Flintshire County Council:

Highway Maintenance Manual:

(including Policy for Highway & Car Park Inspection and Repair)

Document Control

Version Number	Amendments Made	Date
v1	Nil – Original	September 2024
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Council Approval

Version Number	Council Committee	Date
v1	§	October 2024

Responsibility for the Manual

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

Council Officer	Responsible for
Highway Network Manager	Ensuring compliance with the manual and updating of the manual

1 Introduction

Purpose

The purpose of this manual is to document how the council manages highway maintenance. The manual shows how the council aims to meet its duties as the highway authority. It documents the methods used to ensure that the risk to users is appropriately monitored and managed.

Version 1 of the manaul details inspection and repair regimes. Future updates of the manual will detailm the methods used for other aspects of maintenance.

Scope

The manual describes how the council maintains the road network under its control. 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.

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
- **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.

National Guidance

To assist authorities in meeting their duties the following National Guidance is provided. The methods adopted in this manual are based upon the contents of the following:

- "Well-Managed Highway Infrastructure: A Code of Practice, UK Roads Liaison Group, 2016"
- "Risk Based Approach: Method", 2019, CSSW, 2019
- CSSW Highway Asset Management Recommended Practices

Relevant Council Plans and Documents

This manual is part of a suite of documents that support the councils approach to managing the highway asset. These include; Highway Asset Management Plan, Highway Data Improvement Plan and Annual Status Reports.

2 Roles, Responsibilities and Competencies

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

Roles and Responsibilities

Role	Responsibility
Councillors	Approve the use of this document as council policy.
Highway Network Manager	Develop the policy and standards, ensure their effective implementation, monitor the results and undertake an annual risk assessment update.
Operational Area Managers	Responsible for the implementation of the policy in terms of ensuring that Section 58 inspections are carried out; ensures inspections are carried out to the specified standard by suitably accredited staff.
Area Co-ordinators	Carry out inspections as per the inspection regime, recording the appropriate data for input into the AM system.
Service Delivery Highway Teams	Carrying out repairs as per the repair regime and record the required data for input into the AM system.
Contractors	Carry out repairs as instructed as instructed and record the required data for input into the AM system.

Competencies and Training

CSS Wales manages a competency confirmation schemes covering highway and bridge inspection. Relevant FCC staff will be accredited under these schemes to demonstrate their competency in these tasks.

CSS Wales is currently developing a Capability Building Scheme (2024) to assist aiuthorities to develop their capability in highway management. FCC staff will partake in relevant modules of this scheme.

The council maintains registers of those staff who are accredited under the CSSW competency schemes and those who have completed CSSW HAMP capability scheme training modules.

3 Asset Register and Inventory

The asset register defines the roads that belong to and are maintained by the council. 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 such data is available.

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 Flintshire is included in the Council's Mayrise Asset Management System.

Inventory

Inventories of the Council's highway assets are held in multiple asset management systems. Information is updated when changes to the assets occur. The assets are held on the following management systems:

- Carriageways and Footways - Mayrise
- Structures - AMX

Data and System Improvement

The quality of the inventory details held is reviewed annually. A plan for improvements to data and the highway asset management system are recorded in the Highways Asset Data Management Plan.

4 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. The CoP recommends the use of a risk based approach to all aspects of highway maintenance.

CSSW developed a method in response to the code that it recommendeds authorities adopt. The method includes development of Hierarchy, Inspection Regime and Repair Regime for the highway assets, along with recommended minimum standards for inspection and defect repair.

Use of the CSSW Risk-Based Approach

The CSSW Method has been used to define the inspection and repair regime used in this manual/policy. Documents setting out the CSSW Minimum Standards and the rationale for their adoption are set out in documents supplied with this manual.

A review of hierarchy using the method has not been undertaken as the levels of traffic in Flintshire are not sufficiently different to national averages to provide significant benefit in the review. This may be undertaken at a future date. 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.

Flintshire County Council Corporate Risk Management

The council manages risk via the 'Flintshire County Council Risk Management Framework'. An electronic copy of this document can be found at: Risk Management Framework (flintshire.gov.uk)

5 Network Hierarchy

The highway assets have been divided into network hierarchy categories that reflect use and function. This enables the inspection and repair regimes to be related to their associated risk.

Network Hierarchies

The following network hierarchies have been adopted and are used as the basis for the inspection and repair regimes.

Carriageways		
Category	**Classification**	**Detail**
2	Class A – Strategic Route	Routes for fast-moving, long-distance traffic with few frontages or pedestrian traffic.
3(a)	Class B – Main Distributor	Routes between strategic routes and linking urban centres.
3(b)	Class C – Secondary Distributor	Routes carrying mainly local traffic with large numbers of frontages and junctions.
4(a)	Unclassified – Link Road	Routes linking main/secondary distributors and local access roads, many frontages and junctions.
4(b)	Unclassified – Local Access Road	Routes serving properties only with limited access traffic.

Footways		
Category	**Definition**	**Detail**
1(a)	Prestige	Very busy main town centre shopping areas
1(b)	Primary	Busy urban shopping and business areas
2	Secondary	Medium usage routes local shopping centres
3	Link footway	Linking local access footways, busy rural footways
4	Local access footway	Low usage estate road footways

Cycleways		
Category	**Definition**	**Detail**
A	Integral	Cycle lane forming part of the carriageway
B	Dedicated	A highway route for cyclists not contiguous with the public footway or carriageway

Car Parks		
Category	**Definition**	**Detail**
A	Chargeable	Car parks with parking charges
B	Non-chargeable	Car parks without parking charges

Structures	
Category	**Description**
A	Highway Structures
B	Highway Retaining Walls

Update and Review

The hierarchies are reviewed when significant changes to the asset or changes in use happen (e.g. large changes in traffic volume). As a minimum the hierarchy should be reviewed and confirmed every 2 years. Any resultant recommended changes to the hierarchy are proposed to council and their approval recorded.

6 Inspection Regime

To monitor the condition and repair needs of the asset the council deploys a regime of inspections of varying types and frequencies.

Types of Inspection

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.

Planned routine inspections are a combination of:

- **Driven Inspections**: inspections of the carriageway undertaken with a driver and a Highway

Inspector, carried out from a slow-moving vehicle at a speed appropriate to the road conditions.

- **Walked Inspections:** inspections undertaken by a Highway Inspector on foot at a walking pace on the footway, where the footway and carriageway are assessed.

Inspection Frequencies

Reactive Inspections

Where a "safety" defect is notified to the council by a third party an inspection of the defect will take place within 2 Hours and action will be taken as per the Council's repair regime. (see section 14 repair regime for details of safety defect criteria).

Where a "maintenance" defect is notified to the council by a third party an inspection of the defect will take place within 7 Days and action will be taken as per the Council's repair regime. (see section 14 repair regime for details of maintenance defect criteria).

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 shown in below along with the CSSW minimum recommended standards.

Carriageway: Routine Inspection Frequencies#

Category	Classification	Inspection Interval	Inspection Method	CSSW Recommended Minimum
2	Class A – Strategic Route	1 month	Driven	Monthly
3(a)	Class B – Main Distributor	1 month	Driven	Monthly
3(b)	Class C – Secondary Distributor	1 month	Driven	Every 3 Months
4(a)	Unclassified – Link Road	3 months	Driven	Every 6 Months
4(b)	Unclassified – Local Access Road	6 months	Driven	Annually (poor or unknown condition) Every 2 years (good condition)

The carriageway inspections are carried out by Streetscene Area Coordinators from a vehicle, driven as slowly as road conditions will allow. The Area Coordinator will be a passenger in the vehicle, which will be driven by a second member of the Streetscene & Transportation workforce.

Footway Routine Inspection Frequencies#				
Category	**Definition**	**Inspection Frequency**	**Inspection Method**	**CSSW Recommended Minimum**
1(a)	Prestige	1 week	Walked	Monthly
1(b)	Primary	1 month	Walked	Monthly
2	Secondary	3 months	Walked	Every 3 Months
3	Link footway	6 months	Walked	Every 6 Months
4	Local access footway	6 months	Walked	Annually (poor or unknown condition) Every 2 years (good condition)

Cycleway Routine Inspection Frequencies#			
Category	**Definition**	**Inspection Frequency**	**Inspection Method**
A	Integral	As adjacent carriageway	Driven
B	Dedicated	6 months	Walked

#Where adjacent carriageways and footways are inspected during the same inspection the higher frequency level is applied.

Car Park Routine Inspection Frequencies#			
Category	**Definition**	**Inspection Frequency**	**Inspection Method**
A	Chargeable	6 months	Walked
B	Non-chargeable	Annually	Walked

Condition Assesments

Carriageway

The SCANNER and SCRIM assessments are undertaken at the following frequencies

Carriageway Annual Inspection Coverage		
Road Class	**SCANNER**	**SCRIM**
A Roads	100% (one direction)	100% (both direction)
B Roads	100% (one direction)	100% (both directions)
C Roads	25% (one direction)	10% (both directions)

Visual condition assessments are undertaken on all roads every 5 years using AI technology

Footway

Visual condition assessments are undertaken on all roads every 5 years using AI technology

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

Inspection Schedule

Inspection routes in compliance with the regime above are held in the council's asset management system, Mayrise. The Mayrise asset management system contains details of the inspection regimes, the inspections undertaken and the date of the next scheduled inspection. Inspections to be undertaken are provided to the inspectors at the beginning of each week. The use and character of a road will be considered when scheduling inspections, for example to avoid periods with higher numbers of parked vehicles. Best endeavours will be made to ensure that the timing of the inspection enables defects to be identified effectively.

Inspected Assets

The assets inspected during the routine inspection include (but are not limited to) the following:

- Carriageways
- Footways
- Covers, Gratings & Frames (inc Statutory Undertakers apparatus)
- Kerbs, Edgings and Channels
- Drainage
- Guardrails, Fencing and Restraint Systems
- Verge, Trees and Hedges
- Road Studs and markings
- Signage
- Street Lighting
- Traffic Systems, Controlled Crossings, Illuminated Bollards and Cabinets
- Cleanliness and Weed Growth

Recording of Inspection Records

Records of the inspection and the resulting observations are recorded in real time on the Mayrise system via mobile devices.

Condition Assessments

The council undertake the following condition assessments on their highway assets. The frequency of condition assessment is given in Appendix B.

Carriageways

i. 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 offsite by WDM and accessed via the WDM / WIP online interface.

The SCANNER survey is undertaken at the following frequencies

Carriageway Annual Survey Coverage	
Road Class	**SCANNER**
A Roads	100% (one direction)
B Roads	100% (one direction)
C Roads	50% (one direction)

ii. SCRIM (Sideway-force Coefficient Routine Investigation Machine)

The SCRIM data measuring wet road skidding resistance results are held offsite by WDM and accessed via the WDM / WIP online interface.

The SCRIM survey is undertaken at the following frequencies

Carriageway Annual SCRIM Coverage	
Road Class	**SCRIM**
A Roads	100% (both directions)
B Roads	100% (both directions)
C Roads	10% (both direction)

iii. Visual Condition Assessment (using AI)

A visual condition survey of all roads was undertaken in 2022 using video survey technology. The condition of carriageways, footways and road marking has been assessed by AI (artificial intelligence) to produce coarse visual inspection data. The data is held offsite by the supplier and accessed via an online interface. It is proposed to repeat the survey in every 4/5 years.

SCANNER and SCRIM surveys are arranged via a central contract managed by the Welsh Government. The contract covers A, B and C Roads. SCANNER surveys are not undertaken on the unclassified road network.

Footways

Visual Condition Assessment

i. Visual Condition Assessment (using AI)

See details in Carriageway Section

Structures

Visual Condition Assessment

Structures are inspected using two levels of inspection:

i. General Inspections (GIs'); GIs are visual inspections, possibly with some hands-on and basic assessment e.g. hammer tapping and measurements.

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.

A General Inspection involves recording the extent and severity of observed defects on a form the data from which is subsequently entered into the council's Bridge Management System, AMX.

A Principal Inspection involves the creation of a detailed report along with the data recorded on the form. The results of these inspections are also entered into the council's Bridge Management System, AMX.

7 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 do this are set out below.

Defect Categories and Response Times (Carriageways)

The data recorded during inspections is used to determine defect categories. Defect categories prioritise repairs using the defect response times adopted by the council and 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 utility cover, fallen tree, unprotected opening, ➢ Requiring an immediate response to make the site safe	2 Hours#
Safety Defect	Defects that pose an imminent risk of injury to road users, ➢ Requiring a response as soon as possible to remove a potential risk of injury to users	By end of Next Working Day (Hierarchies 2, 3(a), 3(b)) Within 5 Working Days (Hierarchies 4(a), 4(b))
Maintenance Defect	Defects that warrant treatment to prevent them deteriorating into a safety defect prior to the next scheduled inspection, ➢ Requiring a response to prevent them becoming a safety defect	1 month (Hierarchies 2, 3(a), 3(b)) 3 months (Hierarchies 4(a), 4(b))
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

response time for critical defects refers to the time to attend site, make safe or repair will then be asap thereafter

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.

Defect Categories and Response Times (Footways)

The data recorded during inspections is used to determine defect categories. Defect categories prioritise repairs using the defect response times adopted by the council and 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 utility cover, fallen tree, unprotected opening, ➢ Requiring an immediate response to make the site safe	2 Hours#
Safety Defect	Defects that pose an imminent risk of injury to road users, ➢ Requiring a response as soon as possible to remove a potential risk of injury to users	By end of Next Working Day (Hierarchies 1(a), 1(b), 2) Within 15 Working Days (Hierarchies (3, 4)
Maintenance Defect	Defects that warrant treatment to prevent them deteriorating into a safety defect prior to the next scheduled inspection, ➢ Requiring a response to prevent them becoming a safety defect	1 month (Hierarchies 1(a), 1(b), 2) No set response time (Hierarchies (3, 4)
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

response time for critical defects refers to the time to attend site, make safe or repair will then be asap thereafter

Defect Types and Intervention Levels

Details of the defect types identified and the intervention levels that have been prescribed for each defect category are provided in Appendix C.

"24 Hour" Emergency Cover

The Council operates an emergency service via an out of hours Contact Centre that operates from 5 pm until 8:30 am daily and at other times when the main offices are closed. The Contact Number is 01267 224911. Incidents are reported to the contact centre who forward them to the Duty Officer and emergency response is provided if required.

This service provides where necessary an immediate and co-ordinated response to maintain highway safety at all times. Hazards dealt with include problems such as flooding, ice and snow, unsafe street works,

abandoned vehicles, traffic signal failure, electrical danger at street lighting installations, and clearing of the highway following a road traffic accident.

An incident log is produced by the Contact Centre for every out of hours period. When action can be safely deferred, this log is used to initiate any additional action required in respect of particular incidents on the next working day.

Works Ordering

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

Recording of Repair Records

On completion of the repair the works representative record details of the type of work undertaken, the materials used and the dimensions of the repair via a tablet into the Mayrise asset management system.

The defect will only be deemed 'fully repaired' once all records have been entered into the asset management system.

Defect Types and Intervention Levels

The following is a list 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 coning off the hazard. In some instance a repair may be immediately possible but in many instances the repair will occur later

Safety Defects

Asset Type	Defect Type	Hierarchy	Dimensional Criteria		CSSW National Minimum Standard	
			Depth/Height	Extent	Depth/Hieght	Extent
Carriageways	Pothole	2, 3(a), 3(b)	>50mm	Maximum horizontal dimension greater than 150mm	> 50mm	Maximum horizontal dimension greater than 150mm
	Pothole	4(a), 4(b)	>75mm	Maximum horizontal dimension greater than 150mm	>75mm	Maximum horizontal dimension greater than 150mm
Footways	Pothole	All	>40mm	Maximum horizontal dimension greater than 75mm	> 40mm	Maximum horizontal dimension greater than 75mm
	Trip	All	>40mm	Maximum horizontal dimension greater than 75mm	> 40mm	Maximum horizontal dimension greater than 75mm
	Rocking Slabs	All	>40mm	Maximum horizontal dimension greater than 75mm	> 40mm	Maximum horizontal dimension greater than 75mm

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

Maintenance Defects

Asset Type	Defect Type	Hierarchy	Dimensional Criteria		CSSW National Minimum Standard	
			Depth/Height	Extent	Depth/Hieght	Extent
Carriageways	Pothole	2, 3(a), 3(b)	>40mm	Maximum horizontal dimension greater than 150mm	> 40mm	Maximum horizontal dimension greater than 150mm
	Pothole	4(a), 4(b)	>50mm	Maximum horizontal dimension greater than 150mm	> 50 mm	Maximum horizontal dimension greater than 150mm
	Crowning / Depression	All	>100mm	< 2M Length	> 100mm	< 2M Length
Footways	Pothole	All	25mm – 40mm	Maximum horizontal dimension greater than 75mm	25mm - 40mm	Maximum horizontal dimension greater than 75mm
	Trip	All	25mm – 40mm	Maximum horizontal dimension greater than 75mm	25mm - 40mm	Maximum horizontal dimension greater than 75mm
	Rocking Slabs	All	25mm – 40mm	N/A	25mm - 40mm	N/A
	Badly cracked or damaged ironwork	All				

The standards in the preceding tables are a guide only. It is an essential part of the authorities' inspection regimes that inspectors are appropriately trained. In doing so inspectors are able to complement application of the standard with their own assessment of individual defects, which may result in a different response time.

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 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.