

Highway Asset Management Plan

Part 4:

Highway Maintenance Manual (v1.1)



Contents

4.1 HIGHWAY MAINTENANCE MANAGEMENT	1
4.1.1 INTRODUCTION	1
4.1.2 TIMETABLE FOR MAINTENANCE MANUAL	2
4.1.3 SCOPE	2
4.1.4 LEGAL REQUIREMENTS	3
4.1.5 NATIONAL GUIDANCE	3
4.1.6 RELEVANT COUNCIL PLANS AND DOCUMENTS	3
4.1.7 ROLES, RESPONSIBILITIES AND COMPETENCIES	4
4.1.8 ASSET REGISTER AND INVENTORY	5
4.1.9 DATA AND SYSTEM IMPROVEMENT	5
4.1.10 RISK MANAGEMENT	6
4.1.11 FINANCE AND BUDGET ALLOCATION	7
4.1.12 PROCUREMENT	8
4.1.13 PERFORMANCE MONITORING REGIME	9
4.1.14 DECARBONISATION	10
4.1.15 CUSTOMER ENGAGEMENT	10
4.1.16 STREETWORKS	11
4.1.17 TRAFFIC MANAGEMENT	12
4.2 HIGHWAY NETWORK HIERARCHY	13
4.2.1 ESTABLISHING THE NETWORK HIERARCHY	14
4.2.2 NETWORK HIERARCHY CATEGORIES	14
4.2.3 REGIONAL CONSISTENCY	14
4.2.4 UPDATE AND REVIEW	14
4.3 HIGHWAY INSPECTION AND REPAIR REGIME	15
4.3.1 TYPES OF INSPECTION/ASSESSMENT	15
4.3.2 HIGHWAY INSPECTIONS	15
4.3.3 INSPECTED ASSETS	16

4.3.4 INSPECTION FREQUENCIES	16
4.3.5 INSPECTION TOLERANCE	17
4.3.6 INSPECTION SCHEDULE	17
4.3.7 RECORDING OF INSPECTION RECORDS	17
4.3.8 REPAIR REGIME	18
4.3.9 DEFECT CATEGORIES	18
4.3.10 DEFECT TYPES AND INTERVENTION LEVELS	19
4.3.11 FOOTWAYS AND CYCLEWAYS	22
4.3.12 STRUCTURES	22
4.3.13 WORKS ORDERING	23
4.3.14 RECORDING OF REPAIR RECORDS	23
PART 4.4 ROAD CONDITION ASSESSMENT AND INVESTMENT PRIORITISATION	24
4.4.1 CONDITION ASSESSMENTS	24
4.4.2 CARRIAGEWAYS ROLLING PROGRAMME	25
4.4.3 SCHEME PRIORITISATION	26

This manual is based upon a template produced by CSSW Wales under the CSSW Highway Asset Management Planning (HAMP) project. CSSW has developed a risk-based approach for highway management under the HAMP project that is intended to enable a nationally consistent response to the Code of Practice. The template has been used to create a manual specific to Carmarthenshire Council with amendments where the CSSW proposed minimum standards have been exceeded by the Council.

Document Control

Version Number	Amendments Made	Date
V1.0	Nil – Original	25 th August 2021
V1.1	Updates following CMT 2 nd September 2021	6 th September 2021
Next Review Due		October 2023

Council Approval

Version Number	Council Committee	Date
v1	Cabinet	25 th October 2021

Responsibility for the Manual

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

Council Officer	Responsible for
Richard Waters – Highways and Transportation Manager	Setting direction and strategy for the Division to support the HAMP objectives
Darren King – Highways Services Manager	Ensuring compliance with the Manual, developing policy
Chris Nelson – Highways Asset Manager	Preparing the Manual and developing policy

4.1 Highway Maintenance Management

4.1.1 Introduction

The purpose of the Maintenance Manual is to set the policy and the standards of maintenance of the highway asset and ensure the Council meets its statutory obligations. The Maintenance Manual documents the methods used to manage the highway asset and ensure that the risks to users are appropriately monitored and managed.

The HAMP underpins and defines the management, prioritisation and service levels for highway maintenance and infrastructure investment. The HAMP supports the Council's Well-being objectives and the principals of the Well-being of Future Generations (Wales) Act 2015.

The Maintenance Manual will address many areas of service delivery and will be developed over a 3-5 year period, setting out key policies and technical processes for a risk based delivery of the highway maintenance service. The authority will need to adapt to changing demands, resources and technology and continuously implement best asset management practices. The authority will continually update and review the Maintenance Manual over time. Major updates or policies will be submitted for corporate approval. We will work closely with neighbours and other local authorities in a collaborative manner and with engagement through the County Surveyors Society Wales (CSSW) asset management project. The CSSW have engaged with insurers and risk managers in the development of this recommended practice and additional consultation has taken place with the County Council's own insurers and legal counsel in the development of this Manual..

The Maintenance Manual manual will comprise a portfolio of individual sections which focus on specific elements of the highway asset brought forward to comply with CSSW recommendations and National Codes of Practice in accordance with the provisional timetable below. It will bring together specific maintenance strategies and policy into a linked suite of documents, with a focus in 2021 to update our Highway Safety Policy in response to the updated National Codes of Practice.

Highway Maintenance Manual (HAMP)

Part 1 – Policy and Strategy – Adopted October 2018

Part 2 – Highway Asset Management Framework – Adopted October 2018

Part 3 – Annual Statement and Options Report – Annual report to Exec board

Part 4 – Highway Maintenance Manual – Executive board review 25th October 2021

4.1.2 Timetable for Maintenance Manual

The proposed timetable for the development of the manual is:

Year	
2021-22	<ul style="list-style-type: none"> • 4.1 Highway Maintenance Management • 4.2 Highway Network Hierarchy • 4.3 Highway Inspection and Repair Regime • 4.4 Road Condition Assessment and Investment Prioritisation
2022-23	<ul style="list-style-type: none"> • Routine Highway Maintenance including: <ul style="list-style-type: none"> ▪ Cyclic (scheduled) maintenance ▪ Surface repairs ▪ Signs ▪ Road Markings and Cats Eyes ▪ Gully cleansing ▪ Sweeping and cleansing • Footway and Cycleways Hierarchy and Maintenance regime • Emergency response • Highway Structures • Highway Drainage • Geotechnical management • Public Lighting • Traffic Signals/Crossings • Winter Service/Adverse Weather plan
2023-24	<ul style="list-style-type: none"> • Road restraint systems • Boundary interfaces • Soft estate (Trees and Verges) • Inventory and data management plan • Technical approval procedures • Asset adoption • Streetworks and licencing • Lifecycle planning • Roadside memorials

4.1.3 Scope

The Maintenance Manual describes how the council maintains the road network under its control as the Highway Authority. It details the procedures used to plan and execute all works and functions associated with the management, operation and maintenance of the highway asset including how the activities are monitored to ensure compliance with council policies and to meet out statutory obligations.

4.1.4 Legal Requirements

As the Highway Authority the council has a duty to meet the requirement of the following legislation:

- **The Highways Act 1980:** This places a duty upon Highway Authorities to maintain highways, adopted as maintainable at public expense, and to keep them safe for public use. Key duties are set out in Appendix A.
- **New Roads and Street Works Act 1991:** This places a duty upon Highway Authorities to co-ordinate all works in the highway for the purposes 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 the expeditious movement of traffic on their road network and networks of surrounding authorities.
- **Well-being and Future Generations (Wales) Act 2015** equires public bodies in Wales to think about the long-term impact of their decisions, 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, resilient, and productive ecosystems for the future whilst still meeting the challenges of creating jobs, housing and infrastructure.



4.1.5 National Guidance

To assist authorities in meeting their duties the methods adopted in the Maintenance Manual are based upon the following National Guidance.

- [“Well-Managed Highway Infrastructure: A Code of Practice, UK Roads Liaison Group, 2016”](#)
- [“Risk Based Approach: Method”, 2019, CSSW, 2019](#)
- [“Highway Inspection Defect Recording Manual”, CSSW, 2019](#)

4.1.6 Relevant Council Plans and Documents

The Highway Asset Management Plan consists of a suite of documents and provides a comprehensive guide setting out the Council’s approach to managing the highway asset. The key documents are;

- [Highway Asset Management Plan – Parts 1 and 2](#)
- [Annual Status Reports - Part 3](#)
- [Highway Maintenance Manual - Part 4 \(includes Highway Data Improvement Plan \(2023-24\)\)](#)

4.1.7 Roles, Responsibilities and Competencies

The roles, responsibilities and competencies required of those involved in managing the council's highway asset are defined below.

Role	Responsibility
Councillors	Approve the use of this document as council policy.
Director of Environment	Ensure the Directorate's policies and strategies follow and support the attainment of Council objectives
Head of Service	Ensure the Highways & Transportation Service's policies and strategies support Directorate and Council objectives.
Highways and Transportation Manager	Develop Highways & Transportation policies and strategies to support Directorate and Council objectives, ensure their effective implementation, monitor the results, and undertake an annual risk assessment update.
Highway Services Manager	Develop Highway policies and standards to be used, ensure their effective implementation, monitor the results and ensure the 2 yearly risk review is carried out.
Highways Asset Manager	Develop Highway policies and standards, ensure their effective implementation, monitor the results, review, and update the HAMP suite of documents in line with recommended practice. Participate in CSSW HAMP workgroups/projects and disseminate best practice/guidance. To review software and asset management systems to support delivery in line with agreed policy.
Public Lighting Manager	Support in developing policy and standards for public lighting and electrical assets.
Asst Area Managers	To implement the operational and inspection service within Highways in line with the maintenance manual.
Highway Inspectors / Structures Inspectors	Carry out inspections as per the highway inspection regime, recording the appropriate data for input into the AM system including recording works completed.
Works Gangs	Carrying out highway repairs as per the repair regime and record the required data for input into the AM system.
Contractors	Carry out repairs as highway instructed as instructed and record the required data for input into the AM system.

Competencies and Training

CSS Wales manages a competency confirmation scheme covering a range of highway management functions. The scheme has been used to enable the competency of authority staff in key areas to be confirmed. The scheme covers the following areas:

- Visual Condition Assessment (Carriageways)
- Visual Condition Assessment (Footways)
- Bridge /Structures Inspection
- Highway Inspections

Those who are accredited by these schemes are listed in the [Competency Register](#).

4.1.8 Asset Register and Inventory

The asset register defines the roads that are maintainable at public expense by the council as the highway authority. The inventory of the highway assets is based on the asset register and contains the detailed information required to manage the asset. The information includes amount, size, construction material, current condition etc. where data is available.

Asset Register

The definitive record of the roads that are the councils responsibility including the full list of adopted streets is located on the Highway Searches map register. Details are also held for operational management in the Highway Asset Management System. The local street gazetteer is held on the Streetworks database. The authority has an on-going exercise to ensure the data in each repository is aligned and updated, however the 'Searches' register remains the definitive record.

Inventory

A data assessment model is programmed to be developed in 2023/24 as a live record of inventory and data and to ensure management and control of accurate data. The spreadsheet records the specific inventory held for each highway asset. The quality of the inventory details held is recorded on the data assessment spreadsheet. The data is held for each asset in the following software systems:

- Carriageways and Footways – Highway Management system, Pavement Management System
- Structures - Structures Management System
- Drainage – Highway Management System, QGIS Mapping system
- Street Lighting and Traffic Signals – Lighting Management System

4.1.9 Data and System Improvement

On completion of the [data assessment spreadsheet](#) the quality of the inventory details held shall be reviewed every two years. A plan for improvements to data shall be recorded in the [Highway Data Improvement Plan](#). The division is currently reviewing the software management systems in place across the division and plans to modernise and rationalise its systems to support effective asset management and operational service delivery whilst ensuring the ability to adapt to improvements in technology and support better ways of working.

4.1.10 Risk Management

The risks associated with maintaining the highway are managed using the methods described below. This includes how the methods comply with the risk based approach required by the Code of Practice.

Code of Practice

A revised Code of Practice (the code) for Highways “Well Managed Highway Infrastructure” was published in October 2016 providing guidance that authorities are expected to follow and may rely upon when defending themselves against third party claims. Specific duties with regards to highway maintenance are contained within section 41 of the Highways Act 1980 with a specific defence available to highway authorities under section 58 (see extracts in Appendix A).

The most significant change to the previous guidance, proposed by the new CoP, is the introduction of a risk based approach to all decision making to be undertaken by each authority individually.

CSSW have developed a method in response to the code that it recommends authorities adopt. The method includes development of Network Hierarchy, Inspection Regime and Repair Regime for the highway assets, along with recommended minimum standards for inspection and defect repair. In Carmarthenshire this replaces our Code of Practice for Highway Safety Inspections in Carmarthenshire which was adopted in 2008.

Use of the CSSW Risk-Based Approach

The Highways and Transportation Service have carried out risk assessments as detailed in the “CSSW Highways Asset Management Framework Recommended Practices - Recommended Practice 1 Risk Review with the results being recorded in the [“RP1 Risk Assessment – Spreadsheet”](#)

The details of the asset hierarchy, inspection and repair regimes adopted by the council and where they differ from (exceed) the CSSW recommended standards is detailed later in this document.

Carmarthenshire County Council Corporate Risk Management

The council manages risk via the Risk Management & Contingency Planning Strategy 2018-2022. An electronic copy of this document can be found at: [risk management and contingency planning strategy \(llyw.cymru\)](#)

The authority maintains a Corporate and Directorate Risk Registers to manage any significant risks that have been identified. Where appropriate these will be included within the Annual Statement Report.

Third Party Claims

Third party claims are made against the council when members of the public believe that negligence on the part of the council, has resulted in injury or property damage. The risk based approach adopted within the HAMP aims to minimise the authority’s exposure to risk from claims of negligence.

4.1.11 Finance and Budget Allocation

The budget for highway maintenance is set annually by the council. 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.

Annual Status Reporting

Annual Status Reports (ASRs) are provided annually detailing the current condition of the asset.

Options Reports (ORs) detail the options available for its future maintenance/management based on differing budget scenarios and are provided prior to the updating of the HAMP.

Annual Budget Setting

The budget for highway maintenance is set by Council following the review of annual status and options reports (ASRs and ORs) in coordination with the Head of Service, Highways and Transportation manager and the Highways Services manager.

The Capital budgets are established in a 5 year programme across the authority and are reviewed annually. Once determined by Council, the budgets allocated for Highway and Structures maintenance are prioritised using a risk and needs based approach each year.

The revenue maintenance budget for Highway maintenance is determined as part of the authorities annual Corporate budget setting and funds allocated to the Department. The Highway Services manager sets out nominal budgets proportionately against the various asset types and work functions. Budgets are based on best available data for Asset extent and service demands. Draft allocations are reviewed by the Highways and Transportation Manager and Head of Service.

The impact on service standards, works programme summaries and any budget pressures are detailed in the Annual Status Report on an annual basis as required.



Cost Recording

The cost of the activities required to maintain the highway are recorded to enable them to be monitored and managed. Both planned and actual expenditure is categorised to support cost analysis and inform the investment strategy. The coding used to record costs is shown below.

Cost Coding

Highway maintenance costs can be 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. NB 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.

Reviewing and Reporting of Costs

Outturn cost information is used for status reporting (HAMP Part 3 - Annual Status Report) including reporting if sustainable levels of investment are being made in each asset and for the reporting of future funding needs.

4.1.12 Procurement

Detail of how maintenance works for each asset are procured are shown below. Works are procured using a combination of internal and external resources.

Principle

Day to day highway maintenance is mainly undertaken by in house council resources. Where specialist skills are required external contractors are employed. How the service is delivered for each asset is shown below.

Asset	Work Type	In-House or Contractor	Contract Details
Carriageway	Routine and Reactive	In-house work teams	
	Planned	Resurfacing – Contractor	Surfacing framework
		Surface Dressing – Contractor	Surface dressing Tender
Footways	Routine and Reactive	In-house work teams	
	Planned	Reconstruction – In-house work teams	
		Resurfacing – In-house work teams	
		Slurry Seal – Contractor	Separate tender exercise
Highway Structures	Routine and Reactive	In-house work teams	
	Planned	In-house work teams / contractor	Construction framework contractors

Contract Reviews

Contracts are reviewed and monitored by the Commissioning and Contracts Officer and the procurement section.

4.1.13 Performance Monitoring Regime

To ensure that the standards set out in this manual are adhered to the council operate a performance monitoring regime as set out below.

Operational Performance Measures

A series of operational performance measures are used to monitor ongoing activities such as inspections and routine and reactive repairs.

The operational measures are designed to enable the service manager to take corrective action if performance has fallen below the required standards. As such the reporting of these measures is undertaken at frequencies within the year i.e., monthly, quarterly etc.

- Inspection performance – reported quarterly with monthly operational reports
- Safety Defects – monthly reports detailing completion performance for recorded safety defects

Performance Indicators

CSSW has developed a suite of performance measures designed to enable authorities to monitor the performance of their highway assets. The Performance measures are detailed in Carmarthenshires Performance & Improvement Monitoring System (PIMS) The council has adopted the recording and reporting of these PIs in order to enable review of progress in meeting condition targets set in the asset management plan and to facilitate appropriate comparison with peer authorities.

- 3-year Capital Investment programme monitoring
- 3-year programme of bridge strengthening and replacement schemes

Benchmarking

The council participates in appropriate benchmarking activities using the data recorded for appropriate OPMS and PIs. This benchmarking is facilitated via the CSSW HAMP project. It is recognised that some of the measures are a direct result of council choice in terms of standards and targets adopted and as such comparison with other authorities may not be appropriate. There are elements of performance however where understanding equivalent performance in similar authorities will enable the authority to share and learn from good practice and to implement improvements. The council actively pursues this via collaboration facilitated by CSSW and the various committees and groups that CSSW support.

4.1.14 Decarbonisation

Carmarthenshire County Council is committed to tackling climate change and to become a net zero carbon authority by 2030. The County Council was the first in Wales to publish a Net Zero Carbon Action Plan which was approved by full Council in February 2020:

<https://www.carmarthenshire.gov.wales/home/council-democracy/net-zero-carbon/>

The County Council has adopted a pragmatic approach towards becoming a net zero carbon local authority by 2030 with an initial focus on the measurable carbon footprint. The Council has also recognised that it has legal duties and responsibilities to fulfil and this will include a duty to maintain the public highway. However, in developing the HAMP Maintenance Manual we will review our operations with the aim of reducing our carbon emissions through improving our operational efficiency, ensuring effective outcomes, and using low carbon materials and techniques wherever practical and feasible.

There is a significant backlog of maintenance works required to bring our highways up to standard and the adopted risk-based approach recognises this and ensures resources are directed to areas where they are most urgently needed. This Maintenance Manual also adopts, where affordable, a planned and preventative approach to highway maintenance to improve operational efficiency and a 'fix first time' methodology to reduce repeat visits for repair works. This directly supports the reduction of whole life carbon impacts.

4.1.15 Customer Engagement

The authority operates a central contact centre with out of hours provision throughout the year. When service requests have been received these are automatically allocated to the highway inspector based on the geographical location. This allows the request and appropriate response to be prioritised and the customer advised of the action taken.

Scheme Notification and Roadworks reports

For all major works undertaken on the highway the highway service provide a pre-works notification to residential properties and businesses affected by the works.

Public frustration can stem from delays caused by roadworks. To provide the public and others with information on where disruption to road traffic can be expected, the authority notifies all major works in advance via the streetworks noticing system (ETON) and one.network. This information is also available via the council's web site <https://www.carmarthenshire.gov.wales/home/council-services/travel-roads-parking>

The web system gives details of works being undertaken on all classified routes, including the nature and anticipated duration of the works, and the method of traffic management being employed. Additional publicity is

provided where exceptionally severe traffic delays are anticipated with advance warning signs on major routes.

4.1.16 Streetworks

The condition and management of the highway is affected by third party works. The management of these third-party activities is governed by legislation (Highways Act 1980 - see Appendix B), New Roads and Street Works Act (NRSWA) 1991, and Traffic Management Act 2004). The manner in which the council complies with its duties under this act is set out below.

All notified utility activity undertaken on the council's highway network is co-ordinated by the Street Works Team and recorded within the Streetworks Register. The Street Works Team ensure that all statutory undertakers comply with the New Roads and Street Works Act (NRSWA) 1991 and all amendments as notified in the Traffic Management Act 2004, to ensure that all works undertaken on the highway are completed to the required standards and are programmed to achieve the least disruption to members of the public.

Procedures

The detailed procedures are used for undertaking this work including procedures for;

- **street works notices;** all statutory undertakers and works promoters have a legal duty to provide advance notification of their intention to work on any highway maintainable at public expense. Emergency works must be notified by 10am on the next working day. Please note that statutory undertakers have a right to lay apparatus in the highway and do not require permission to do so.
- **street works register;** the register kept by the council that records where and when utilities / works promoters are working or have worked on the highway and records the size of reinstatements.
- **S58 restrictions on works;** preventing works being carried out on roads that have been recently resurfaced for a period after completion of those works
- **co-ordination of works;** coordinating works in an appropriate sequence and at appropriate intervals where more than one organisation needs to work on the same street, or promote collaborative working
- **designation of protected streets,** where the council can assign a protection on specific streets being used by utilities
- **re-instatement categories;** nationally agreed specification for what the standards of reinstatement should be for each category based on proven usage of road including materials and depths etc.
- **apparatus affected by highway works:** where the council notifies utilities where road works are planned to ensure that provision is made for the protection or diversion of the existing utility apparatus

Copies of the procedures used can be found in the Standard Codes of Practice Manuals located on [Documents \(whauc.com\)](http://whauc.com)

Statutory undertakers works have a significant effect upon the condition of the highway and the users perception of it. In the future ASR (Annual Status Reports) reporting will reference the number of openings made and the standards of reinstatement being achieved such that a true picture of condition and its causes are known.

4.1.17 Traffic Management

The council as local traffic authority has a duty to manage the road network to secure the expeditious movement of traffic on the network and facilitate the same on road networks for which another authority is the traffic authority. The duties are set out in the Traffic Management Act 2004 and the arrangements that the council has in place to meet these duties is detailed below.

Full details of the arrangements put in place for managing traffic on the counties roads can be found in the Traffic Management Act 2004 and Code of Practice for Co-ordination of Street Works & Works for Road Purposes & Related Matters both of which can be found on the following Welsh HAUC (Highway and Utilities Committee) website page [Documents \(whauc.com\)](http://www.whauc.com)

Traffic Sensitive Streets

The county contains several streets that due to the amount or make up of traffic that use them have been designated as traffic sensitive and have working time restrictions placed upon them. The list of traffic sensitive streets is contained in the National Street Gazetteer.



4.2 Highway Network Hierarchy

The highway assets have been divided into network hierarchy categories that reflect the use and function of the component parts of the network. This enables the inspection and repair regimes to be related to their associated risk. Carmarthenshire developed its hierarchy which was discussed at the Council's Environment and Public Protection Committee and subsequently adopted by the Council's Executive Board in 2018. Following adoption the hierarchy has been further developed to follow guidance from CSSW and to ensure a consistent approach across Wales. The hierarchy details are tabulated below and set out in ["RP1 Risk Assessment – Spreadsheet"](#). The categorisation of individual highway links in the network in accordance with the Network Hierarchy are displayed on [GeoDiscoverer \(add the Network Hierarchy layer\)](#).

CSSW Category	Description	Type of road General Description	Description
M	1.Motorway	Limited access -motorway regulations apply	Routes for fast-moving long-distance traffic. Fully grade separated and restrictions on use
CHSR	2. Strategic Route	Trunk and some Principal 'A' class roads between Primary Destinations	Routes for fast-moving long-distance traffic with little frontage access or pedestrian traffic. Speed limits are usually in excess of 40 mph and there are few junctions. Pedestrian crossings are either segregated or controlled and parked vehicles are generally prohibited.
CH1	3a. Main Distributor	Major Urban Network and Inter-Primary Links. Short - medium distance traffic	Routes between Strategic Routes and linking urban centres to the strategic network with limited frontage access. In urban areas speed limits are usually 40 mph or less, parking is restricted at peak times and there are positive measures for pedestrian safety
CH2	3b. Secondary Distributor	B and C class roads and some unclassified urban routes carrying bus, HGV and local traffic with frontage access and frequent junctions	In residential and other built-up areas these roads have 20 or 30 mph speed limits and very high levels of pedestrian activity with some crossing facilities including zebra crossings. On-street parking is generally unrestricted except for safety reasons. In rural areas these roads link the larger villages, bus routes and traffic generators to the Strategic and Main Distributor Network.
CH3	4a. Link Road	Roads linking between the Main and Secondary Distributor Network with frontage access and frequent junctions	In urban areas these are often residential or industrial interconnecting roads with 20 or 30 mph speed limits, random pedestrian movements and uncontrolled parking. In rural areas these roads link the smaller villages to the distributor roads. They are of varying width and not always capable of carrying two-way traffic.
CH4	4b. Local Access Road	Roads serving limited numbers of properties carrying only access traffic	In rural areas these roads serve small settlements and provide access to individual properties and land. They are often only single lane width and unsuitable for HGVs. In urban areas they are often residential loop roads or cul-de-sacs.
CH5a	5a. Minor Road	Little used roads serving very limited numbers of properties.	Locally defined roads
CH5b	5b. Lane	Minor routes and low use tracks that provide access to isolated properties	In rural areas these often-narrow roads serving isolated agricultural buildings or properties. In urban areas these are often metalled lanes serving garages or the rear of properties
CH5c	5c. Green Lane or track	Lanes and tracks that are generally unsuitable for vehicular traffic	Lanes and tracks that are unsuitable for vehicular traffic but may be used as a footpath, part of a Cycle Trail or by horse riders, generally for leisure purposes
CH5d	5d. Disused track	Unmetalled tracks that are unrecognisable as a road	Roads that have become unusable having fallen into disuse through regression or agricultural use

4.2.1 Establishing the Network Hierarchy

The network hierarchies have been derived in accordance with the the Code of Practice “Well-Managed Highway Infrastructure: A Code of Practice, UK Roads Liaison Group, 2016” and the CSSW “Risk Based Approach: Method”. Details of how the hierarchies were derived is held in the “RP1 Annual Highway Asset Risk Review 2018”. The methodology is set out in [CSSW Risk based approach – Method 2019 v1](#).

4.2.2 Network Hierarchy Categories

Details of the CSSW recommended hierarchies for the seperate highway asset groups can be found in Appendix B. The details of the hierarchy allocated to each individual asset are held in the council’s Highway Management System, Structures management system and Lighting managemnt system. Carmarthenshire is developing individual hierarcies for other asset groups following adoption of the main road network hierarchy.

Carmarthenshire’s road network hierarchy is broken down as follows (subject to update):

Network Road Class	Length by Hierarchy (km)									Total
	CHSR	CH1	CH2	CH3	CH4	CH5a	CH5b	CH5c	CH5d	
A & B	168	118	294		1					581
C		2	140	458	656	27	0			1284
U (Rural u-c)			3	82	49	1014	9	76	25	1258
W (Urban u-c)			17	63	136	137	33	0		387
Total (km)	168	121	454	603	842	1179	42	77	25	3510
%	5	3	13	17	24	34	1	2	1	

4.2.3 Regional Consistency

CSSW recommends that to achieve regional consistency consultation is undertaken with neighbouring authorities to enable consistent hierarchies to be allocated to assets which cross boundaries. At this time the consultation process is yet to be completed, however on completion, the results will be recorded in the [“RP1 Risk Assessment – Spreadsheet”](#).

4.2.4 Update and Review

The hierarchies are reviewed on an ongoing basis where changes to the asset occur and or significant changes in use happen (e.g. significant changes in traffic volume). As a minimum the hierarchy will be reviewed and confirmed every 2 years. Records of the review will beheld in the “Carmarthenshire County Council RP1 Annual Highway Asset Risk Review”. Any resultant recommended changes to the hierarchy will be undertaken in line with the approved methodolgy.

4.3 Highway Inspection and Repair Regime

To monitor the condition and repair needs of the asset the council deploys a regime of inspection and repair of varying types and frequencies which adopts a risk-based approach.

4.3.1 Types of Inspection/Assessment

The council undertakes the following types of inspection:

1. **Reactive Inspections/Response:** inspections undertaken in response to the notification to the authority of potential defects by other sources (council employees, members of the public, emergency services etc.).
2. **Planned/Routine Inspections:** A regime of planned inspections the purpose of which is to identify defects that have the potential to cause harm to users and to identify defects that require repair in order to prevent escalation of deterioration and increased (avoidable) maintenance needs.
3. **Condition Surveys:** A regime of condition surveys that record the condition of components of the asset such that a programme of renewal/replacements can be derived. Condition surveys can be visual or machine based and may include testing where such is appropriate for the asset type.

4.3.2 Highway Inspections

Planned routine inspections are a combination of:

- **Driven Inspections:** inspections of the highway undertaken by a Highway Inspector with a driver (high speed roads only – typically CHSR, CH1 and CH2). Inspections of road classes CH3, CH4 and CH5 are carried out by Highway inspector only from a slow-moving vehicle with high visibility markings to Chapter 8 and at a speed appropriate to the road conditions.
- **Walked Inspections:** inspections undertaken by a Highway Inspector on foot where the footway and carriageway are assessed.



4.3.3 Inspected Assets

The assets inspected during the routine inspections by the highway inspector include (but are not limited to) the following:

<ul style="list-style-type: none"> • Carriageways 	<ul style="list-style-type: none"> • Kerbs, Edgings and Channels
<ul style="list-style-type: none"> • Footways 	<ul style="list-style-type: none"> • Highway Structures (safety only)
<ul style="list-style-type: none"> • Covers, Gratings & Frames (inc. Statutory Undertakers apparatus) 	<ul style="list-style-type: none"> • Highway Drainage systems (above ground)
<ul style="list-style-type: none"> • Highway Culverts (below 900mm – reactive inspections only) 	<ul style="list-style-type: none"> • Traffic Systems, Controlled Crossings, Illuminated Bollards and Cabinets (safety only)
<ul style="list-style-type: none"> • Guardrails, Fencing and Restraint Systems 	<ul style="list-style-type: none"> • Signage / bollards
<ul style="list-style-type: none"> • Verge, Trees and Hedges 	<ul style="list-style-type: none"> • Road Studs and markings
<ul style="list-style-type: none"> • Street furniture (safety only) 	<ul style="list-style-type: none"> • Street Lighting (safety only)
<ul style="list-style-type: none"> • Embankments and Cuttings (safety only) 	<ul style="list-style-type: none"> • Cattle Grids (Safety only)
<ul style="list-style-type: none"> • Cleanliness and Weed Growth (Invasive and injurious weeds) 	<ul style="list-style-type: none"> • Cycleways (on road/highway only - see note below)

Note: Off road cycleways / cycle trails are inspected by the Public Rights of Way Team.

4.3.4 Inspection Frequencies

Reactive Inspections

Where a “safety” defect is notified to the council by a third party an inspection of the reported defect will take place by the end of the next working day and action will be taken as per the Council’s repair regime.

Where a “maintenance” defect is notified to the council by a third party an inspection of the defect will take place within 30 days and action will be taken as per the Council’s repair regime

Routine Inspection Frequencies

Routine Inspection frequency is based on the Network Hierarchy. It has been determined using the CSSW Highway Asset Risk Review Method and is reviewed every 2 years. The frequency of routine inspections is set out below along with the CSSW minimum recommended standards. Carmarthenshire either meets or exceeds the minimum recommended standards.

Carriageway: Routine Inspection Frequencies				
Carriageway Hierarchy	Inspection Interval	Inspection Method	Inspection Frequency Tolerance	CSSW Recommended Minimum
CHSR	Monthly	Driven - 2 person	10 working days	Monthly
CH1	Monthly	Driven - 2 person	10 working days	Monthly
CH2	Every 3 months	Driven - 2 person	10 working days	Every 3 Months
CH3	Every 6 months	Driven – 1 person	3 months	Every 6 Months
CH4	Annual	Driven – 1 person	3 months	Annually or 2 yearly Dependant on condition
CH5a	Annual	Driven – 1 person	3 months	Reactive Only
CH5b	Annual	Driven – 1 person	3 months	Reactive Only
CH5c	Reactive	Driven/Walked – 1 person	NA	Reactive Only
CH5d	Reactive	Walked	NA	Reactive Only

4.3.5 Inspection Tolerance

Due to the effect of adverse weather, unplanned incidents etc. and to allow for sickness or leave, a tolerance in frequency of inspections is permitted as set out in the table above. The respective Assistant Area Manager is responsible for ensuring inspections are undertaken within permitted tolerances.

4.3.6 Inspection Schedule

Inspection routes in compliance with the regime above are held in the council's highway asset management system. The asset management system contains details of the inspection regimes, the inspections undertaken and the date of the next scheduled inspection. Inspections are scheduled on a monthly basis and downloaded from the asset management system. The use and character of a road will be considered when scheduling inspections. Best endeavours will be made to ensure that the timing of the inspection enables defects to be identified effectively. Weather conditions and traffic volumes will also be considered to support safe and effective inspections.

4.3.7 Recording of Inspection Records

Records of the inspection and the resulting observations are recorded using tablet computers and the results transferred by the inspectors into the highway management system as soon as possible on completion of the inspection.

4.3.8 Repair Regime

Repairs identified via inspection or by 3rd party notification, are prioritised for repair based upon the risk that they pose to users. The methods used to categorise a response are set out below.

4.3.9 Defect Categories

The defect categories are established during routine or ad-hoc highway inspections. Defect categories prioritise making safe or undertaking repairs using the defect response times shown below.

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 manhole/gully cover, fallen tree, unprotected opening	2 Hours*
Safety Defect	Service requests or defects requiring a response as soon as possible to remove a potential risk of injury to users	By end of Next Working Day (CHSR, CH1, CH2) Within 5 working days (CH3, CH4, CH5**)
Maintenance Defect	Defects that warrant treatment to prevent them deteriorating into a safety defect prior to the next scheduled inspection	30 Days (CHSR, CH1, CH2) 90 days (CH3, CH4, CH5**)
Programmed repairs	Defects that warrant treatment, in order to prevent them deteriorating to such an extent that additional works or costs are incurred	As per the local works programme. Subject to resources.

*Response time for critical defects refers to the time to attend site from the time the defect is inspected/categorised, make safe or repair will then be asap thereafter. Making safe may constitute displaying warning notices, coning off or fencing off to protect the public from the defect.

** Defect triggers on CH5 roads are to be considered an investigatory level. An investigatory level does not automatically trigger a response. It will be incumbent upon the inspector to assign an appropriate response to each defect based upon its type, size, location, and the level of use of the road. CH5 roads are low use roads and defects will frequently present low risk to users and can be responded to accordingly.

4.3.10 Defect Types and Intervention Levels

Details of the defect types and the intervention levels that have been prescribed for each defect type i.e. Critical Defects, Safety Defects and Maintenance Defects, are set out below.

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 coning off the hazard. In some instance a repair may be immediately possible but in many instances the defect will be made safe, and a permanent repair will occur later.

Safety Defects

Asset Type	Defect Type	Hierarchy	Dimensional Criteria		CSSW National Minimum Standard	
			Depth/Height	Extent	Depth/Height	Extent
Carriageways	Pothole	CHSR, CH1 and CH2	>50mm	As CSSW	> 50mm	Maximum horizontal dimension greater than 150mm
	Pothole	CH3, CH4 and CH5**	>75mm	As CSSW	>75mm	Maximum horizontal dimension greater than 150mm
Footways	Pothole	All	As CSSW	As CSSW	> 40mm	Maximum horizontal dimension greater than 75mm
	Crack or Gap	All	As CSSW	As CSSW	> 40mm	Maximum horizontal dimension greater than 75mm
	Trip	All	As CSSW	As CSSW	> 40mm	Maximum horizontal dimension greater than 75mm
	Rocking Slabs	All	As CSSW	As CSSW	> 40mm	N/A
Kerbing	Dislodged, Loose, Missing, Damaged - Causing a trip hazard	All	As CSSW	As CSSW	> 40mm	N/A

Maintenance Defects

Asset Type	Defect Type	Hierarchy	Dimensional Criteria		CSSW National Minimum Standard	
			Depth/Height	Extent	Depth/Height	Extent
Carriageways	Pothole	CHSR, CH1 and CH2	As CSSW	As CSSW	> 40mm	Maximum horizontal dimension greater than 150mm
	Pothole	CH3, CH4 and CH5	As CSSW	As CSSW	> 50 mm	Maximum horizontal dimension greater than 150mm
	Crowning / Depression	All	As CSSW	As CSSW	> 100mm	< 2M Length
Footways	Pothole	All	As CSSW	As CSSW	25mm - 40mm	Maximum horizontal dimension greater than 75mm
	Crack or Gap	All	As CSSW	As CSSW	25mm - 40mm	Maximum horizontal dimension greater than 75mm
	Trip	All	As CSSW	As CSSW	25mm - 40mm	Maximum horizontal dimension greater than 75mm
	Rocking Slabs	All	As CSSW		25mm - 40mm	N/A
Kerbing	Dislodged, Loose, Missing, Damaged - Causing a trip hazard	All	As CSSW		25mm - 40mm	N/A

**Defect triggers on CH5 roads are to be considered an investigatory level.

Note: The standards in the preceding tables are a guide only. [Reference should be made to the CSSW Highway Inspection Defect Recording Manual](#) . It is an essential part of the authorities' inspection regimes that inspectors are appropriately trained. In doing so inspectors can complement application of the standard with their own risk assessment of individual defects, which may result in a different response time.

4.3.11 Footways and Cycleways

The council will develop a footway hierarchy in 2022/23 utilising a risk-based approach in accordance with CSSW recommendations. Higher usage footways will be identified and a schedule of footways requiring walked inspections will be documented. The footway inspection regime as set out in the 2008 Code will continue until superseded, but the revised defect categorisation detailed in Part 4.3.2 below will apply in association with the revised carriageway defects.

Where adjacent carriageways and footways are inspected during the same inspection the higher frequency level is applied. The sections subject to monthly walked are listed at [Schedule of Monthly Walked inspections](#)

The general condition of footways are observed during the highway inspection and the information recorded by the highway inspector is used to address individual defects and determine priorities for remedial work programmes. Separate Visual condition assessments are not currently undertaken on footways.

On road cycleways are currently inspected as part of the highway inspection regime by the highway inspection team. The road hierarchy recognises national and higher usage on-road cycling routes. Off-road cycling trails are inspected and maintained by the public rights of way (PROW) maintenance team.

4.3.12 Structures

An individual Maintenance Manual section on Highway Structures will be developed in 2022/23 but an overview of current inspection regimes is set out below:

Highway Structures consist of:

- Bridges
- Retaining Walls
- Cattle Grids
- Footbridges
- (1500mm and
- Culverts (900mm or above)
- above)

Structures are inspected as follows:

- i. General Inspections (GIs); GIs are visual inspections, with some hands-on and basic assessment e.g., hammer tapping and measurements where necessary. Carmarthenshire Structures Inspectors undertake general inspections on a 2-yearly frequency. The extent and severity of observed defects are recorded on the Council's Structures Management System.
- ii. Principal Inspections (PIs); PIs are a more detailed visual inspection, with hands-on assessment of most/all elements plus detailed assessment e.g., hammer tapping, half-cell, chloride measurements etc. Principal inspections are only undertaken on a limited number of key structures on a frequency ranging from 6 to 10 years following a risk-based assessment process. Detailed reports are recorded within the Council's Structures Management System.
- iii. Special Inspections: Reactive inspections as a result of adverse weather, or due to damage or in

advance of abnormal loads.

- iv. Reactive inspections following complaints or third-party reports.

Inspections are undertaken using the Inspection Manual for Highway Structures for guidance and following Design Manual for Roads and Bridges standard CS 450. Details are recorded on hand-held devices and immediately loaded into the Structures Management System and the data used to record a bridge condition score (bci).

The results of inspections are used to generate condition scores for individual structures, or the entire structures stock. Condition scores can be reported at structural element level and are used to prioritise works programmes. Bridge condition score data is also used for performance management and benchmarking purposes.

4.3.13 Works Ordering

Works orders are generated using the council's asset management system following the input of the inspection records.

4.3.14 Recording of Repair Records

On completion of recorded defects, the repair details are recorded in the asset management system including the date/time of repair. These details are available to monitor performance and respond to third party claims.

Part 4.4 Road Condition Assessment and Investment Prioritisation

The road or 'carriageway' is the most significant highway asset in terms of value and the cost of essential preventative and corrective maintenance. Maintaining all road surfaces in 'as new' condition is not feasible across the entire 3500km network and the timely intervention of maintenance is key to delivering maximum value from our investments. Monitoring the condition of each part of the network is critical when prioritising investments, increasingly so as budgets are under pressure and demands on the network increase. Prioritising investment using the Network Hierarchy and best available condition information supports our risk-based approach.

4.4.1 Condition Assessments

In addition to routine inspections, the authority undertakes the following condition assessments on its highway assets. The frequency of condition assessment for carriageways is set out below.

Carriageway Annual Inspection Coverage		
Road Class	SCANNER	SCRIM
A Roads	100% (one direction)	100% (both directions)
B Roads	100% (one direction)	100% (both directions)
C Roads	50% (one direction)	

Carriageways

SCANNER (Surface Condition Assessment of the National Network of Roads)

SCANNER is a machine condition survey undertaken from a vehicle moving at traffic speeds. The results of the survey are held in the highways asset management system PMS module (Pavement Management System)..

The SCANNER survey collects a range of data using high speed vehicle mounted lasers. The data includes measurements of:

- Wheel track rutting
- Cracking
- Edge deterioration
- Longitudinal profile (3m,10m and 30m)
- Texture depth

Each of these datasets is aggregated and summarised in accordance with nationally agreed standards to

assess condition levels in a consistent manner. This data is used to produce the Road Condition indicator figures and provides network wide condition ratings to assist with Asset Valuation and deterioration modelling. SCANNER surveys are not currently undertaken on the unclassified road network.

The scanner results inform overall condition of the highway network and assist in prioritising investment. The results are also required to provide PAM 20 (Public Accountability Measures) on Class A, B and C roads.

SCRIM (Sideway-force Coefficient Routine Investigation Machine)

The SCRIM survey measures wet road skidding resistance and is stored in the highways asset management system.

The approach outlined within HD28 has been adopted to help manage the risk of skidding accidents in wet conditions so that this risk is broadly equalised across the county road network. This is achieved by providing a level of skid resistance that is appropriate to the nature of the road environment at each location on the network. The appropriate level of skid resistance is determined from a network accident analysis plus local judgment of site-specific factors.

The initial output from the survey is used to identify parts of the road network requiring further investigation. These investigations consider accident history and network characteristics to arrive at a recommendation for any further action. Carmarthenshire routinely allocates a fixed sum to fund remedial treatments to prioritised locations each year, subject to funding.

SCANNER and SCRIM surveys are procured via a central contract managed by the Welsh Government.

Visual Condition Assessment

A visual condition survey of all roads has been undertaken in 2020 using video survey technology. The carriageway condition has been assessed by AI (artificial intelligence) to produce coarse visual inspection data in accordance with national standards. The carriageway visual condition information is stored in the Vaisala database for review and CVI (Coarse Visual Inspection) data exported into the highway asset management system.

Assets that are identified as in need of substantial repair or replacement are included on a works programme of potential schemes and prioritised using a risk-based approach. The prioritisation will vary according to the asset and available data with a focus on use of the hierarchy and areas of highest use.

4.4.2 Carriageways Rolling Programme

A list of schemes is maintained on a rolling programme as surveys and inspections identify the need for surface treatment either from resurfacing or other measures including surface dressing. A 3 year programme is developed and subject to review each year. The annual programme is produced to meet the standards, strategies & budgets for each asset and treatment type as detailed in the Highway Asset Management Plan (HAMP). This rolling programme contains significantly more schemes than it is possible to fund and the risk-based prioritisation process is critical in ensuring investment is targetted in the appropriate areas.

4.4.3 Scheme Prioritisation

The carriageway prioritisation uses the following categories:

- Hierarchy (traffic/usage)
- Scanner data (rutting, Texture, 3m profile, 10m profile) RCI
- Visual condition (video survey analysis)
- Area and local network priorities
- Defect levels
- Age of construction

The structures prioritisation uses the following categories:

- Hierarchy
- Condition
- Means of access/Alternative routes
- Network impact
- Safety status

Using the above criteria scheme bids are objectively scored and prioritised to ensure the funding available is targeted towards the areas of greatest need and benefit.



Appendix A: Extract from highways Act 1980

As the highway authority the council is subject to legal requirements that include:

The 1980 Highways Act,

- Section 41; to maintain those roads, footways and cycle tracks that are '*Highways maintainable at public expense*'.
- Section 58 ; states that a statutory defence against third party claims is provided where the Highway Authority can establish that reasonable care has been taken to 'secure that the part of the highway to which the action relates' to a level commensurate with the volume of ordinary traffic such that it 'was not dangerous to traffic'.

Section 41 - Duty to maintain highways maintainable at public expense

(1)The authority who are for the time being the highway authority for a highway maintainable at the public expense are under a duty, subject to subsections (2) and (4) below, to maintain the highway.

(2)An order made by the Minister under section 10 above directing that a highway proposed to be constructed by him shall become a trunk road may, as regards—

(a)a highway to which this subsection applies which becomes a trunk road by virtue of the order, or

(b)a part of a highway to which this subsection applies, being a part which crosses the route of the highway to be so constructed,

contain such a direction as is specified in subsection (4) below.

(3)Subsection (2) above applies to—

(a)any highway maintainable at the public expense by a local highway authority, and

(b)any highway other than a highway falling within paragraph (a) above or a highway maintainable under a special enactment or by reason of tenure, enclosure, or prescription.

(4)The direction referred to in subsection (2) above is—

(a)in a case where the highway or part of a highway falls within subsection (3)(a) above, a direction that, notwithstanding subsection (1) above, it shall be maintained by the highway authority for that highway until such date, not being later than the date on which the new route is opened for the purposes of through traffic, as may be specified in a notice given by the Minister to that authority ; and

(b)in a case where the highway or part of a highway falls within subsection (3)(b) above, a direction that, notwithstanding subsection (1) above, the Minister is to be under no duty to maintain it until such date as aforesaid.

(5)Where an order under section 10 above contains a direction made in pursuance of subsections (2) to (4) above, then, until the date specified in the notice given by the Minister pursuant to the

direction, in accordance with subsection (4) above, the powers of a highway authority under sections 97, 98, 270 and 301 below as respects the highway to which the direction relates are exercisable by the highway authority to whom the notice is required to be given, as well as by the Minister.

Section 58 : Special defence in action against a highway authority for damages for non-repair of highway.

(1) In an action against a highway authority in respect of damage resulting from their failure to maintain a highway maintainable at the public expense it is a defence (without prejudice to any other defence or the application of the law relating to contributory negligence) to prove that the authority had taken such care as in all the circumstances was reasonably required to secure that the part of the highway to which the action relates was not dangerous for traffic.

(2) For the purposes of a defence under subsection (1) above, the court shall in particular have regard to the following matters:—

- a) the character of the highway, and the traffic which was reasonably to be expected to use it;
- b) the standard of maintenance appropriate for a highway of that character and used by such traffic;
- c) the state of repair in which a reasonable person would have expected to find the highway;
- d) whether the highway authority knew, or could reasonably have been expected to know, that the condition of the part of the highway to which the action relates was likely to cause danger to users of the highway;
- e) where the highway authority could not reasonably have been expected to repair that part of the highway before the cause of action arose, what warning notices of its condition had been displayed;

but for the purposes of such a defence it is not relevant to prove that the highway authority had arranged for a competent person to carry out or supervise the maintenance of the part of the highway to which the action relates unless it is also proved that the authority had given him proper instructions with regard to the maintenance of the highway and that he had carried out the instructions.

The New Roads & Street Works Act 1991 imparts a duty on Statutory Undertakers to maintain their apparatus in the Highway, but it has been established in Case Law that they can rely on the Highway Authority's Safety Inspection regime to some extent when defending Claims.

The Council can avoid being held jointly liable for defective apparatus by issuing a Section 81 Notice - New Roads & Street Works Act 1991 to the Utility Company whenever a defect is identified by the Authority within the Highway.

Appendix B: County Surveyor Society Wales Recommended Asset Hierarchy Categories

Carriageways	
Category	Description (approximate daily traffic volume)
CHSR	Route enabling travel between locations of regional significance (NA, Strategic routes are identified based on their importance regionally rather than their traffic volume)
CH1	Travel between locations (traffic volume 10,000 - 20,000)
CH2	Travel between locations (5,000 - 10,000)
CH3	Travel between locations (1,000 - 5,000)
CH4	Access to housing (200 – 1,000)
CH5a	Access to properties (housing and farms) (< 200)
CH5b	Access to isolated properties <20
CH5c	Unsuitable for vehicles
CH5d	Disused/impassable

Footways	
Category	Description (approximate daily footfall)
FHVHU	> 10,000 (15,000 used for calculations)
FH1	High use pedestrianised zones and footways in town centres (5,000 – 10,000)
FH2	Footways outside busy public building such as train/bus stations, hospitals, schools and colleges or small parade of shops etc. that generate significantly higher levels of use than the adjacent footways (1,000 – 5,000)
FH3	Footways that link housing estates and industrial estates to other centres /routes (500 – 1,000)
FH4	Footways in housing areas (<500)
FH5	Rural footways used very infrequently (<100)

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

Street Lighting Hierarchy

The hierarchy for street lighting assets managed by Carmarthenshire County Council is at a single level. All assets are inspected at the same frequency and repaired within the same response time. The nature and extent/impact of the fault determines the priority rather than the location.

Traffic Signals Hierarchy

Traffic Signals Hierarchy	
Category	Description
Vital Junction	A junction the operation of which 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, the failure of which would cause traffic disruption
Standard Junction	A signalised junction on the network
Pedestrian Crossing	Pedestrian crossing

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