



Knowsley Council

The background image shows a close-up of a road drainage system. A metal grate is partially submerged in water, with water flowing over it. Yellow road markings are visible on the asphalt surface. The overall scene is wet, suggesting recent rain.

HIGHWAYS ASSET MANAGEMENT THE MAINTENANCE AND CLEANSING OF DRAINAGE ASSETS

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INTRODUCTION

Knowsley Borough Council as Highway Authority has a duty under the Highways Act 1980 to maintain the highway in a condition that is safe and fit for purpose. An important part of that maintenance relates to highway drainage systems. Surface water is discharged from the highway via gullies, various types of channel, piped into roadside ditches, sewer systems, soakaways, catchpits and on occasion directly into watercourses.

Failure to maintain such systems effectively may result in:

- Flooding of the carriageway surface, producing a hazard to motorists and pedestrians in wet or freezing conditions.
- Flooding of land or property adjacent to the highway.
- Contribute towards damage of the highway surface or sub-structure, so shortening the lifespan of the carriageway construction.

Knowsley Council's drainage asset comprises of:

Carriageway Gullies	Footway Gullies	Channels (km)	Catch Pits	Trash Screens	SUD systems, rain gardens and attenuation ponds
33,238	1,200	27.97	156	6	0

There are currently no rain gardens, sustainable urban drainage systems and attenuation ponds on the Council's adopted highway, these will often be maintained by adjacent landowners.





AIMS AND OBJECTIVES

The purpose of this document is to detail a process of assessment by which decisions relating to maintenance activities on drainage assets on the adopted highways are made. It is based upon current guidance on best practice 'Highway Maintenance Efficiency Programme (HMEP) – Guidance on the Management of Highway Drainage Assets', which covers all aspects of drainage maintenance and the 'Well Maintained Highway Infrastructure' a Code of Practice (UK Roads Liaison Group).

The aims and objectives of this document are to:

- Provide guidance and information based upon current best practice to enable those involved in drainage maintenance works to be able to assess local network maintenance requirements.
- Give guidance on information gathering, programming of works, communication and assessment for future maintenance needs.
- Ensure that the maintenance undertaken meets current principles of best practice and is part of a coordinated approach to highway maintenance across Knowsley as whole.
- Set out our response times in respect of blocked gully reports and reports of flooding.

It is anticipated that the implementation of this guidance will:

- Ensure that all highway staff and other appropriate officers are aware of the policies and procedures associated with the maintenance and cleaning of highway drainage assets.
- Ensure that the cleaning of the highway drainage assets identified on the 'Drainage Cleansing Programme' are maintained to the same consistent standard throughout Knowsley.
- Inform members of the public and other stakeholders of our policies and procedures in relation to the cleansing of the drainage assets maintainable at public expense.

ROUTINE CLEANSING OF DRAINAGE ASSETS

Historically, highway drainage maintenance in Knowsley was delivered through a programme of cyclical cleansing. All gullies and associated drainage assets on the adopted highway were cleaned at prescribed frequencies each year, with operational efficiency measured by the number of gullies cleansed per day.

While this approach ensured regular attention across the network, subsequent data analysis demonstrated that many gullies did not require such frequent cleansing. In many cases, only minimal silt was removed, indicating that these assets would have continued to operate effectively with fewer scheduled visits or through reactive maintenance alone.

To ensure the most effective use of available resources and to maintain the drainage network in an appropriate and proportionate manner, it became necessary to revise both how cleansing need is assessed and how on-site works are planned and delivered.

The traditional model of fixed routes and set frequencies is no longer considered appropriate or cost-effective. As a result, the Council has introduced an **optimised, risk-based cleansing regime** that targets resources where they are most needed.

In developing this approach, a range of factors were assessed, including:

- Known surface water flooding hotspots.
- Historical cleansing and maintenance records.
- Traffic volumes, speeds and road classifications.
- The resilient highway network and gritting routes.
- Low points in the carriageway and gullies at the base of steep gradients.
- Locations requiring special arrangements, such as parking bays, signalised junctions, roundabouts and high-speed roads.
- Areas of high leaf fall.
- Drainage systems located within the Environment Agency's 30-year surface water flood zones.

Drainage performance is not static. Weather patterns, seasonal variation, traffic loading and gradual asset deterioration all influence gully performance over time. Reliance solely on historic data therefore introduces risk and uncertainty into both operational planning and post-event review.

To maintain accurate and reliable network intelligence, the Council commissions an annual survey of all gullies on the adopted highway network, with gullies in the north of the borough being surveyed in one year and those in the south

being surveyed in the subsequent year. These surveys are undertaken in partnership with the Council's highway maintenance contractor, 'Tarmac', and its supply chain partner, 'Kaarbontech'.

Each gully is assessed by manually measuring silt levels using a two-metre measuring rod. The rod is inserted to the base of the gully pot to determine the proportion of silt present relative to total capacity.

The purpose of the survey extends beyond identifying gullies requiring cleansing. It provides up-to-date, defensible intelligence that enables the Council to make proportionate decisions in the context of changing weather patterns, ageing infrastructure and limited resources.

The survey establishes a current condition baseline across the priority network, allowing the Council to:

- Understand how the network is performing at present, rather than relying on historic assumptions.
- Adjust cleansing and inspection priorities in response to observed change.
- Demonstrate a proactive, risk-based approach to drainage management.

This is particularly important following surface water flooding events, where the Council must evidence that

reasonable and proportionate steps were taken based on current information.

Although silt accumulation data is a key output, the wider value of the survey lies in the regular physical inspection of each gully. This enables the identification of defects such as damaged pots, defective frames or covers, and early signs of deterioration that could otherwise lead to safety issues, flooding or increased future maintenance costs.

By identifying gullies that consistently exhibit low silt accumulation, the Council can avoid unnecessary cleansing and redirect resources to higher-risk locations. In practice, the savings achieved through reduced cleansing activity offset the cost of undertaking the survey and support additional investment in planned maintenance activities.

As a result, the Council is able to:

- Maintain a robust and current inspection baseline.
- Strengthen network resilience and preparedness.
- Improve the evidence base for decision-making without increasing overall programme costs.

The survey therefore provides enhanced insight into drainage asset condition and performance while allowing the Council to continue operating within existing financial and operational constraints.

ANNUAL CLEANSING PROGRAMME

As a result of the above considerations and silt level surveys, the drainage assets in Knowsley are cleansed at the frequencies below.

STRATEGIC HIGH-SPEED ROADS

- A580 East Lancashire Road
- A561 / A562 Speke Boulevard
- A5300 Knowsley Expressway
- M62 Motorway

There are approximately (1,386 Gullies), (156 Catchpits) and (7,300 linear metres of drainage kerb/channels) situated on the strategic High-speed Road network.

- All gullies and catchpits on the high-speed roads are cleaned **twice** a year, the first cleanse will take place between April and July and the second cleanse will take place between November and December.
- All drainage kerbs/channels are cleansed **once** per year between April and March.
- In addition - any assets that re identified as experiencing recurring blockages resulting from heavy silt deposits, leaf accumulation, or low-spot positioning may require supplementary cleansing.

ALL OTHER ROADS

- All drainage kerbs/channels are cleaned **once** per year.
- All gullies located within the Environment Agency's surface water 30-year flood zones are cleaned **once** per year.
- Gullies on all other roads are surveyed once every two years to identify silt levels. Those gullies with levels of silt equivalent to **25%** or more will be cleaned.
- In addition - any assets that are identified as experiencing recurring blockages resulting from heavy silt deposits, leaf accumulation, or low-spot positioning may require supplementary cleansing.
- Or, 'Reactive', whereby they are cleaned in response to stakeholder enquiry or reports received via the Council's central reporting system.

TRASH SCREENS

- All trash screens to be cleaned a minimum of **once** per year.
- Or, 'Reactive', whereby they are cleaned in response to a stakeholder enquiry, or when a build-up of debris is identified.





REVIEW

All gully cleaning activities will be reviewed on an annual basis and where appropriate, cleansing regimes and schedules will be adjusted to reflect actual site conditions and the needs of the network. The Highways Team will proactively monitor the outcomes of the optimised programme to ensure that any changes in risk or increases in flooding are identified and addressed promptly.

As with the initial planning stage, the following information should be considered during the review:

- Records from gully-cleaning activities
- Records of remedial works undertaken
- Feedback from all stakeholders

If issues are identified that cannot be resolved through gully cleaning or routine maintenance, such as capacity constraints within the wider drainage network, or involve third parties such as United Utilities (UU) these should be reported to the Highways Maintenance Team so that future maintenance schemes can be considered and coordinated.

BLOCKED GULLIES & FLOODING REPORTS - RESPONSE TIMES AND PROCEDURES

This section outlines the approach to responding to drainage and flooding enquiries on the highway network in Knowsley. This will enable a clear process to be established for dealing with immediate drainage issues and assist in the prioritisation and development of the capital maintenance programme.

BLOCKED GULLIES & FLOODING ENQUIRIES

Flooding can never be prevented entirely - therefore, the primary objective is to minimise its impacts and consequences.

Drainage issues, such as blocked gullies or localised flooding are usually identified through routine safety inspections undertaken by the highway inspectors, or through enquiries received from members of the public, third parties, Councillors or council officers.

Depending on when an enquiry is received, it will be assessed by either a "Highway Inspector" (during normal working hours), or the "On Call Supervisor" (during out of

hours). Initially, the enquiry will be reviewed to establish the cause of the issue, determine whether it relates to a highway asset or a third-party asset, e.g. "United Utilities" and confirm whether it is located on the adopted highway, other Council-owned land, or private property.

Where the problem is identified as being a third-party asset issue, on other Council-owned, or land private land, the inspector will liaise with the relevant department or owner to seek a resolution. If the matter cannot be resolved easily, the inspector will be supported by the Council's Lead Local Flood Authority officer (LLFA) and/or the Council's enforcement team.

In certain circumstances, it may be necessary for the Council to undertake emergency mitigation measures to reduce the risk of flooding, even where the affected asset is owned by a third party or located on private land. Where such action is required, the Council may seek to recover any reasonable costs incurred from the asset owner or responsible party.

When flooding or drainage issues occur on the adopted highway, the inspector or the on-call supervisor will complete a risk assessment and assign a priority category to resolve the issue based on several different factors, such as:

- Is the flooding on a high-speed road?
- Are any internal properties being flooded?
- Are any external properties being flooded?
- Is the flooding causing vehicles to manoeuvre into oncoming traffic?
- Could vehicles lose control, be damaged, or become stranded when driving through floodwater?
- Is the flooding obstructing the footway and forcing pedestrians into the road?
- Does the location form part of the Key Route Network or Resilient Highway Network?



REACTIVE AND PROGRAMMED WORKS

PRIORITY 1

Defects requiring action within **2 hours** due to an immediate risk of an accident or internal property flooding.

Given the urgency, the initial response usually involves mitigation, not full resolution, for example:

- Deploying a Gully wagon/JetVac unit, or the Rapid Response pump to over-pump excess water
- Issuing flood sacks to residents and businesses
- Installing flood warning signs
- Closing roads or footways
- Installing temporary traffic management – lane closures / traffic signals

Once the immediate risk has been mitigated, the defect may be reclassified as Priority 2, 3 or 4 if further work is required.

In the case of Emergency Call-out, Priority 1 and 2 works, the Contractor will proceed directly with carrying out the recommended works and provide details of each job to the Service Manager. The Service Manager will retrospectively either approve the works taken place or if the Service Manager assesses that the works have been excessive or ineffective in terms of what was required to rectify the issue, adjusts the prices to reflect this.

PRIORITY 2

Defects requiring action within **24 hours**, where a hazard exists or where there is a risk of flooding.

Typical actions include:

- Clearing gullies, channels, grills, or ditches
- Jetting and CCTV investigation
- Root cutting
- Replacing gully or manhole frame/covers

These works steady the situation and reduce the likelihood of flooding. If further works are required, the defect may be reclassified as Priority 3 or 4 depending upon the assessment.

In the case of Priority 2 works, the Contractor will proceed directly with carrying out the recommended works and provide details of each job to the Service Manager. The Service Manager will retrospectively either approve the works taken place or if the Service Manager assesses that the works have been excessive or ineffective in terms of what was required to rectify the issue, adjusts the prices to reflect this.

PRIORITY 3 AND 4

Defects requiring action within 14 days or 28 days, where a hazard exists or where there is a risk of flooding.

Typical actions include:

- Clearing gullies, channels, grills, or ditches
- Jetting and CCTV investigation
- Root cutting
- Replacing gully or manhole frame/covers
- Minor dig-downs and remedial works – such as, replacing damaged drainage pipes or connections
- Replacing existing gully pots or drainage kerbs/channels
- Patch lining existing drainage pipes

In the case of Priority 3 and Priority 4 works, the Contractor will submit details of the recommended works to rectify the defect to the Service Manager. The details will include any digital imagery and a total cost built up of the relevant Price List items and quantities.

Where defects or issues cannot be fully resolved through remedial repairs alone, the Contractor shall notify the Service Manager. Such issues may require the development of a scheme design and should be assessed for potential inclusion within the “Programmed Works package”. These works will then be re-issued as a “Task Order” in accordance with the timescales set out in the task order process.

REACTIVE CLEANSE - (DAY WORKS)

Where a gully is reported as being blocked and is assessed as not posing a flood risk, it should be programmed into a reactive cleansing works package with a target completion of 28 days.

Before allocating the gully to the reactive package, a check of the gully asset ID should be made to confirm whether it is already included in the annual cleansing programme, to avoid duplication of works.

PROGRAMMED WORKS

Within the adopted highway network, there are locations that experience regular flooding during periods of severe rainfall. These areas are typically identified through repeated gully-cleaning requirements and recurring flooding complaints, including reclassified Priority 3 and 4 issues and require extensive works to fully resolve the issue.

These defects will be considered for inclusion in the Annual Plan of planned drainage works. Identification and assessment of problem areas will be informed by data collected over the previous **24 months** to ensure decisions are based on recent and relevant evidence.

Once problem areas have been identified, further on-site or desktop investigations will be carried out. When these investigations are complete, they will inform the development of a programme of schemes for consideration within the annual Capital Maintenance programme of works.

Due to budget limitations, not all programmed works can be addressed. To ensure effective allocation of funds, schemes will be prioritised using a risk-based scoring methodology, enabling high-return projects, those offering the greatest safety and operational benefits to be advanced.

The risk-based scoring methodology evaluates each identified drainage issue against a set of defined criteria. Each decisive factor is assigned a score, and the combined total determines the overall priority of the scheme. This scoring methodology, along with the resulting scheme prioritisation, will be reviewed and reassessed on an annual basis, allowing:

- New data to be incorporated
- Emerging problem areas to be captured
- Previously lower-risk schemes to move up where conditions worsen

If a programmed work defect achieves a higher score than a scheme already in the current programme (and work has not yet commenced), it may replace the lower-ranked scheme. The rationale for this change will be documented, and stakeholders affected by the displaced scheme will be informed, including any potential for reinstatement. Displaced schemes and any other programmed works not approved for delivery will be added to a list of potential schemes for consideration in the following year's Annual Plan.

FLOODING MITIGATION MEASURES

Certain flooding issues cannot be fully mitigated through permanent engineering solutions due to constraints such as limited network capacity, third-party ownership of key assets, or natural environmental factors, including the periodic flooding of adjacent agricultural land. In such circumstances, the deployment of interim mitigation measures provides an essential means of reducing risk while longer-term options are assessed. The installation of flood-warning signage enhances highway safety by offering clear, immediate notification of hazardous conditions, thereby reducing the likelihood of vehicle-related incidents. The use of gully sensors enables continuous, real-time monitoring of drainage performance, allowing operational teams to identify rising water levels at an early stage and initiate a timely response. Similarly, flood-measuring gauges provide accurate and visible depth information, supporting both public awareness and informed decision-making by emergency and maintenance teams.

Collectively, these measures strengthen situational awareness, improve response efficiency, and help to minimise the overall impact of localised flooding on the highway network and surrounding communities.

High-risk areas or schemes requiring design or third-party involvement to resolve the issue will be identified and reviewed through the monthly Flood Risk Management meetings. These forums will be used to agree on locations where further mitigation measures are necessary and to determine appropriate next steps.

MAJOR WEATHER EVENTS

In the event of a Met Office Amber or Red Weather Warning, the Council's Risk and Resilience Team will call a meeting with relevant senior managers and the Term Service Contractor to assess the potential impact on the highway network and wider council services. The meeting will review forecast weather conditions, likely risks to public safety, critical infrastructure, and service delivery, as well as the availability of operational resources.

Based on this assessment, a coordinated response plan will be agreed, which may include placing additional staff, vehicles, plant, and specialist equipment on standby to respond to weather-related incidents. Consideration will also be given to extending operational coverage, increasing monitoring of known risk locations, and implementing preventative measures where necessary.

Throughout the warning period, weather forecasts and operational conditions will be closely monitored, with further meetings arranged as required to review the situation and ensure that appropriate resources remain available to maintain public safety and minimise disruption to the highway network and local communities.



SECTION 19 FLOOD INVESTIGATIONS

Under Section 19 of the Flood and Water Management Act 2010, the Council, as the Lead Local Flood Authority (LLFA), has a statutory duty to investigate certain flooding incidents.

Where a flooding incident is identified as having significant consequences such as:

- Internal flooding of residential or commercial properties.
- Significant impacts on critical infrastructure (roads, railways, utilities, hospitals, etc.).
- Risk to life or serious disruption to communities.
- Repeated flooding incidents.
- A flood event involving multiple risk management authorities and requiring coordination.

To support the LLFA in carrying out these investigations, the Inspector or Supervisor responding to the initial flooding enquiry plays a key role in collecting and providing essential information.

If the incident occurs during normal working hours, the Inspector should notify the LLFA as soon as possible. If the incident occurs outside normal working hours, or if the LLFA is unable to attend, the Highway Inspector or On-call Supervisor should record the details listed below

and forward them to the LLFA at the earliest opportunity on the next working day.

The following information should be recorded:

- Location – Road name, house number, street lighting column reference, and geographical coordinates.
- Photographs – A series of images showing the extent of flooding, affected properties, the source or cause of flooding, any wrack lines, and, where possible, the depth of water.
- Impact – Properties flooded, infrastructure affected, and roads impacted.
- Source of flooding – River, sewer (United Utilities), highway drainage, groundwater (Environment Agency), or surface water.
- Cause of flooding – Capacity exceeded, mechanical failure, or operational failure.





APPENDIX A: PRIORITISATION SCORING MATRIX

The scoring and assessment will be informed by data collected over the previous **24 months** to ensure decisions are based on recent and relevant evidence.

	POINTS	SCORE
SAFETY IMPACT		
¹ Severe - Confirmed accident/RTC due to/exacerbated by flooding	50	
² Moderate - Flooding likely to result in high risk of accident or report of safety issue from Emergency Services	40	
³ Minor - Other minor safety issues	10	
⁴ No Safety Issues	0	
NUMBER OF ENQUIRIES/COMPLAINTS RECEIVED		
Over 20	25	
Between 16 & 20	20	
Between 11 & 15	15	
Between 6 & 10	10	
Between 1 & 5	5	
None	0	

	POINTS	SCORE		POINTS	SCORE
NUMBER OF INSURANCE CLAIMS RECEIVED			NETWORK HIERARCHY		
Over 5	4		Motorway	30	
Between 1 & 5	2		Resilient Network or Key Route Network	20	
None	0		Classified B & C Roads	5	
FLOODING IMPACT			Unclassified Roads	2	
Multiple Internal Properties Flooding	30		Speed limit of 40 mph and above	5	
Internal Property Flooding	25		Speed limit under 40 mph	0	
Business impacted by Flooding	20		Carriageway not illuminated by street lighting	5	
Multiple External Property Flooding	10		Carriageway illuminated by street lighting	0	
Single External Property Flooding	5		ENVIRONMENT AGENCY SURFACE WATER FLOOD ZONE		
Properties not affected	0		Flooding situated within a 1-in-30-year Flood Zone	15	
Repeated road closures due to flooding (occurring more than twice)	15		Flooding situated within a 1-in-100-year Flood Zone	10	
Repeated footway closures due to flooding (occurring more than twice)	10		Flooding situated within a 1-in-1000-year Flood Zone	5	
Repeated Traffic Management required e.g. lane closures or temporary traffic signals (occurring more than twice)	10		DELIVERABILITY		
Flooding in vicinity of a designated crossing point	10		Batching Possible: low value works or simplistic scheme	5	
Flooding splashing of footways	5		Requires excavation in carriageway/footway that's had surfacing works carried out in the last 3 years	-5	
Flooding in vicinity of Critical Services or Infrastructure e.g. schools or hospitals	25		Requires excavation in soon to be surfaced carriageway/footway	5	
			Significant traffic disruption likely during the construction/remedial works	-5	
			⁵ Excessive Cost vs. Value	-5	

	POINTS	SCORE
WHOLE LIFE COSTING		
Resolution of scheme will result in increased maintenance burden	-5	
No change in maintenance requirements	0	
Resolution of scheme will result in decreased maintenance burden	5	
OVERALL SCORE		

SAFETY IMPACT DEFINITIONS

- ¹ A **Severe Safety** Issue is defined as a flooding condition that presents an immediate and significant risk to life or safety, or where a road traffic collision (RTC) has occurred and is attributable to, or exacerbated by, flooding.
Such conditions represent a high-consequence hazard requiring urgent intervention and may necessitate emergency response.
- ² A **Moderate Safety** Issue represents a flooding condition that materially affects road user behaviour or vehicle control, creating a credible and developing risk of an accident if not addressed.
Such conditions represent a developing hazard, where intervention is required to prevent escalation to a more serious safety outcome.
- ³ A **Minor Safety** Issue represents a low-severity flooding or standing water conditions that are clearly visible, localised, and manageable by road users exercising normal care, with no material impact on vehicle control, traffic movement, or pedestrian safety, and a very low likelihood of resulting in an incident.
Such conditions constitute a nuisance or inconvenience with a limited safety implication and would not reasonably be expected to result in an accident under normal driving conditions.
- ⁴ A **No Safety** Issue describes a condition where water is either absent, negligible, or fully contained and therefore poses no risk to vehicle control, pedestrian movement, or asset functionality. There is no likelihood of an incident occurring, and no intervention is required beyond routine monitoring or planned maintenance if necessary.

Such conditions do not constitute a hazard and do not warrant reactive or urgent response.

⁵ **Excessive Cost vs Value – Definition**

Excessive Cost vs Value occurs when the proposed investment in a highway drainage scheme is disproportionate to the level of risk, need, or benefit delivered. In such cases, the option cannot be justified on value-for-money grounds when compared with alternative interventions or a do-minimum approach.

EXAMPLE

A £100,000 drainage scheme is proposed to install additional gully pots and upsize the existing pipework to address recurring surface water on a small, unclassified road. The issue arises during periods of heavy rainfall, resulting in temporary ponding that typically dissipates within a few hours. There is no history of property flooding or significant safety incidents.

The primary cause is reduced system performance due to silt and leaf accumulation in the existing gully pots, driven by nearby trees and debris from the adjacent grass verge.

In this scenario, an enhanced maintenance regime, such as additional gully cleansing and seasonal jetting of pipework (particularly during autumn) would restore the system’s effective capacity and significantly reduce the frequency and duration of ponding.

Therefore, by selecting the lower-cost maintenance-based solution avoids disproportionate expenditure, ensuring that available funding is used efficiently while still delivering a meaningful improvement to the drainage issue.

DELIVERABILITY & WHOLE LIFE COSTING STIPULATIONS

The Deliverability and Whole Life Costing scores will only apply to schemes that do not present safety issues classified as ‘Severe’, ‘Moderate’, or ‘Minor.’



**LIVERPOOL
CITY REGION**
COMBINED AUTHORITY

METRO MAYOR
LIVERPOOL CITY REGION