



Highway Asset Management

Drainage Strategy 2015-2018



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Highway Drainage – A Critical Asset



The highway drainage asset is critical to ensuring the controlled removal of water from the carriageway to allow customers to use it safely. The impact that failure of the drainage asset can have on other highway assets, wider transport infrastructure and private property is significant.

The Highways Act 1980 empowers highway authorities to construct and maintain drainage systems to remove surface water from the highway. More recently, the **Flood and Water Management Act 2010** gives local authorities a role for the management of local flood risk.

The biggest challenge facing highway authorities in managing highway drainage and local flood risk is **defining the asset to identify the need**. In many cases the location and condition of highway drainage assets are far from understood which presents real challenges in making the case for investment.

Highway drainage assets across East Sussex have suffered from significant under investment over many years. As a result **we have a dated drainage system that we have very little knowledge about** which is costing us more to maintain year on year. Our existing approach to maintaining highway drainage assets is largely reactive. This is very costly and does not address the issue of needing to understand where to invest to halt the deterioration.





Council Priorities

The Highway Asset Management function and approach to highway drainage is following the **'One Council'** approach and will be steered by the Council's Priorities:

- Helping People Help Themselves
- Driving Economic Growth
- Making Best Use of Our Resources
- Keeping Vulnerable People Safe

The East Sussex County Council **Highway Asset Management Policy** establishes the Council's commitment to Highway Asset Management and demonstrates how this approach aligns with the Council Plan. The Policy has been published alongside the **Highway Asset Management Strategy** on the Council's website.

Drainage Objectives

To help deliver the Council Priorities and implement the relevant recommendations from the **Highways Maintenance Efficiency Programme (HMEP) – Guidance on the Management of Highway Drainage Assets (2012)**, the objectives for highway drainage in East Sussex are as follows:

- Define the Highway Drainage Asset
- Deliver an Efficient & Effective Highway Drainage Service
- Work in collaboration with People & Partnerships

These objectives will guide the approach to highway drainage asset management in East Sussex and will focus the delivery of the actions identified within this strategy.

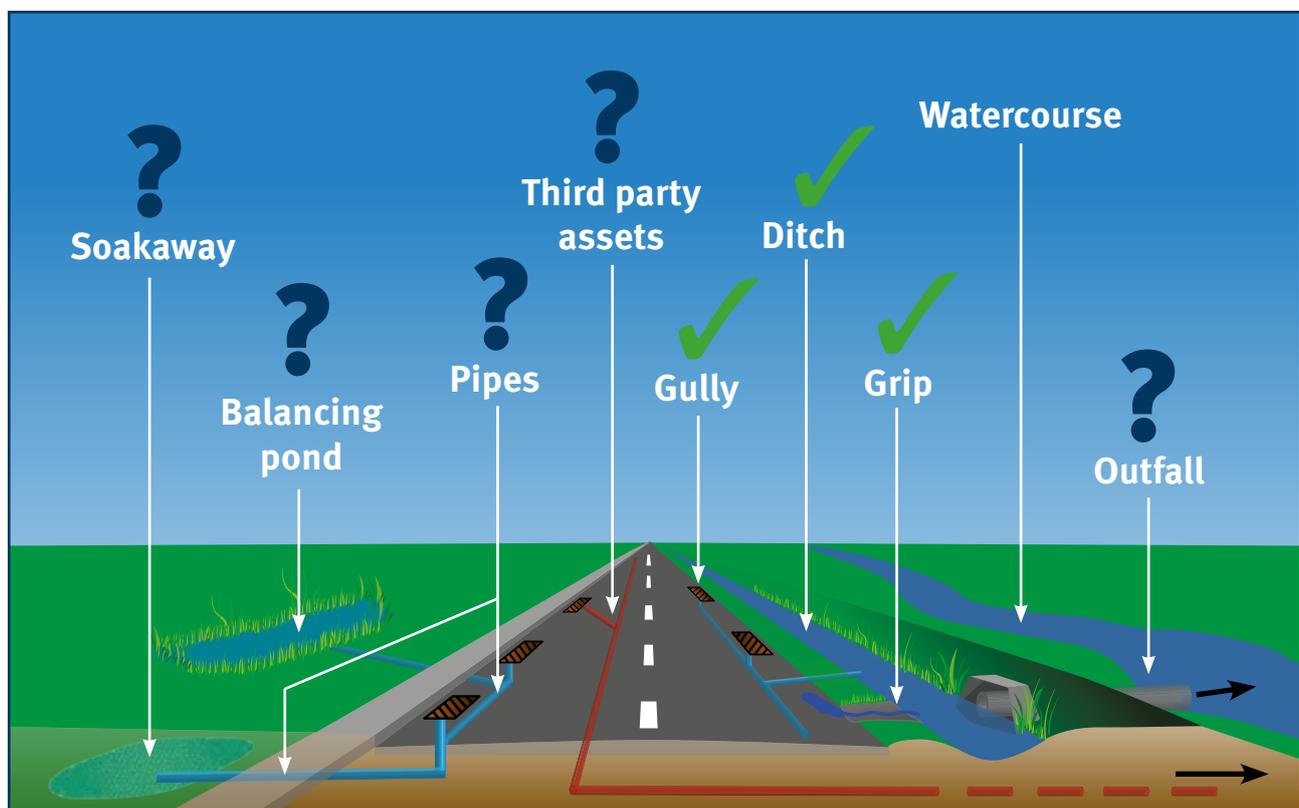


Objective 1 – Define the Highway Drainage Asset

Improving our understanding

The current inventory of highway drainage assets across East Sussex includes approximately **98,000 gullies**, **10,000 grips** and **500km of ditch**. In addition to details about the location and specification of these assets there is a good understanding of their condition from inspections and surveys. In particular, observation of silt levels in gullies at regular inspections provides useful statistics to help focus, support and inform our maintenance approach. What we do not know is the location, specification and most importantly, the condition of other connecting drainage assets (see Figure.1).

Figure.1 Illustration of highway drainage system (known/unknown assets).



To direct resources to define the highway drainage asset in areas of **greatest risk first**, targeted surveys will be undertaken in areas of East Sussex which are at risk of local flooding. We use a **'whole system'** approach to build an inventory of drainage assets from inputs (e.g. gullies) to outputs (e.g. ditches) and every element in between (e.g. pipes). An understanding of the drainage asset as whole systems in areas at risk of local flooding will help to identify issues and constraints while focusing, supporting and informing maintenance activities.





Objective 2 – Deliver an Efficient & Effective Highway Drainage Service

Historically, the approach in East Sussex to repairing and improving our highway drainage assets has been **predominantly reactive**, rather than pro-active.

We are now shifting our focus to proactively maintain our drainage asset and **deliver a safe, serviceable and sustainable drainage service** into the future.

To achieve an efficient and effective drainage service we will deliver the following:

- **Safety** – Ensuring the controlled removal of water from the carriageway to allow customers to use it safely.
- **Serviceability** – Maintaining the drainage asset to a condition in which it remains functional for draining the highway.
- **Sustainability** – Designing, constructing and maintaining drainage assets to meet both current and future needs in a changing environment while making effective use of limited budgets.

Future Delivery

The principles of Asset Management are at the core of the new Highways Contract beginning in May 2016. With a focus upon outcome delivery and performance, the new contract has been structured to accommodate the limited understanding of asset condition, meanwhile encouraging collaborative working between both Employer (County Council) and Contractor to improve this understanding through the life of the contract (2016-2023).

We will work with the incoming Contractor to deliver a safe, serviceable and sustainable drainage service while improving our understanding of the drainage asset.

Efficiency and Effectiveness

The two elements of efficiency and effectiveness must be balanced appropriately to ensure the effective use of limited budgets.

We are addressing this balance by ensuring that our gully cleansing operations are undertaken efficiently by targeting **all** gullies along a whole road instead of individual gullies. Whole roads are visited on a prioritised basis informed by recorded silt levels. Effectiveness of the operation is monitored by recording silt levels after cleansing in addition to site audits.

We will continue to target our gully cleansing resource to areas where the gullies need cleansing more often. By **applying a risk factor to every one of our gullies based on flood risk and road hierarchy** we have been able to prioritise which gullies need to be fixed first when a problem is reported.

Data & Systems

It is recognised that effective Asset Management planning and decision making relies on having the appropriate data available to those who need it and for that data to be appropriate, reliable and accurate.

We have worked with external software providers to build a **Data Management System** which holds our current drainage inventory along with condition information. We will continue to develop this system further by mapping know areas at risk of flooding (hotspots) which will focus maintenance activities. The development of this system will ensure that we address the causes of failing drainage assets rather than just the symptoms.



Source – horizons.yotta.co.uk





Objective 3 – Work in collaboration with People & Partnerships

County Council employees and other organisations responsible for drainage assets and flood risk management are a valuable source of asset management information. Therefore, both individuals and partnering organisations will be engaged and their knowledge captured and incorporated into data records.

We will be working with the Council’s **Flood Risk Management Team** to draw upon flood history records from **Surface Water Management Plans**. These have been undertaken in areas at risk of local flooding across the County. Furthermore, we will assist in delivering the actions identified within the **Local Flood Risk Management Strategy**.

External organisations such as the Environment Agency and Southern Water will be engaged to address water management issues and share information and data to help **achieve shared objectives**.





Due to historic under investment in the maintenance of our highway drainage systems there is a **significant backlog** of defective drainage assets across the county. Addressing this backlog will put pressure on limited revenue budgets and therefore we will **target capital investment** to resolve the cause of the drainage issues rather than just the symptoms.

By investing in capital drainage schemes, savings will be realised through reducing the maintenance cost to other highway infrastructure, especially carriageway which often suffers from accelerated deterioration as a result of failing drainage systems.

The immediate future (2015-2016)

Asset Management will be at the core of the new Highways Contract beginning in May 2016. In preparation for this, we will begin building our understanding of the drainage asset by undertaking a series of targeted inventory surveys in areas at risk of local flooding. We will work to co-ordinate maintenance activities across our teams and drainage assets whilst collecting on-the-go inventory and condition data for use in the future. This will improve the performance of this critical asset in the short term and begin to set the building blocks in place for **future programmes of prioritised maintenance**.

Department for Transport (DfT) - Future Funding

We will be improving our knowledge of drainage infrastructure across the county to develop **capital schemes of between £5-20m**. These schemes will demonstrate evidence based decisions on drainage improvements, enabling us to bid for capital funding under the **DfT Challenge Fund in 2017** and meet the requirements for the **DfT Incentive Fund**.

Action Plan (2015-2018)

To achieve the County Council's Priorities and the objectives for highway drainage asset management in East Sussex a plan has been developed which will be delivered between 2015 and 2018.



Drainage Objectives	Action	Timescale	Links to County Council Priority Outcomes	Links to the HMEP – Guidance on the Management of Highway Drainage Assets (2012)
Define the Highway Drainage Asset	Define investment required and areas at risk of local flooding for targeted inventory and condition surveys to be undertaken.	August 2016	Making Best Use of Our Resources Keeping Vulnerable People Safe	Recommendation 3 Recommendation 4
	Undertake targeted inventory & condition surveys in areas at risk of local flooding	December 2018	Making Best Use of Our Resources Keeping Vulnerable People Safe	Recommendation 3 Recommendation 4
Deliver an Efficient & Effective Highway Drainage Service	Complete the agreed two-year targeted cyclical gully cleansing programme on-time.	April 2017	Making Best Use of Our Resources Keeping Vulnerable People Safe	Recommendation 1 Recommendation 6 Recommendation 9 Recommendation 11
	Implement new process for prioritising investigation of drainage defects	October 2015	Making Best Use of Our Resources Keeping Vulnerable People Safe	Recommendation 1 Recommendation 6 Recommendation 11
	Develop prioritised programme of capital schemes in advance of DfT's Challenge Fund 2017 .	March 2017	Making Best Use of Our Resources	Recommendation 1 Recommendation 6
Work in collaboration with People & Partnerships	Engage with internal teams and external organisations especially in relation to flood risk management	December 2015	Making Best Use of Our Resources Helping People Help Themselves	Recommendation 2 Recommendation 7 Recommendation 8 Recommendation 10
	Develop existing Data Management System to include all known drainage asset inventory and mapped areas at risk of flooding to focus maintenance activities.	December 2018	Helping People Help Themselves	Recommendation 5



The following terms are used in this strategy:

Asset management

A strategic approach which identifies the optimal allocation of resources for the management, operation, preservation and enhancement of the highway infrastructure to meet the needs of current and future customers.

Critical asset

An asset without which you cannot deliver a statutory service.

Cyclical maintenance

Works which are carried out on a planned and regular basis.

Deterioration

The change in physical condition of an asset resulting from use or ageing.

Grip

A grip is a shallow ditch/channel connecting the road edge to the roadside ditch.

Gully

A drainage pit covered by an open metal grating located on the road edge. Its purpose is to drain rain water from the highway.

Inventory

A list of assets with details of location, specification and condition.

Local Flood Risk Management Strategy

A high level strategy which assesses local flood risk across the county and sets out objectives and actions for managing it.

Outfall

A structure through which a drainage system discharges into ditch or watercourse.

Proactive maintenance

Maintenance undertaken before the function of an asset is affected.

Reactive maintenance

Maintenance undertaken when the function of an asset has already been affected.

Soakaway

A pit, typically filled with hard core, into which water is piped so that it drains slowly out into the surrounding soil.

Surface Water Management Plans

A study to understand the flood risk that arises from local flooding, which is defined by the Flood and Water Management Act 2010 as flooding from surface runoff, groundwater, and ordinary watercourses.





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October 2015 • 15-16 265