



HIGHWAYS MAINTENANCE MANUAL

Highways, Engineering and YGC Department
Cyngor Gwynedd



Appendix 1





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Responsibility for the manual

The responsibility for the delivery and updating of this plan are shown below.

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1. Introduction

1.1. Purpose

The purpose of this manual is to outline the methods and standards used by Cyngor Gwynedd for managing the maintenance of highway assets (the highway infrastructure, including roads, footways, streetlights, street furniture, gullies, drains, trees, signs, road markings, bridges and other structures). The manual outlines how the Council will comply with its duties as a highway authority, ensuring that the risks to users are appropriately monitored and managed.

1.2. Scope

This manual outlines how Cyngor Gwynedd maintains the highway assets under its control. It details the procedures used to plan and execute all work associated with managing, operating and maintaining highway assets, including how activities are monitored to ensure compliance with the Council's policies and statutory obligations.

1.3. Legal Requirements

As a highway authority, Cyngor Gwynedd must comply with statutory duties, including the following legislation:

- **The Highways Act 1980:** This places a duty on highway authorities to maintain highways adopted as maintainable at public expense, and to keep them safe for public use.
- **New Roads and Street Works Act 1991:** This places a duty on highway authorities to co-ordinate all highway works for the purpose of ensuring safety, minimising inconvenience to highway users, and protecting the highway and apparatus in it.
- **The Traffic Management Act 2004:** This places a duty on highway authorities to ensure effective movement of traffic on the road network of the highway authority as well as the networks of surrounding authorities.
- **Well-being and Future Generations (Wales) Act 2015:** This requires public bodies in Wales to think about the long-term impact of their decision, to work better with people, communities, and each other, and to prevent persistent problems such as poverty, health inequalities and climate change.



- **Environment (Wales) Act 2016:** This requires local authorities to secure healthy and resilient eco-systems for the future whilst meeting the challenges of creating jobs, housing and infrastructure.

1.4. National Guidance

In 2016, the UK Roads Liaison Group produced a new code of practice for managing highway assets. It recommended that highway authorities adopt a risk-based approach to how they maintain their roads. In response to this new code of practice, the County Surveyors' Society, Wales (CSSW) created a risk-based management method for use by highway authorities in Wales.

Current national guidance considered by this manual is found in the following documents:

- UK Roads Liaison Group – *Well-managed Highway Infrastructure: A Code of Practice*, UK Roads Liaison Group (2016).
- CSSW – *Nationally Consistent Response to the Code of Practice, 2016* (2019).
- CSSW – *Highway Asset Management Planning: Risk-based approach – Method Summary* (2019).

1.5. Council Documents

This manual is part of a suite of documents produced by Cyngor Gwynedd which support and outline the Council's approach to the management of its highway assets. The Council's initial approach to highway asset management was outlined in its *Highway Asset Maintenance Plan, 2010 (HAMP)*. This manual contains revisions of relevant sections of the HAMP which reflect the national guidance specified above.

This manual supports other departmental policies which address highway asset maintenance.

Relevant documents include:

- Cyngor Gwynedd – *Highways, Engineering and YGC Departmental Plans*.
- Cyngor Gwynedd – *Highways, Engineering and YGC Environmental Policy*.
- Cyngor Gwynedd – *Winter Maintenance Service Plan*.



2. Roles, Responsibilities and Competencies

The roles, responsibilities and competencies required of those involved in the management of Cyngor Gwynedd’s highway assets are specified below:

Role:	Responsible for:
Cabinet	Approving the use of this document as policy.
Councillors	Approving the use of this document as policy.
Corporate Leadership Team	Ensuring that the Council’s services meet the maintenance standards of this manual.
Head of the Highways, Engineering and YGC Department.	Ensuring that the Highways Maintenance Service implements the asset maintenance standards of this manual. Monitoring results. Undertaking biennial risk assessments.
Assistant Head of the Highways, Engineering and YGC Department.	
Area Engineers	
Highway inspectors	Undertaking inspections in line with the inspection regime. The appropriate data is recorded for input into the asset management systems.
Work gangs	Carrying out repairs in line with the repair regime. The appropriate data is recorded for input into the asset management systems.
Contractors.	Carrying out repairs as instructed. Recording the appropriate data for input into the asset management system.

Table 1. Roles and Responsibilities

2.1. Competencies and training

CSSW manages a competency confirmation scheme for highway inspectors involved in highway maintenance (Highway Inspection Competency Scheme). The objective of the scheme is to ensure that highway inspections are completed according to the standards specified in this manual. The training addresses visual condition assessments of carriageways and footways. Relevant officers in the Council will have received the appropriate training to attain the CSSW accreditation.



3. Highway Maintenance and Risk Management

The risks associated with maintaining highway assets are managed using the methods set out below. This includes how the Council makes use of a risk-based management approach as required in the new code of practice.

3.1. Well-managed Highway Infrastructure: A Code of Practice (2016)

A revised code of practice for highway maintenance was published in October 2016 by the UK Roads and Liaison Group. It provides guidance that highway authorities are expected to utilise when formulating their approach to highway maintenance management. Highway authorities may use this guidance when defending against third party claims.

The most significant change proposed in the new code of practice is the requirement of a risk-based approach to all decision-making regarding the maintenance of highways.

CSSW developed a risk-based management method that it recommends highway authorities in Wales adopt. It proposes recommended minimum standards for inspection frequencies and defect repairs, and calls on the highway authority to establish:

- A network hierarchy.
- An inspection regime.
- A repair regime.
- Budget allocation according to risk.

The network hierarchy, inspection regime, and repair regime adopted by Cyngor Gwynedd – and where they meet and/or exceed CSSW recommended standards – are outlined in this manual.

The approach allows inspectors to use their discretion when judging the appropriate response to repairing a defect (see Section 6. Inspection Regime).

3.2. Risk Reviews

To verify the effectiveness of the risk-based approach and the appropriateness of the network hierarchy, inspection regime and repair regime adopted by Cyngor Gwynedd, a



review of this manual will occur every 2 years. These reviews will draw upon the CSSW method outlined in: *CSSW Highways Asset Management Framework Recommended Practices - Task 4 Annual Performance & Risk Review*.

4. Asset Register and Inventory of Highway Assets

The Asset Register provides a definitive list of the highway assets that fall under the jurisdiction of, and are maintained by, the Council. The inventory of highway assets is based on the Asset Register and contains detailed information on the items held by each highway asset.

4.1. Asset Register

The National Street Gazetteer is the definitive dataset of public roads and streets that highway authorities are responsible for maintaining. The part of the National Street Gazetteer covering Gwynedd is included in the Council's WDM Highway Integrated Asset Management System (WDM) and Mayrise Street Lighting Asset Management System.

4.2. Inventory

Inventories of the Council's highway assets are held in multiple asset management systems. Asset information is handled continuously and updated as required. The assets are held on the following management systems:

- Carriageways and footways – WDM
- Structures – BridgeStation, Advanced Bridge Management Systems
- Street lighting and traffic signals – Mayrise

5. Network Hierarchy

Highway assets have been divided into network hierarchy categories which reflect the relative significance of their use and function. This ensures that the inspection and repair regimes are proportionate to the risks posed by each category.

The Council has separate network hierarchies for carriageways and footways.



5.1. Establishing the Network Hierarchy

Cyngor Gwynedd has employed a network hierarchy for many years. In line with the creation of this manual, the hierarchy has been revised in accordance with the recommendations in the CSSW document: *Nationally Consistent Response to the Code of Practice, 2016*. The revised network reflects the risks associated with each public highway based on traffic volume, other hazards and local knowledge from the Council's engineers and inspectors.

5.2. Network Hierarchy Categories

A description of the relative significance of the use and function of each hierarchy category is outlined in Appendix A. Documented evidence of how the revised network has been established, and how the highway categories have been assigned, is available on the following spreadsheet: *Cyngor Gwynedd - RP1 Annual Highway Asset Risk Review*.

5.3. Regional Consistency

To achieve regional consistency, CSSW recommends that neighbouring highway authorities agree on common hierarchy categories for assets which cross authority boundaries.

Cyngor Gwynedd neighbours the counties of Conwy, Denbighshire and Powys and has highway assets which connect with the highway networks of these other three counties. All assets maintained by Cyngor Gwynedd are classified with the same carriageway hierarchy as the neighbouring authorities. These assets are found in: *Carriageway Hierarchy – Neighbouring Authority.xlsx*.

5.4. Update and Review

The network hierarchy is reviewed on a continuous basis, and formally at least every 2 years, to reflect any significant changes in the use of any highway asset, e.g. changes in the volume of traffic).



6. Inspection Regime

To monitor the repair needs and condition of highway assets, Cyngor Gwynedd uses a regime of inspections of varying types and frequencies. This includes the following inspection types:

- **Reactive Inspections:** Inspections undertaken in response to a notification to the Council of a potential defect.
- **Routine Inspections:** A regime of planned inspections to identify defects that have the potential to cause harm to users and to assist in choosing or confirming a repair intervention to prevent further deterioration and increased future maintenance needs that could otherwise be avoided.
- **Condition Surveys:** Where the condition of the components of the highway assets are surveyed so that a renewal programme can be derived. Condition surveys can be visual- or machine-based and may include testing where appropriate for the asset type.

6.1. Routine Inspections

Routine Inspection frequencies are based on the network hierarchy. These frequencies were established according to the CSSW Highway Asset Risk Review method. Appendix B provides the routine inspection frequencies along with the CSSW minimum recommended standards. Planned routine inspections are a combination of:

- **Driven Inspections:** Inspections of carriageways by a driver and a highway inspector/competent officer in a slow-moving vehicle. Refer to table 1 in Appendix B.
- **Walked Inspections:** Inspections undertaken by a highway inspector/competent officer on foot at a walking pace on the footway.

6.2. Inspection Tolerances

Due to adverse weather, sickness or leave, it is possible that the specified frequencies cannot be met in some circumstances. For this reason, the frequencies have been assigned a tolerance – either 5 or 10 working days. The tolerances for each routine inspection frequency are specified in Appendix B.



6.3. Inspection Schedule

The WDM asset management system contains information on all previous inspections and the inspection regime. At the beginning of each month, highway inspectors/competent officers are assigned assets for inspection by the WDM system. The inspectors/officers decide on the scheduling of the inspections and consider the use and character of the asset to ensure that the time and date of the inspections are appropriate e.g. to avoid periods with higher numbers of parked cars or increased traffic. This minimises disruption and better ensures that inspections are effective and safe.

6.4. Reactive Inspections

When a defect is notified to the Council by a third party, an inspection will be undertaken at a time deemed proportionate to the suggested severity of the issue and the hierarchy category assigned to the asset. Remedial action, if required, will be undertaken as per the Council's repair regime outlined in 7.0 below.

6.5. Inspected Assets

Assets inspected during routine inspections include, but are not limited to, the elements below:

- Carriageways;
- Footways;
- Covers, gratings and frames (inc., statutory undertakers' apparatus);
- Kerbs, edgings and channels;
- Drainage;
- Guardrails, fencing and restraint systems;
- Verges, trees, and hedges;
- Road studs and markings;
- Signage;
- Street lighting;
- Traffic systems, controlled crossings, illuminated bollards and cabinets;
- Cleanliness and weed growth.



6.6. Inspection recording.

Data and information collected from inspections and subsequent observations are recorded in real time on the WDM system via mobile devices.

6.7. Condition Assessments.

The following types of condition assessments on assets are undertaken:

6.7.1. Carriageways

- SCANNER (Surface Condition Assessment of the National Network of Roads). SCANNER is a machine condition survey used from a vehicle moving at traffic speed. The results of the surveys are held offsite by WDM and accessed via the WDM/WIP interface.
- Griptester measures wet road skidding resistance. Data is kept by Ymgynghoriaeth Gwynedd Consultancy (YGC).

6.7.2. Footways

- Walked safety inspections are conducted on urban footways. Driven safety inspections are conducted on rural roads in slow-moving vehicles.

6.7.3. Structures

Structures are inspected using two levels of inspection:

- General Inspections (GIs): GIs are visual inspections, possibly with some basic hands-on assessments e.g. hammer tapping and measurements. It involves the recording of the extent and severity of observed defect. The data is then entered into the Council's Bridge Management System - BridgeStation. GIs are undertaken on all bridges every 2 years in accordance with the inspection programme.
- Principal Inspections (PIs): PIs are detailed visual inspections with hands-on assessments on most elements as well as more high-tech assessments e.g. hammer tapping, half-cell, chloride measurements etc. It involves the creation of a detailed report alongside the recording of data. The results of these inspections are entered into the



Council's Bridge Management System - BridgeStation. PIs are undertaken on structures which are large enough to warrant a PI or on other special structures such as half-joints.

- **Special Inspections (SIs):** SIs are inspections which look at a particular element or problem with a structure that might occur at any moment. SIs are undertaken by qualified engineers and can be part of a monitoring regime. The results may be kept as a project file, on specialist software, or on the Bridge Management System – BridgeStation.

6.7.4. Street Lighting

The condition of street lighting assets is assessed as follows:

- **Visual Condition:** Visual condition assessments are undertaken during maintenance visits on an *ad hoc* basis. Poor conditions and defects are recorded and actioned accordingly.
- **Electrical Safety:** Electrical testing is carried in-house by Cyngor Gwynedd. The results of the electrical testing are entered into the Mayrise asset management system.

Lighting Column Structural Testing: A programme of structural testing is delivered on all lighting columns using an external contractor. Results of structural testing provide the following condition ratings

- **Red:** Programmed for removal (normally within 4 hours).
- **Amber:** Retest within 6 months.
- **Green:** Retest within 5 years.

The results of the structural testing are entered into the Mayrise asset management system. The frequencies with which these condition assessments are used are found in Appendix B.

7. Highway Repair Regime

Defects identified via inspection or by third party notification are prioritised for repairs based on the risk they pose to users. The methods used to do this are outlined below.



7.1. Defect Categories

The data and information recorded during inspections are used to determine the category of the defect. A defect is classified according to its severity and nature, with critical defects being the most severe. The most severe defects are prioritised for repairs. The response times adopted by Cyngor Gwynedd for each defect category are specified as follows:

Defect Categories:	Description:	Response Time:
Critical Defect	A situation where the inspecting officer considers the risk to safety high enough to require immediate action e.g., collapsed cellar, missing utility cover, fallen tree, unprotected opening	2 Hours.¹
Safety defect (formerly Category 1).	Service requests or defects requiring a response as soon as possible to remove a potential risk of injury to users	By the end of the next working day.²
Maintenance defect (formerly Category 2.1).	Other defects that warrant treatment in order to prevent them deteriorating into a safety defect prior to the next scheduled inspection	1 month (CHSR, CH1 and CH2 roads). 3 months (CH3 and CH4 roads).
Safety defects on CH5 roads	It will be the duty of the inspector to assign an appropriate response to each defect based on the type of road, its size, location and the level of use.	

Table 2. Defect Categories

¹ The response time for critical defects refers to the time to attend the site. The repairs and/or works to make the site safe will happen as soon as possible afterwards.

² Particular attention will be given to defects that arise on Fridays, over the weekend or on bank holidays since there is the possibility that they could be left until late Monday (or Tuesday in the case of bank holidays) until they receive attention (by the end of next working day). Consequently, if a safety defect is identified on a Friday, over the weekend or on a bank holiday, the highway inspector/competent officer will undertake a dynamic risk assessment of the circumstances to determine whether it will be safe to leave it unattended until the following Monday (or Tuesday in the case of bank holidays). If there is any doubt about the safety risk the defect could present to the public, then it will be attended to as soon as is reasonably practicable.



7.2. Defect Types and Interventions Levels

A list of defect types and the dimensional criteria assigning them to each of the four defect categories is provided in Appendix C. Inspectors can exercise discretion in deciding which defect category is suitable to a defect. The dimensional criteria provide a minimum standard according to which a defect category is assigned. However, where circumstances specific to the defect – e.g., location, importance to the delivery of public services, and the potential to deteriorate in future – are judged to be such as to warrant a higher defect category, the inspector can do so.

This ensures two things: that the risk-based approach applied in this manual is not too heavily prescriptive, and that the defect categories assigned are appropriate to the specific conditions of each individual defect.

7.3. Emergency Service

Cyngor Gwynedd operates an emergency highways maintenance service. This service can be accessed 24 hours a day by calling: 01766 771000.

Incidents are reported directly to the duty officers and a response is provided proportionate to the circumstances.

This service provides an immediate and co-ordinated response to maintain highway safety. Hazards dealt with include problems such as flooding, ice and snow, unsafe street works, traffic signal failure, electrical danger at street lighting installations, and clearing of the highway following a road traffic incident.

A log of calls is kept by the Duty Officer. When actions can be safely deferred, this log is used to initiate any additional action required in respect of incidents on the next working day.

7.4. Works Ordering

Following the input of inspection records into Cyngor Gwynedd's WDM asset management system, work orders are generated automatically. Critical defects are reported immediately to the Works Unit who will receive a confirmation WDM Emergency Order via email.



7.5. Recording of Repair Records

On completion of repair works, details on the type of work undertaken, the materials used and, on occasion, the dimensions of the repair, are passed to the business support team. The business support team updates the WDM system with the supplied information. The defect is only be deemed ‘fully repaired’ once all records have been entered into WDM.

8. Cost Recording

The cost of the activities required to maintain highway assets are recorded to enable them to be monitored and managed. The coding used to record costs is shown below.

Highway maintenance costs are allocated to one of the following categories.

Cost Category	Activity
Planned Maintenance – (Preventative)	Planned maintenance activities that are designed to ensure that more expensive future repairs may not be needed.
Planned Maintenance – (Corrective)	Planned maintenance activities that correct the condition of the asset and which would not cost significantly more if delayed.
Routine Cyclic Maintenance	Scheduled works consisting of activities that are based on a prescribed time interval.
Routine – Reactive Maintenance (Emergency)	Reactive repair of potentially dangerous defects identified from inspection or customer complaint / notification.
Routine - Reactive Maintenance (Non-Emergency)	Other less urgent minor repairs
Routine – Inspection and Survey	Cost of specialist inspection and surveys
Operating Costs	Costs of operating elements of the asset
Overhead	Internal costs associated with the management of the asset. It is accepted that these costs may not be available at an asset group level
Loss	Money expended that is effectively “lost” to the Council from which no benefit to the asset or user is gained.
Improvements	Works that add new infrastructure to the asset.

Table 3. Cost Recording



9. Procurement

Maintenance is delivered through a mixture of in-house and procured services. Day-to-day highway maintenance services are primarily delivered by in-house Council resources. Where specialist skills are required, external contractors are employed.

The balance between in-house and procured services for each asset is outlined below.

Asset	Work Type	In-house or contractor	Contracts details
Carriageway	Routine and Reactive	In-house	
	Planned	Resurfacing – Contractor	Surfacing framework
		Surfaces dress / In-house and Contractor	
Footways	Routine and Reactive	In-house	
	Planned	Reconstruction - Contractor	Surfacing framework
		Resurfacing - Contractor	Surfacing framework
		Slurry Seal – Contractor	Tender process
Street Lighting	Routine and Reactive	In-house	
	Planned	Column (New / Replacement) – In-house	
		Luminaire (New / Replacement) – In-house	
Highway Structures	Routine and Reactive	In-house and Contractor	
	Planned	In-house and Contractor	
Traffic Signals	Routine and Reactive	Repairs/maintenance – Contractor	Tender process
	Planned	Annual inspection – Contractor	Tender process

Table 4. In-house and/or procured delivery



10. Budget allocation.

The budget for highway maintenance is set annually by Cyngor Gwynedd. Status reports are provided to assist the Council in establishing the overall budget. The highway maintenance budget is allocated between asset groups and work types in accordance with the method set out below.

10.1. Annual Budget Setting

The highway maintenance budget is split between routine and planned works. The routine budget is allocated to Gwynedd's three operational areas – Arfon, Dwyfor and Meirionnydd – and is based on the proportion of the highway network located within each area. The planned works budget is allocated in line with our scheme prioritisation system.

The Area Engineers are responsible for spending their respective budgetary allocations within the four categories specified below:

- Structural Capital Maintenance, 52% +/- 5% (Listed carriageway treatment and new provision).
- Structural Current Maintenance, 13% +/- 2% (Programmed service maintenance).
- Routine Current Maintenance, 20% +/- 3% (Cyclical maintenance, reactive maintenance).
- Current Winter Maintenance (15%).

11. Customer enquiries

Cyngor Gwynedd welcomes communications from the public in relation to highway matters. As well as helping to identify specific defects, they assist with determining aspects of the highway network that may need to be improved.

Cyngor Gwynedd gains customer feedback on the highway service through its online public interface system and its call-centre (Galw Gwynedd). The online public interface system can be accessed online. Information about Galw Gwynedd is also available online.



11.1. Customer Relationship Management System (CRMS)

When a problem on the highway network is reported by the public – either through Galw Gwynedd or the online public interface system – a notification is sent to the responsible officer or team via the Council's CRMS, known as FFOS.

If maintenance is required to address the issue reported by the customer, a works order is directly linked to the customer service request. This allows the lifecycle of the request to be captured at every stage. When the matter has been addressed, the customer is notified of the action undertaken and the request is closed in the CRMS.

11.2. Scheme Notification and Feedback

For all major planned works undertaken on the highway, the Highways Maintenance Service distributes a pre-works notification to all properties affected by the works. The notification asks for information on issues anticipated by users and residents that may arise to help mitigate disruption as far as possible prior to and during the works.

11.3. Roadwork's Reports

Public frustration can stem from delays caused by roadworks. To provide the public and others with information on where disruption to road traffic might be expected, a weekly Roadworks Report is circulated to the major motoring organisations, local media, and emergency services. Information on pre-planned roadworks is available online.

The weekly report includes confirmation of roadworks undertaken on all classified routes, including the nature and anticipated duration of the works and the methods of traffic management being employed. Additionally, publicity is provided where exceptionally severe traffic delays are likely. This includes social media, local radio and tv services, as well as local newspapers.

12. Statutory Undertaker Activity

The condition of highway assets can be impacted by the work of third parties. The role of third parties in street works is addressed by the New Roads and Street Works Act 1991. The Act requires Cyngor Gwynedd to ensure coordination of all street works, including those delivered by third parties, to ensure safety, the minimisation of inconvenience to people using the street, and the protection of highway assets.



12.1. Procedures

The procedures used by Cyngor Gwynedd to comply with its duties as per the New Roads and Street Works Act 1991 are as follows:

- **Street works license:** The license that statutory undertakers must apply for to work on public highways within Gwynedd
- **Street works register:** The register kept by the Council that records where and when utilities are working on the highway
- **Notices of works:** The notices that must be issued prior to the commencement of works and that should be issued by the organisation that is carrying out the works.
- **Restrictions on works:** Preventing works undertaken on roads that have been recently resurfaced for a period after the completion of those works
- **Co-ordination of works:** Co-ordinating works in an appropriate sequence and at appropriate intervals where more than one organisation needs to work on the same street
- **Designation of protected streets:** Where the Council can assign a protection on specific streets being used by utilities
- **Standards of re-instatement:** The Council's specification for what the standards of reinstatement should be on categories of road, including materials and depths etc.
- **Apparatus affected by highway works:** Where the Council notified utility organisations of planned roadworks to ensure that provision is made for the protection or diversion of the existing utility apparatus.

13. Claims by Third Parties

Third party claims are made against Cyngor Gwynedd when members of the public believe that negligence on the part of the Council has resulted in injury or property damage.

13.1. Processing the Claims of Third Parties

Details about the Council's handling process for claims by third parties can be acquired by emailing: insurance@gwynedd.llyw.cymru.

The Risk Coordinator and Insurance Manager receives an annual report from the insurance team. The report covers:

- The number of claims;
- A breakdown of the type of claim (e.g., personal injury or property damage);



- The asset to which it refers;
- The specific details of the claim, and
- Whether the claim was successful or repudiated.

13.2. Reporting Claims Outcomes

The Risk Coordinator and Insurance Manager reviews the information and includes a summary of the claims data.

14. Traffic Management

As a highway authority, Cyngor Gwynedd has a duty to manage its road network to ensure the effective movement of traffic and to facilitate the same on the networks of surrounding highway authorities. These derive from the Traffic Management Act 2004, and the arrangements put in place by Cyngor Gwynedd to meet these duties are outlined below.

14.1. Traffic Manager

The Council has appointed a Traffic Manager to undertake such tasks as the authority considers necessary to perform its network management duties.

14.2. Traffic Disruption.

Cyngor Gwynedd has processes for ensuring that the authority identifies causes or potential causes of road congestion and other disruption, and acts in response to, or in anticipation of, anything so identified.

14.3. Policies and Objectives

Cyngor Gwynedd has policies and objectives in relation to different roads or classes of roads and has procedures in place to monitor the effectiveness of decision-making processes, the implementation of these decisions, and to assess their performance in managing the network.



14.4. Traffic Sensitive Streets.

Gwynedd contains several streets that, due to the amount or make-up of traffic that uses them, have been designated as traffic sensitive and have working time restrictions placed upon them. A list of traffic sensitive streets is found in the following Excel Spreadsheet: *RP1 Highway Asset Risk Review*.

15. Routine Cyclic Planned Maintenance

Cyclic maintenance activities include gully emptying and verge maintenance. The frequencies which Cycle Maintenances activities are conducted are shown below.

Activity	Frequency
Gully Cleansing	
Standard Gullies	Once per year
Priority Gullies	Frequency increased at known trouble spots
Drainage channels, grillages to culvert inlets	Regular cleaning at known trouble spots.
Grass Cutting	
Designated areas of the verge are identified and exempted from the annual grass cutting regime to protect wildflowers. Where rare flowers exist in the verge, cutting is delayed until after the seeds have set.	
Urban Roads	Arfon – 5 annual cuts Dwyfor – 5 cuts Meirionnydd – 5 cuts
Rural Roads	1st cut, June – July 1m swathe increasing in width to incorporate visibility splays, forward visibility around bends, lay-bys, junctions and in front of signs. Cuts around signposts and other street furniture. For narrow rural lanes: One swathe at earth banks where the verge is less than 1m width extended to 2/3 swathe height at dangerous and narrow bends.



	2nd cut, September – October As first cut but increase in width to include flat areas of verge. The area beyond the flats to the highway boundary may be cut every 3 years to prevent overgrowth if practicable
Weed Removal	
Weed Spraying	2 times per year
Noxious Weed Removal	Ragwort removal in late July annually and other cuts dependant on type
Thorough Cleansing	Defined Urban Centre – 12 per annum Other Urban Areas – 6 per annum Rural Principal Roads – 2 per annum Class 3 Rural and Unclassified – 1 per annum

Table 5. Routine Cyclic Planned Maintenance

16. Highway Works Scheme Prioritisation Regime

Assets identified as needing repairs or replacement are included on a works programme. The work needed to fix the assets are conducted on a prioritisation basis.

16.1. Scheme Prioritisation

The WDM asset management system provides a list of works for completion and the SCANNER data identifies the more severe defects. However, these methods do not provide a prioritisation list for work orders and inspections. The work orders and inspections are prioritised at the discretion of the relevant highway maintenance staff.

This list contains more schemes than it is possible to fund. Consequently, a list of reserve sites is produced to be used if work orders on the originally selected sites cannot be undertaken due to unforeseen circumstances.

17. Performance

To ensure that operational performance complies with the standards specified in this manual, the Council operates the monitoring regime outlined below.



17.1. Operational Performance Measures

Cyngor Gwynedd has multiple performance measures to monitor the operational effectiveness of its highway maintenance services. The table below contains our performance measures and targets.

Performance Measure Title	Target
% A, B, C roads in good condition	11.2%
% General structural inspections completed on programme	80%
% Highway inspections completed on time	100%
% Critical defects, identified on inspection, made safe within 2 hours	100%
% Safety defects, identified on inspection, made safe by the end of the next working day	95%
% Maintenance defects (CHSR, CH1 and CH2 roads) identified on inspection, made safe within 1 month.	95%
% Maintenance defects (CH3 and CH4 roads) identified on inspection, made safe within 3 months.	95%
% Streetlamp failures repaired within 5 working days	80%

Table 6. Performance Measures

The satisfaction/dissatisfaction of service-users as well as the number of complaints are also captured.

Performance next to these measures is reported to the Corporate Directorship team of Cyngor Gwynedd. These reviews are conducted on a tri-annual basis and are designed to enable the Council and service managers to take corrective action if performance deteriorates.



17.2. Benchmarking

Cyngor Gwynedd welcomes benchmarking activities to measure relative performance. Benchmarking is facilitated via the CSSW project. However, highway authorities present and collect performance data differently, meaning any comparison of the performance of Cyngor Gwynedd with other highway authorities may not always be accurate or appropriate. Where circumstances are similar allowing for accurate comparison of performance, Cyngor Gwynedd works to share and learn good practice.



Appendix A: Asset Hierarchy Categories

Carriageways		
Category	Description / approximate daily traffic volume	Roads
CHSR	<p>Strategic routes. These are generally principal routes connecting primary locations. Routes for fast-moving long-distance traffic where speed limits are generally more than 40mph.</p> <p>Example traffic volume > 20,000.</p>	<p>A4087 A4212 A496 A497</p>
CH1	<p>Main distributors. Routes between strategic routes and linking urban centres to the strategic network. In urban areas, the speed limits are usually 40mph or less.</p> <p>Example traffic volume > 10,000 – 20,000.</p>	<p>A4085 A4086 A4087 A4244 A493 A496 A497 A4971 A498 A499 A5 B4405</p>
CH2	<p>Secondary distributors. Located in rural areas, these roads generally link the larger villages to the strategic and main distributor routes.</p> <p>Example traffic volume > 5,000 – 10,000.</p>	<p>B4354 B4366 B4391 B4401 B4404 B4407 B4409 B4410 B4411 B4412 B4413 B4415 B4416 B4417 B4418 B4419 B4501 B4547</p>
CH3	<p>Local roads. Located in rural areas, linking smaller villages to the distributor roads. The speed limits are usually 30mph or less.</p> <p>Example traffic volume > 1,000 - 5,000.</p>	<p>B4402 B4403 B4410 B4573</p>



CH4	<p>Local access roads. These roads serve small settlements with very few properties.</p> <p>Example traffic volume > 200 – 1,000.</p>	<p><i>All remaining roads in class C or unclassified</i></p>
CH5	<p>Generally unmetalled roads. In rural areas, these roads serve very few properties and can be unsuitable for general vehicles.</p> <p>Example traffic volume < 200.</p>	

Footways	
Category	Description - approximate daily footfall
FH1	Footways within urban shopping areas and defined town or village centres (example daily footfall 5,000 – 10,000)
FH2	Footways feeding into primary routes and adjoining carriageway categories CHSR, CH1 and CH2 (example daily footfall 1,000 – 5,000)
FH3	Footways adjoining carriageway category CH3 (example daily footfall 500 – 1,000)
FH4	Footways primarily on residential estates, and footways adjoining carriageway category CH4.

Structures	
Category	Description
Vital Structure	A structure that is vital to the network. If restricted or out of service, it would cause a very significant adverse effect such as major traffic delays and/or a lengthy diversion route with the potential to impact other important services or community severance.
Important Structure	A structure that is important to the functioning of the network, i.e., if restricted or out-of-service, it would have an adverse impact on the operation of the entire network.
Standard Structure	All other structures.



There is no hierarchy for street lighting assets managed by Cyngor Gwynedd. All assets are inspected at the same frequency and repaired within the same response time

Traffic Signals Hierarchy	
Category	Description
Vital Junction	A junction that is vital to the operation of the network, i.e., its failure would cause major traffic disruption
Important Junction	A junction that is important to the operation of the network, i.e., the failure of which would cause traffic disruption
Standard Junction	A signalised junction on the network
Pedestrian Crossing	A pedestrian crossing

Details of the hierarchy allocated to each individual asset are held in the asset management systems (WDM).



Appendix B: Frequency of Inspections

Cyngor Gwynedd's routine inspection frequencies for carriageways and footways are outlined in the tables below, along with the CSSW minimum recommended standards.

1. Carriageways: Routine Inspection Frequencies				
Carriageway Hierarchy	Inspection frequency	Number of officers	Inspection Frequency Tolerance	CSSW Recommended Minimum Standards
CHSR	Monthly driven	2	5 working days	Monthly
CH1	Monthly driven	2	5 working days	Monthly
CH2	Monthly driven	2	5 working days	Every 3 Months
CH3	Driven every 3 Months	1	10 working days	Every 6 Months
CH4	Driven every 6 Months	1	10 working days	Annually or 2 yearly dependent on condition
CH5	Reactive.	Dependent on circumstances and the risk assessment	N/A	Reactive Only



2. Footways: Routine Inspection Frequencies				
Footway Hierarchy	Inspection frequency (urban)	Inspection frequency (rural)	Inspection frequency tolerance	CSSW Recommended Minimum Standards
FH1	Monthly walked	N.A.	5 working days	Monthly
FH2	Walked every 3 months or driven in a slow-moving vehicle.	Driven every 3 months.	10 working days	Every 3 months
FH3	Walked every 6 months or driven in a slow-moving vehicle.	Driven every 6 months.	10 working days	Every 3 months
FH4	Walked every six months or driven in a slow-moving vehicle.	Driven every 6 months.	10 working days	Every 6 months

Condition Assessments

Carriageways

The SCANNER and Griptester assessments are undertaken at the following frequencies

Carriageway Annual Inspection Coverage		
Road Class	SCANNER	Griptester
A Roads	100% (one direction)	33% (one direction)
B Roads	100% (one direction)	33% (one direction)
C Roads	10% (one direction)	

Visual condition assessments for carriageways are undertaken at the following frequencies.



Carriageway Category	Survey Coverage
CHSR	100% annually
CH1	100% annually
CH2	100% annually
CH3	100% annually
CH4	100% annually
CH5	Reactive

Footways

Visual condition assessments for footways are undertaken at the following frequencies.

Footway Category	Survey Coverage
FH1	100% annually
FH2	100% annually
FH3	100% annually
FH4	100% annually

Structures

Condition assessments are undertaken at the following frequencies:

Inspection Type	Survey Coverage
General Inspection	100% Every 2 Years
Principal Inspection	100% Every 6 Years (where required*)

*For smaller structures with easy access a General Inspection is considered sufficient without the need for a Principal Inspection to be undertaken.



Lighting

Condition assessments are undertaken at the following frequencies.

Inspection Type	Survey Coverage
Electrical	100 % Every 6 Years
Column Structural Test	As per result of previous test (3 or 6 years)
Visual	Ad hoc (during each maintenance visit)

Appendix C: Defect Types and Intervention Levels

The following is a list of examples of defect types and intervention levels used within the authority.

Critical Defects

Asset Type	Defect	Magnitude	Hierarchy	Road Character	Response Time
All	A situation where the inspecting officer considers the risk to safety high enough to require immediate action, typically include items such as: Carriageway / footway / cycleway collapse with high risk of accidents / loss of control; Critically unstable overhead wires, trees or structures; Exposed live wiring; Isolated standing water with high risk of loss of control; Missing or seriously defective ironwork with high probability of injury to highway users.	Not Applicable. Critical defects are defined by their potential to cause immediate injury not by defect size	All	Not Applicable. Critical defects are defined by their potential to cause immediate injury not by defect size	2 hours

The response time for a critical defect is the time until the site is made safe. This may be achieved by closing all or part of the road, or by coning off the hazard. In some instances, repairs will occur immediately. In other instances, these will be later.



Safety Defects (Category 1 response): By the end of the next working day

Asset Type	Defect Type	Hierarchy	Dimensions Criteria		CSSW National Minimum Standard		
			Depth/Height	Extent	Hierarchy	Depth/Height	Extent
Carriageways	Pothole impacting vulnerable users, e.g., pelican crossings or bus stops etc	All categories (urban).	>20mm	>150mm	CHSR, CH1 and CH2.	>50mm	Maximum horizontal dimension greater than 150mm
	Pothole	CHSR (urban and rural), CH1 (urban and rural), CH2 (urban and rural), CH3 (urban).	>40mm	>150mm			
	Pothole	CH3 (rural), CH4 (urban and rural).	>60mm	>150mm	CH3, CH4 and CH5.	>75mm	Maximum horizontal dimension greater than 150mm.
	Trip or other abrupt level differences	CHSR (urban and rural), CH1 (urban and rural), CH2 (urban and rural), CH3 (urban).	>40mm	N/A	<i>No CSSW minimum standard.</i>		
	Trip or other abrupt level differences	All categories (urban and rural).	>60mm	N/A			



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Slippery surface	All categories (urban and rural).	N/A	N/A	<i>No CSSW minimum standard.</i>
Standing water	CHSR (rural), CH1 (rural), CH2 (rural), CH4 (rural).	>20mm	>20% of lane	<i>No CSSW minimum standard.</i>
Mandatory signs/white lines which are missing, broken, eroded and/or faded.	All categories (urban and rural).	N/A	N/A	<i>No CSSW minimum standard.</i>
Warning signs completely unserviceable	All categories (urban and rural).	N/A	N/A	<i>No CSSW minimum standard.</i>
Major debris or spillage	All categories (urban and rural).	N/A	N/A	<i>No CSSW minimum standard.</i>
Serious leaf fall	CHSR (rural) and CH1 (rural).	N/A	N/A	<i>No CSSW minimum standard.</i>
Damaged and/or exposed electrical wiring	All categories (urban and rural).	N/A	N/A	<i>No CSSW minimum standard.</i>
Missing or defective barrier	All categories (urban and rural)	N/A	N/A	<i>No CSSW minimum standard.</i>
Unstable embankments or cuttings	CHSR (urban), CH1 (urban), CH2 (urban).	N/A	N/A	<i>No CSSW minimum standard.</i>
Unstable trees or broken branches	All categories (urban and rural).	N/A	N/A	<i>No CSSW minimum standard.</i>



	Sight line obscured by trees and/or shrubs	CHSR (urban), CH1 (urban), CH2 (urban).	N/A	N/A	<i>No CSSW minimum standard.</i>		
	Broken or missing ironwork	All categories (urban and rural)	N/A	N/A	<i>No CSSW minimum standard.</i>		
	Damaged or loose roadstuds	All categories (urban and rural)	N/A	N/A	<i>No CSSW minimum standard.</i>		
Footways	Pothole	FH1 (urban and rural)	>20mm	>75mm	All categories	>40mm	Maximum horizontal dimension greater than 75mm.
		All categories (urban and rural)	>40mm	>75mm			
	Gap or crack	FH1 (urban and rural)	>20mm	>20mm	All categories	>40mm	Maximum horizontal dimension greater than 75mm.
	Gap or crack	All categories (urban and rural)	>40mm	>40mm			
	Trip and other abrupt level difference	FH1 (urban and rural)	>20mm	N/A	All categories	>40mm	Maximum horizontal dimension greater than 75mm
	Trip and other abrupt level difference	All categories (urban and rural)	>40mm	N/A			



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Slippery surface	All categories (urban and rural)	N/A	N/A	<i>No CSSW minimum standard.</i>
Major debris or spillage	All categories (urban and rural)	N/A	N/A	<i>No CSSW minimum standard.</i>
Damaged or exposed electrical wiring	All categories (urban and rural)	N/A	N/A	<i>No CSSW minimum standard.</i>
Missing or defective barrier	All categories (urban and rural)	N/A	N/A	<i>No CSSW minimum standard.</i>
Unstable embankments or cuttings	FH1 (urban and rural), FH2 (urban and rural), and FH3 (urban and rural).	N/A	N/A	<i>No CSSW minimum standard.</i>
Unstable trees and broken branches	All categories (urban and rural)	N/A	N/A	<i>No CSSW minimum standard.</i>
Broken or missing ironwork	All categories (urban and rural)	N/A	N/A	<i>No CSSW minimum standard.</i>



Maintenance Defects, High (Category 2.1 response): 1 month (CHSR, CH1 and CH2) and 3 months (CH3 and CH4).

Asset Type	Defect Type	Hierarchy	Dimensions Criteria		CSSW National Minimum Standard		
			Depth/Height	Extent	Hierarchy	Depth/Height	Extent
Carriageways	Pothole	CHSR (urban and rural), CH1 (urban and rural), and CH2.	>20mm	>150mm	CHSR, CH1 and CH2	>40mm	Maximum horizontal dimension greater than 150mm.
	Pothole	CH3 (rural) and CH4 (urban and rural)	>40mm	>150mm	CH3, CH4 and CH5	>50mm	Maximum horizontal dimension greater than 150mm.
	Trip or other abrupt level differences	CHSR (urban and rural), CH1 (urban and rural), CH2 (urban and rural)	>20mm	N/A			
	Trip or other abrupt level differences	CH3 (rural) and CH4 (urban and rural).	>40mm	N/A			



	Serious leaf fall	CHSR (urban), CH1 (urban), CH2 (urban and rural), CH3 (urban and rural), CH4 (urban and rural).	N/A	N/A	<i>No CSSW minimum standard.</i>		
	Unstable embankments or cuttings	CHSR (rural), CH1 (rural), CH2 (rural), CH3 (urban and rural), CH4 (urban and rural).	N/A	N/A	<i>No CSSW minimum standard.</i>		
	Sight-lines obscured by trees and shrubs	CHSR (rural), CH1 (rural), CH3 (rural).	N/A	N/A	<i>No CSSW minimum standard.</i>		
	Missing roads studs and/or white-lines	All categories (urban and rural)	N/A	N/A	<i>No CSSW minimum standard.</i>		
Footway	Pothole	FH2 (urban and rural), FH3 (urban and rural).	>20mm	N/A	All categories	25mm - 40mm	Maximum horizontal dimension greater than 75mm.
	Trip or other abrupt level differences	FH2 (urban and rural), FH3 (urban and rural).	>20mm	N/A	All categories	25mm - 40mm	Maximum horizontal dimension greater than 75mm.



	Gap	FH2 (urban and rural), FH3 (urban and rural).	>20mm	>20mm	All categories	25mm - 40mm	Maximum horizontal dimension greater than 75mm.
	Standing water	FH1 (urban and rural)	>20mm	>20mm	<i>No CSSW minimum standard.</i>		
	Serious leaf fall	FH1 (urban and rural), FH2 (urban and rural), FH3 (urban and rural).	N/A	N/A	<i>No CSSW minimum standard.</i>		
	Unstable embankments or cuttings	FH4 (urban and rural)	N/A	N/A	<i>No CSSW minimum standard.</i>		



Maintenance Defects, Low (Category 2 response): Response at the discretion of the inspector.

Asset Type	Defect Type	Hierarchy	Dimensions Criteria		CSSW National Minimum Standard			
			Depth/Height	Extent	Hierarchy	Depth/Height	Extent	
Carriageways	Pothole	CH4 (urban and rural), CH5 (urban and rural).	>20mm	N/A				
	Trip or other abrupt level difference	CH4 (urban and rural), CH5 (urban and rural).	>20mm	N/A				
	Standing water	CH5 (urban and rural).	>20mm	>20mm				
	Information signs completely unserviceable	All categories (urban and rural)	N/A	N/A				
	Sightlines obscured by trees and/or shrubs.	CH4 (urban and rural), CH5 (urban and rural).	N/A	N/A				
Footways	Pothole	FH4 (urban and rural).	>20mm	N/A				
	Trip or other abrupt level difference	FH4 (urban and rural).	>20mm	N/A				
	Standing water	FH2 (urban and rural), FH3 (urban and rural), FH4 (urban and rural).	>20mm	>20mm				<i>No CSSW minimum standard.</i>
	Serious leaf falls	FH4 (urban and rural).	N/A	N/A				<i>No CSSW minimum standard.</i>