. These gullies will also attract the most silting.
- 6.6. Thus, many authorities are now moving to a system of gully emptying on a needs basis rather than a frequency specification. Gullies in more important locations or which are prone to frequent silting are emptied more frequently than those which are not. A percentage of gullies which are deemed non-essential may not be placed upon any cyclical programme at all, and simply attended only when a reactive requirement is identified.
- 6.7. Although similar absolute numbers of gullies will be emptied each year therefore, the outcome in terms of prevention of flooding and standing water can be more favourable.
- 6.8. Modern technology allows an engineer to manage gully emptying resources in this way, with live mapping and GPS technology building up a history of maintenance for each gully and determining a sliding scale of maintenance frequencies based upon vulnerability and importance.
- 6.9. Additional smart gully technology can be employed in very vulnerable locations, with sensors embedded within the gully sending alerts when maintenance is required and even prompting

maintenance when heavy rainfall is forecast.

- 6.10. Transport for Buckinghamshire is currently engaged with suppliers looking to utilise such technology within future maintenance programmes (from 2019/20 onwards). Key to this will be our ability to fund such initiatives as 'cost neutral' within existing budgets through demonstration of savings through programme efficiency, whilst improving reactive attendance capabilities and more frequently attending vulnerable locations on the network, to an overall advantage.
- 6.11. Over the past 3 years the Department for Transport (DfT) has linked the funding of highway authorities to their adoption of asset management principles. The level of adoption is described by three distinct bands in which each Authority is placed based on their response to 24 questions (supported by clear evidence), with funding levels reduced for those Authorities that do not meet the required band. TfB are currently a strong Band 3 (the highest band), with comprehensive evidence to support this. The management of highway drainage, as a key asset group, is of increasing importance to DfT in maintaining this banding.

## **7. Stakeholder Engagement**

- 7.1. During recent Stakeholder Conferences, discussions with various Parish and Town Councils highlighted drainage provision and gully emptying as remaining high on priority lists for local stakeholders.
- 7.2. Cyclical programmes are soon to be published on the Parish Portal. Any use of technology which can help to provide accurate information, including the capture of such when instances as reactive response disrupts programme, will be very valuable.
- 7.3. Liaison with local Parishes and Members through LAT and LAF meetings continues to identify and prioritise significant areas of drainage work alongside cyclical programmes, often involving water ingress to property. The provision of highway drainage maintenance services therefore remains of high importance to Members and other stakeholders alike.
- 7.4. Discussions through devolution have identified limited scope for devolved services in this area.