



Highway Maintenance Plan 2018

Caerphilly County Borough Council Highway Maintenance Plan

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Preface

Caerphilly County Borough Council's (CCBC) **Highway Maintenance Plan** (HMP) records how the Council manages and maintains its roads and assets.

This manual promotes the adoption of an integrated asset management approach to make the highway safer for all users and to provide a reference text to all staff within the Highway Operations Group. It is also a useful medium and communication to other departments and stakeholders, moreover it will be a standard issue document to all new Highway employees.

To meet the overriding objective of making the highway safer for all users, a risk management approach is used to assess defects and prioritise treatments, in line with the approved code of practice (ACoP) for Highway maintenance 'Well-Managed Highway Infrastructure (Appendix I). The manual explains the reasons for implementing the risk management approach in terms of best practice.

<http://www.ukroadsliaisongroup.org/download.cfm/docid/4F93BA10-D3B0-4222-827A8C48401B26AC>

The Codes of practice are founded upon the principles of best value and emphasise the use of an asset management approach to highway maintenance. The Highway Maintenance Plan sits alongside the Highway Asset Management Plan, which details the mechanisms that will be deployed as we work towards attaining the Council's objectives as expressed in its corporate strategic plan 2018-2023. This will be through planned performance against the lifecycle plans for all major components of the highway asset. Including:

- Carriageways
- Structures
- Drainage
- Footways and Cycleways (inc PROW)
- Street Lighting and Traffic Signals

The HMP sets out this risk based approach, which will be embedded in every-day decision making. During the development of this plan this approach, along with the referenced guidance material, has been used to set standards for undertaking inspections and maintenance. However for certain standards, where noted, it is intended that these standards are to evolve as the maintenance service environment changes and further understanding of risks arises.

The HMP is split into four parts.

- Part 1 explains the background and policy for the highway inspection process.
- Part 2 provides guidance on how inspections should be carried out.
- Part 3 of the manual provides photographic and written guidance for Council highway inspectors to help assess highway defects. The final section

- Part 4 of the manual is the appendices for the 'Highways Code of Practice' and standard letter templates.

PART 1 Background and policy information

1.1 Purpose and Scope

The Highways Maintenance Plan (HMP) details the policies and standards, and where appropriate, the processes that will be utilised to manage and maintain the Council's roads and assets. The highway network is by far the single most valuable asset in the control of the Council, with an estimated replacement value of £2 billion (in excess of 1,200km of publicly maintained highways, 32,000 gullies and approximately 27,000 street lights). The extent, and hence value of this asset, is expanding constantly through new development and improvements to the existing infrastructure.

Caerphilly's highway asset will vary over time as a result of development, improvements and stopping up processes.

Highway maintenance is a wide ranging function that covers the following general activities:

- Reactive maintenance – addressing actionable defects and deficiencies that are causing a hazard to highway users.
- Routine maintenance – undertaking consistent and/or cyclical functions to preserve assets in a safe and serviceable condition, wherever possible avoiding the need for reactive maintenance by enhancing the value or life of the asset as part of a whole system of works.
- Programmed maintenance – planned interventions (usually on a more significant scale) that are designed through our asset management processes as works that will enhance the value or life of the highway asset.
- Regulatory functions – requiring or enabling others to undertake works or other activities in, on or around the highway in accord with the Council's statutory functions.
- Winter Service – precautionary salting and the clearance of snow and ice.
- Other emergencies – providing a planned emergency response to events that cause a significant hazard to highway users or threaten the integrity of the highway.

The establishment of an effective regime of inspection, assessment and recording is central to effective and efficient highway maintenance and key to addressing the fundamental objectives of highway maintenance strategy, these being:

- Network Safety
- Network Serviceability
- Network Sustainability
- Network Hierarchy

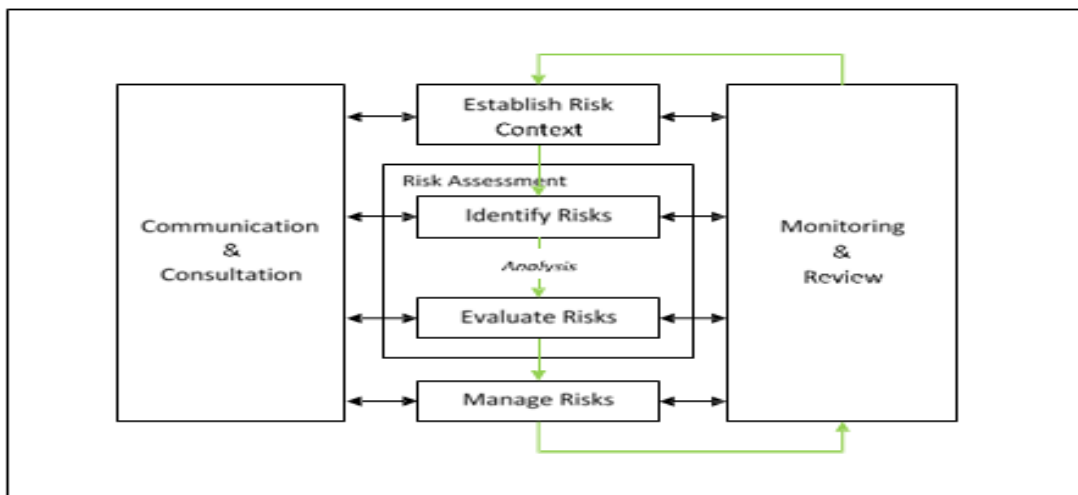
Aligned with the Inspection Policy will be the development and inclusion of a detailed asset management approach as set out in the UKRLG asset

management guidance documentation

(<http://www.ukroadsliaisongroup.org/download.cfm/docid/5C49F48E-1CE0-477F-933ACBFA169AF8CB>).

Asset management is widely accepted as a means to deliver a more efficient and effective approach to management of highway infrastructure assets through longer term planning and ensuring that levels of service are defined and achievable for available budgets. It supports making the case for funding, for better communication with stakeholders, and facilitates a greater understanding of the contribution highway infrastructure assets make to economic growth and social well-being of local communities. Caerphilly’s Highway Asset Management Plan is held at Highway Operations Group.

Caerphilly CBC has adopted a risk-based approach and a risk management regime for all aspects of highway maintenance. This includes but is not limited to investment, setting levels of service, operations, including safety and condition inspections, and determining repair priorities and planned maintenance programmes. Our the policy document is set against a backdrop of a clear and comprehensive understanding and assessment of the likelihood of asset failure and the ramifications



An Example of a Risk Management Process

This HMP defines the characteristics of the inspection regimes, including the hierarchy, frequency of inspection, items to be recorded and nature of response. They are all set within the context of the County Borough Council’s Corporate Plan and maintenance strategy.

<http://sc-aptken1/KENTICO/getattachment/ab780120-3a2b-47f9-bff0-f383462fbb98/Corporate-Plan-2018-23.aspx>

The manual has also been developed with the following specific objectives in mind;

- To ensure network safety and best value through the application of a defined auditable inspection strategy
- To assist in providing a high-quality, responsive highway maintenance service to our customers
- To follow current best practice by implementing a risk-based defect assessment process
- To provide clearly documented inspection guidance for highway inspection personnel at all levels

By providing guidance to personnel involved in undertaking highway safety inspections, it is the intention that they can carry out their duties with consistency and to clear, recognised and understood criteria. This guidance identifies how defects are prioritised and how an appropriate response is determined. It forms part of the training programme for new inspectors and is also an aide-memoir to established inspectors.

The HMP can also be used as a guide to non-professionals to explain the highway inspections process in a clear, unambiguous way.

As this manual will form the basis of our S41 and S58 defence under the HA 1980, the document pays particular attention to the inspection process and internal mechanisms and in Section 2 goes into greater detail on the following:

- *Safety Inspections*

Safety inspections are carried out at regular frequencies that are set to reflect the level of use and importance of the road or footway. These inspections are designed to identify all defects likely to create danger or serious inconvenience to users of the network or the wider community.

- *Service Inspections*

Service inspections are more detailed inspections of particular highway features and are designed to ensure that they meet serviceability requirements. The scale and scope of these inspections will reflect the Authorities policy objectives; support their asset management objectives and maintenance planning.

- *Ad-hoc Inspections*

These are undertaken via complaints from members of the public or other internal departments and are in addition to any defects that are noticed whilst carrying out routine duties. All are recorded within our data management system, Mayrise.

1.2 Risk Based Approach

The HMP details our risk based approach (RBA) to highway maintenance activities, in line with latest industry practices.

The purpose of RBA within the HMP ensures a consistent application of a decision making process to:

- Correctly evaluate the risk posed to highway users by all defects or deficiencies in the
- Highway asset;
- Prioritise resources so that the risk is managed effectively;
- Ensure the efficient use of available resources;
- Understand performance and address any gaps in resources or performance;
- Ensure value for money; and,
- Enable monitoring of outcomes.

The principle of a risk based approach is to assess the likelihood of injury or damage as a result of any defectiveness and the consequences of that event should it occur. Decisions will be informed by data and knowledge derived from the analysis of previous maintenance activities, such as highway safety inspections.

The consequences of defects in the highway can include:

- Damage or injury to highway users, their property and the resultant claims for damages;
- Safety hazards resulting in risk to the community
- Disruption to traffic
- Accessibility being compromised
- The devaluing of places
- Dissatisfaction
- Economic disruption to businesses

Prescriptive intervention levels for defects are used within this plan, but based on the on the Risk Based Approach, discretion is utilised. A set intervention criteria can sometimes be wasteful of resources with defects that present a low risk often being measured and then repaired ahead of smaller defects that by virtue of their location, may cause a greater hazard. A risk based approach utilises the expertise and experience of the inspector to correctly and consistently evaluate defects in accordance with the guidance established in this plan. Expertise and consistency of inspectors is ensured by training to industry recognised standards and regular comparative inspections.

1.3 Sustainability

Sustainability is a key part of the Council’s vision. The delivery of highway maintenance is undertaken in accordance with good environmental management procedures so as to minimise environmental impacts and sustain Caerphilly’s biodiversity and character. The impact of the highway infrastructure maintenance activities when considering whole life carbon costs, should be taken into account when determining appropriate interventions, materials and treatments.

In the selection of materials, and treatment, their environmental impact is considered. We aim to maximise the environmental contribution and sustain the County’s biodiversity, character and heritage by the adoption of good environmental management procedures in highway maintenance works.

When determining the balance between structural, preventative and reactive maintenance, the principle that prevention is better than the cure is adopted.

We take advantage of locally sourced, and recycled materials, as well as environmentally friendly methods to promote value and innovation, and to drive continuous improvement. In each case departures from the approved standards will only take place following an assessment of risk, and with approval of senior leaders. Caerphilly has engaged with industry providers in order to establish effective sustainable treatment modes and in collaboration with contractors, the extensive use of Cold Applied Ultra Thin Surfacing CAUTs as part of our planned surface treatment works is utilised throughout our Network.

As such this Highway Maintenance Plan focuses, as part of a whole system of works described by this plan and the HAMP, on a methodology and means of maintaining the network to meet the challenges of safety, serviceability and sustainability, in order to provide best value for the Council and local community, by considering:

Safety	Serviceability	Sustainability
Complying with Stat obligations	Ensuring availability	Minimising cost over time
Meeting end users needs for safety and reliability	Achieving integrity	Maximising value to the community
	Maintaining reliability and maintaining. Enhancing condition	Maximising environmental contribution
The character of the area		
Current and desired future usage		

In addition, Caerphilly follows the template for sustainable transport and focuses keenly on the inclusion of walking and cycling as set out in the ‘Active

Travel Wales Act 2013'. This sets out the agenda to implement and sustain an active Nation.

1.4 Asset Management

As part of Caerphilly's effective Highway asset management, the Local Transport plan sets the authority's asset management and strategy approach.

Asset management is a strategic approach that identifies the optimal allocation of resources for the management, operation and preservation of the asset.

Within our Asset Management Plans Caerphilly have developed lifecycle plans for major assets and identify how we intend to record specific information relating to their condition. Within set financial parameters that information will be best used via planned interventions a process to preserve, maintain and enhance the Highway Infrastructure. The following factors will influence each decision under these principles

- Risk based approach
- Corporate aims and objectives
- Network Priorities
- Policy and legislative documentation
- Agreed levels of Service

Lifecycle planning as part of the asset management approach will target programmed maintenance and cost effective treatment options. Consequently, options for the areas of our infrastructure requiring intervention will be driven by data, promoting best practice as the assets degrade. Treatment options at the correct intervals Ceate further deterioration and provide for effective planned maintenance. Right treatment at the right time.

1.4.1 Future Demands

Climate change increases the likelihood of extreme weather events and a general trend towards wetter winters and drier summers, resulting in an adverse impact to our infrastructure. This is addressed in our Winter Maintenance Plan document and the resilience consideration.

Population growth is a global concern that has local threats. With the national avg 0.8% growth and expectancy that the population will surpass 70million by 2026, the pressures placed on an already deteriorating infrastructure will be significant. Caerphilly's expected growth patterns will rise approximately 0.22%, slightly below the National average and has surpassed 180,000 in 2018.

1.4.2 Communication and Partnership

Stakeholder engagement, good communication and internal liaison are well established principles within CCBC. Participation with partners in making key strategic decisions when setting requirements or relay key site specific information around performance are actively encouraged. All Social media platforms are utilised to create and actively encourage external evaluation and positive participation with members of the public, commercial partners and members alike.

Consultation and coordination with utilities, Integrated Passenger Transport, Operators, and Emergency Services will be undertaken as part-of the operational process when managing the Highway

When considering the strategic network and in order to provide the level of resilient Network required, consultation with neighbouring authorities provides valuable input in to the operational obligations placed on both authorities. This is a critical function to ensure a consistent approach throughout the development of the Highways Infrastructure policies

CCBC actively engages with other bodies where cross border arrangements need to be considered, ranging from structures through to the hierarchical needs of a specific point on the Network. Service agreements for all aspects of maintenance are considered continuously as the network develops.

All cross border partners that directly impact the management and resilience of our Network are listed below and hierarchy definitions have been discussed with them:

- Blaenau Gwent CBC
- Merthyr Tydfil CBC
- Torfaen CBC
- Rhondda Cynon Taff CBC
- Cardiff City Council
- Newport CBC

Additionally Officers sit on boards at local and National levels to ensure (CSSW, CCRD) Caerphilly's strategic policies and practices are at the forefront within our sector and aligned with our partners.

1.5 Legal Requirements

The Highways Act 1980 sets out the main duties of highway authorities in England and Wales. In particular, Section 41 imposes a duty to maintain highways maintainable at public expense, and almost all claims against authorities relating to highway functions arise from the alleged breach of this section. A full list of the legislation and statutory functions are listed within appendix H.

Caerphilly County Borough Council undertake safety inspections in accordance with the principles of the most current Code of Practice 'Well-Managed Highway Infrastructure - Code of Practice for Highway Maintenance' in order that, where necessary, Caerphilly are able to support a defence under Section 58 of the Highways Act 1980. This requires that a court shall have regard to 'whether the highway authority knew or could reasonably be 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'.

This defence is dependent upon there being in place adequate policies and procedures to maintain the highway, that the policies and procedures were being enacted, and that there was no prior knowledge of "the defect" before the incident date. Caerphilly County Borough Council carry out inspections on a systematic basis-and will defend claims in court on the basis that it has made a reasonable effort to locate and rectify defects. In order to meet this requirement Caerphilly County Borough Council will consider the following:

- An assessment of network, network users interface and risk.
- The regime of safety inspections and record keeping
- The manner in which complaints and accidents statistics are recorded and dealt with
- The response times for carrying out repairs, along with a system for recording and analysing the efficiency and effectiveness of the repair.

In establishing reliability of records, the level of training provided to inspectors is relevant, and qualifications are recorded, including corroboration on when and where they were trained and retrained.

In defending an action, the highway authority will need to establish that it has acted reasonably, by the production of adequate documentation and evidence. This will include:

- Inspection records - maintenance management systems
- Reliability of records – inspectors need to be trained as to what constitutes a defect. Inspector's qualifications also need to be recorded as well as updates.

This is particularly important in the case of network safety, where information may be crucial in respect of legal proceedings. It is important to recognise,

however, that all information recorded, even if not primarily intended for network safety purposes, may have consequential implications for safety and may therefore be relevant to legal proceedings. It is also important to recognise that, following the introduction of the Freedom of Information Act 2000, all records are potentially available for public inspection and reference.

1.5.1 Duty of Care

CCBC recognises that there are a number of specific duties and powers that apply to the effective management of a Highway and our duty of care to the users and communities. This duty to ensure that the Highway is fit for purpose and recognising this obligation when applying to policy, priority, programming and implementation of Highway works

1.5.2 Health and Safety

CCBC acknowledges the statutory function in relation to Health and Safety under the Health and Safety at Work act 1974 and CDM 2015 regulations to undertake all Highway related work in a safe manner. Staff involved in the planning and management and delivery of works have undergone industry approved training in accordance with City and Guilds scheme 6033, to ensure works are planned and undertaken in a safe way.

<http://www.legislation.gov.uk/ukpga/1974/37/contents>
<http://www.hse.gov.uk/construction/cdm/2015/index.htm>

1.5.3 Best Value

The Local Government Act 2000 provides for the general duty of best value and CCBC aims to improve and maintain local services in terms of cost and quality through self analysis and benchmarking via Key Performance Indicators

1.5.4 Utility Companies

All statutory Undertakers have powers and obligations when working within the Highway and this is regulated by the New Roads and Streetworks Act 1991 and TM Act 2004. To ensure that all works are implemented to the correct standards whilst minimising disruption to Highway users. Notifications which are input into the Mayrise system can be viewed on:

<https://caerphilly.roadworks.org/>

1.5.5 References to existing Policy and Guidance Documents

The guidance given in this Highway Inspections Manual is to be read in conjunction with the following Caerphilly Council policy and guidance documents and linked to the authority's corporate objectives set out in Table 1.

Table 1 Summary of existing policy and guidance documents

Plan Name	Description
Divisional Service Improvement Plans	Outlines key areas and objectives within the service area, providing strategic aims of the department.
Grounds Maintenance Plan	Provides information on areas that are maintained periodically, highlighting treatment frequency as well as plans pinpointing extent of ownership
Highway Asset Management Plan	A plan for management, preservation and enhancement of the highway asset base to deliver prescribed levels of service and meet the needs of current and future customers
Technical Data Surveys	Provides technical analysis of the highway asset (such as SCRIM, Skid resistance etc.). Information provided is then used in detailed assessments of the network.
CRM Manual	Plan outlining how CCBC (Caerphilly County Borough Council) deals with customer interaction and the recording of 'service requests'
Highway Tree Policy	This document explains CCBC responsibilities, strategy and policy in respect to the Highway Tree Policy.
At Risk Culvert List	Highlights 'at risk culverts' throughout the authority that require routine maintenance and their hierarchy of threat level.
Winter Maintenance Policy	This document explains CCBC responsibilities, strategy and policy in respect to the management of the highway infrastructure network through a defined winter maintenance period.
Management of Highway Structures	This document explains CCBC responsibilities, strategy and policy in respect to the Management of Highway Structures
Out of Hours Duty Officer Manual	CCBC operates 24hr emergency callout operation throughout the whole year. This document outlines the procedures, hierarchy and control measures that have to be followed when dealing with an emergency, outside normal working hours
Advertising Goods on the Highway	Application for the placement of and A-Frame or similar within the Highway. Details are located centrally within HOG.
Café Culture	CCBC Café application and guidelines for commercial partners considering the licensing of tables and chairs within the Highway. Located centrally within HOG.
CCBC Corporate Plan including WBFQ objectives 2018-23	http://sc-aptken1/KENTICO/getattachment/ab780120-3a2b-47f9-bff0-f383462fbb98/Corporate-Plan-2018-23.aspx

(All documents can be located at O:\HOG\Maintenance\Highway Maintenance Plan)

1.6 Network Hierarchy

A network hierarchy is used to classify the maintenance network on the basis of the volume and composition of traffic using it. The hierarchy also takes into account the risk assessment and the role of the particular section of the carriageway, footway or cycleway in the network. Factors considered when determining classification includes current and anticipated use, resilience, local and socio economic factors (Industry, schools, hospitals etc), as well as the desirability of continuity and of a consistent approach to all sustainable modes of transport.

The hierarchy is the foundation of a coherent, consistent and auditable maintenance management plan and is fundamental in determining policy priorities. It is the link between maintenance policy and implementation and is used to assist in determining standards for maintenance and new construction.

Network hierarchies are annually reviewed in-line with CSSW guidance to reflect changes in network characteristics and use, so that maintenance policies, practices and standards reflect the actual current use of the network.

The aim of the road hierarchy is to:

- Allow structured programmes of inspections to be developed and statutory duties to be fulfilled
- Allow decisions to be made accounting for the importance of the road within the network
- Set policies and standards according to the importance of the road within the network.

It is the intention to use the road hierarchy as a key indicator of the standard of repair required to keep the road in reasonable condition having regard to its function and the volume of traffic using it.

Caerphilly Council's highway network classifications can be seen in the tables 2 to 4 below and are set-out in accordance with the latest code of practice for 'Well Maintained Highways'.

Table 2 Carriageway hierarchy

Category	Type of Road General	Description
Motorway	Limited access - motorway regulations apply	Routes for fast moving long distance traffic. Fully grade separated and restrictions on use.
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.
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.
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 HGV generators to the Strategic and Main Distributor Network.
Link Road	Roads linking between the Main and Secondary Distributor Network with frontage access and frequent junctions	In urban areas these are 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.
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.
Minor road	Little used roads serving very limited numbers of properties.	Locally defined roads.

(for consideration: character and volume of traffic; Usage; Strategic route; Designation; accidents; diversionary route; special characteristic; access to schools/ hospitals; vulnerable users and Special events)

Table 3 Footway hierarchy

(For consideration: character and volume of traffic; Usage; Strategic route; Designation; accidents; diversionary route; special characteristic; access to schools/ hospitals; vulnerable users and Special events)

Category	Hierarchy Description	Description
1(a)	<i>Prestige Area</i>	<i>Very busy areas of towns and cities with high public space and street scene contribution</i>
1	<i>Primary Walking Route</i>	<i>Busy urban shopping and business areas and main pedestrian routes</i>
2	<i>Secondary Walking Route</i>	<i>Medium usage routes through local areas feeding into primary routes, local shopping centres etc.</i>
3	<i>Link Footway</i>	<i>Linking local access footways through urban areas and busy rural footways.</i>
4	<i>Local Access Footway</i>	<i>Footways associated with low usage, short estate roads to the main routes and cul-de-sacs.</i>

Table 4 Cycleway hierarchy

Category	Description
A	<i>Cycle lane-forming part of the carriageway, commonly 1.5 metre strip adjacent to the nearside kerb. Cycle gaps at road closure point (no entries allowing cycle access)</i>
B	<i>Cycletrack, a highway route for cyclists not contiguous with the public footway or carriageway. Shared cycle/pedestrian paths, either segregated by a white line or other physical segregation, or un-segregated.</i>
C	<i>Cycle provision on carriageway, other than a marked cycle lane or marked cycle provision where cycle flows are significant</i>
D	<i>Cycle trails, leisure routes through open spaces. These are not necessarily the responsibility of the highway authority, but may be maintained by an authority under powers or duties</i>

1.6.1 Resilient Network

The authority has identified the key strategic network, that forms the basis of its resilient network (aligned with its core WM Plan). These will receive priority through maintenance and other key service delivery areas, in order to maintain economic activity and access to key services. Throughout the coordination and upon determining these key links, businesses, Community groups and other stakeholders have been considered.

The Caerphilly County Borough Council aims to provide a winter service which, as far as possible, facilitates the safe movement of traffic and keeps to a minimum delays and accidents caused by adverse winter weather conditions. In practice this is achieved by taking precautionary measures to pre-salt pre-defined routes, taking account of weather forecast and local observations. The response also aims to, as far as practicable; ensure access to essential Council premises, residential accommodation for older people, education establishments, hospitals, doctor's surgeries, town centres, major bus stations and emergency services.

Priority is primarily given to the 'A' and 'B' roads the authorities core transportation network so that the continuation of access to goods and services is maintained, as best it can in the prevailing circumstances (inc some bus routes). The primary objective is to achieve the precautionary application of salt to specified elements of the network prior to the predicted time for the onset of sub-zero conditions.

During severe and/or prolonged sub-zero/snowfall conditions causing the risk of formation of ice or significant accumulations of snow throughout the Network, consideration is also given to those non principal classified routes and unclassified routes which are deemed to be of significant importance having regard to the number of vehicles carried during the morning/evening peak times on those routes which link a substantial community to a priority route. Actual locations will depend to an extent on particular weather conditions at the time and will be determined based on available information by the Highway Operations Group Manager / Designated Representative / Winter Emergencies Officer. These routes will be considered for treatment where practical, following completion of the priority routes.

To ensure network resilience, there may be times during the winter period where decisions may need to be made to reduce salting of routes. To a key strategic network should conditions dictate. Consultation will be undertaken with senior officers should this instance be necessary prior to implementation.

It is recommended that this HMP needs to be reviewed alongside the Council's Out of Hours (Duty Officer) Manual. This will ensure that a full understanding of the operational context is understood for emergency situations.

<O:\HOG\Maintenance\Winter Maintenance\plan 18-19\Winter Plan 18-19.doc>

As part of our stakeholder engagement, collaboration between Network Rail and CCBC has identified all areas of interface between road and rail within the boundary limits.

All abnormal loads are strategically planned and coordinated throughout the Borough to minimize conflict and potential disruption. Within CCBC we have officers who coordinate these transportation plans in collaboration with abnormal load officer for Monmouth CBC (MCBC manage the movements)

1.7 Bridges and Structures

As part of our integrated Asset Management Approach, all structures that form part of the Network have their significant interested assessed and placed accordingly within the hierarchy. Factors considered include

- Position in the Highway
- Type of route
- Type of asset (bridge , culvert, tunnel etc)
- Critical asset
- Historical structures
- Local Factors

The structures asset consists of the following:

- Road Bridges
- Footbridges
- Retaining Walls
- Culverts
- Subways

1.7.1 Inventory

There is an inventory of assets which is kept in the Asset Management System (AMX).

1.7.2 Quality of Inventory Held

50% of inventory is validated every year by virtue of undertaking general inspections every two years on each structure.

Data is validated through reviewing inventory when updating inspection records.

General Inspections are undertaken in accordance with relevant standards – see 1.7.20.

1.7.3 Asset Register

The Asset Register is held in the Asset Management System (AMX).

1.7.4 Budget Allocation

The process for allocating the structures budget is as follows:

- Maintenance needs are identified during inspection
- A bid is raised with respect to the structure to quantify cost of the maintenance.
- Bid is scored based on 9 parameters which prioritise the maintenance.

The 9 parameters are:

- Safety management – Number of people at risk
- Safety management – Level of injury
- Safety management – Probability of risk occurring
- Time management – Cost penalties
- Time management – Time and risk to public
- Time management – Age of bid
- Customer management – Aesthetics
- Customer management – Number of people affected
- Customer management – Public interest

Consideration of the Bridge Condition Indices (BCI) is also reviewed to determine whether essential maintenance is required.

1.7.5 Customer Consultation

The following surveys provide the customers perception of the asset:

- 2 yearly house-hold survey

1.7.6 Utility Activity

Utility activity information is available from the Network Management Section, Highways Operations Group. The New Roads and Works Street Act provide the requirements of the Utility Companies. Notifications which are input into the Mayrise system can be viewed on : <https://caerphilly.roadworks.org/>

1.7.7 Programme Co-ordination

The Principal Engineer of the Structures Section is responsible for ensuring an integrated approach in undertaking works on highway infrastructure assets / structures.

The Principal Engineer provides programme information to the Engineering Projects Manager to assist overall programme co-ordination once every two weeks.

1.7.8 Public Consultation Prior to Works

Public consultation is undertaken on a scheme by scheme basis dependent on the level of disruption expected. Forms of public consultation include:

- Social Media (notices on CCBC Website / CCBC Facebook etc)
- Inform Ward Councillors (usually by email describing planned works)
- Letter drops to residents

1.7.9 Network Rail

The Authority, when working on or in the vicinity of rail infrastructure undertakes on an individual basis with direct consultation with Network Rail.

1.7.10 Public Right of Way Structures Maintenance

The Authority Public Right of Way Section is consulted when assessing, prioritising and working on or in the vicinity of structures located on public rights of way.

1.7.11 Third Party Claims

Third party claims information is dealt with by Insurance and Risk Management Section, Ty Penallta.

1.7.12 Third Party Recharge

The procedure used by the authority to obtain payment for damage to assets by third parties.

Third party recharges are sought by Insurance and Risk Management Section the remuneration of which is undertaken by Corporate Services via sundry debtor.

1.7.13 Environmental Considerations

Information on Sites of Special Scientific Interest (SSSI) and Special Areas of Conservation (SAC) are recorded within the Authority's QGIS database (Post GIS NRW Layer).

CCBC Ecology are consulted regarding the investigation relating to the possible presence of protected animals and associated habitat.

CCBC Planning are consulted regarding matters relating to invasive plant species.

1.7.14 Network Availability Considerations

Aspects relating to network availability considerations including streets with engineering difficulty, existing or proposed roadworks, sensitive traffic routes etc are documented in Mayrise, which is the Authority's chosen highway management system.

1.7.15 Abnormal Loads

Caerphilly County Borough Council has a service level agreement with Monmouthshire CBC (MCBC) for the management of proposed abnormal load movements within the Caerphilly County Borough Council area. All requests for abnormal loads movements are managed by MCBC. In the event of uncertainty with respect to a proposed abnormal load movement, MCBC liaise for comment with the CCBC Principal Engineer.

1.7.16 Technical Approvals

The Principal Engineer for the Structures Department acts as the Technical Approval Authority for the approval of structures designed by, on behalf of and to be adopted by the Authority. Submission of Technical Approval information is submitted in accordance with Design Manual for Roads and Bridges publication BD2/12 "Technical Approval of Highway Structures".

1.7.17 Scour

Areas of scour are identified during General Inspection of river bridge or assets associated with a watercourse. Assets at risk of scour are scored in accordance with Design Manual for Roads and Bridges publication BD97/12 "The Assessment of Scour and Other Hydraulic Actions at Highway Structures" using the scour spreadsheet created that has been produced by EXP consulting in association with the CSSW Structures Workshops.

1.7.18 Policies

The policies associated with the structures asset have been approved by the Council Members

1.7.19 Inspections

The inspection of CCBC Highway Assets / structures are undertaken in accordance with the following publications:

- CSS Guidance Note on Bridge Condition Indicators

- Code of Practice for Management of Highway Structures
- Well-Managed Highway Infrastructure
- Inspection Manual for Highway Structures Vol 1 and 2
- BD63/17 Inspection of Highway Structures

The procedure for undertaking the inspections of highway structures, including creating the inspection programme, recording the data obtained and entered into the asset management system AMX is documented in CCBC Engineering Projects Group QA procedure PRM07.

1.7.20 General Inspections

General inspections are undertaken on all structures once every two years.

General inspections are undertaken in accordance with Design and Manual for Roads and Bridges publication BD63/17 “Inspection of Highway Structures” and other relevant documents (see 4.1.19)

General Inspection Records are kept in the AMX database (subsequent to Feb 2018 and the bridge data records (prior to Feb 2018).

Information from the general inspections is stored in the Asset Management System.

1.7.21 Principal Inspections

Principal inspections are undertaken on all structure every six years, where appropriate.

Principal inspections are undertaken in accordance with Design and Manual for Roads and Bridges publication BD63/17 “Inspection of Highway Structures”

Some of the requirements including access for the inspection are undertaken by outside contractors.

Details of the contractual arrangement are undertaken on an individual scheme basis.

Structural testing information, where undertaken, is stored within the Asset Management System / bridge data records.

1.7.22 Construction / Asset Adoption

The procedure used to ensure that any assets transferred to the authority’s ownership meet the required technical specifications.

The following processes need to be undertaken prior to the Council taking ownership of a structure. All information and forms for asset acquisition are located within the Asset Management System / bridge data records.

- a. Onsite inspection to ensure the quality of the structure meets the council standards. An Asset Acquisition Form is used for this process.
- b. Obtain all information relating to the structure including as-built drawings and compliance certificates. A checklist contains all required information and location for storage. This checklist must be completed and is kept with the Asset Acquisition Records in the within the Asset Management System / bridge data records.

1.7.23 Emergency Incident Response

Incidents generated via contact centre which are deemed an emergency are raised via the Mayrise system and inspection / interpretation of the incident must be undertaken with 24 hours.

Out of hours responses are dealt with in accordance with the CCBC out of hours manual.

1.7.24 Routine Maintenance

1.7.24.1 Physical Processes

The following types of faults following specific work instructions are undertaken as Routine Maintenance.

Work Type	Work Instruction
Graffiti	Undertaken by Graham Owen Team / Cleansing
Repointing	Highway Structures Maintenance Term Service contract
Brickwork Repairs	Highway Structures Maintenance Term Service contract
Handrail Repairs	Highway Structures Maintenance Term Service contract
Parapets	Highway Structures Maintenance Term Service contract
Protective coatings Repairs	Highway Structures Maintenance Term Service contract
Expansion joint replacement	Highway Structures Maintenance Term Service contract
Vehicle Collisions	Highway Structures Maintenance Term Service contract

1.7.24.2 Management Processes

The following process details the management aspects of treating a fault.

1. Routine Maintenance Fault Identification

Routine Maintenance faults are identified during structural inspections, notification by Councillors or members of the public and other Council staff

All faults are entered into the fault module of the Asset Management System by the Asset Management Database Technician

The minimum information required for all faults is:

- Location
- Structure ID
- Fault Type
- Type of person who identified defect eg. Structural Inspector, Highway Inspectors, Customer or Council Member

2. Funding Scheme Prioritisation

The procedure used to rank the individual schemes to ensure that the allocated investment is achieving the authority's objectives.

- Maintenance needs are identified during inspection
- Bid is raised for cost of the maintenance.
- A brief description and cost of maintenance is entered for each asset. 9 parameters are used to prioritise the maintenance along with the BCI score.

3. Option Assessment

The procedure used to identify the appropriate maintenance solution when there is more than one practical alternative for addressing the maintenance need.

The Routine Maintenance Programme is maintained by the staff of the structures section.

A risk rating is allocated to each identified fault by the member of staff recording the particular maintenance aspect.

The structures with faults are listed in order of risk (ie. high risk to low risk) creating the Risk Rated Routine Maintenance Programme.

The first draft of the programme is confirmed when the routine maintenance budget is approved. The highest rated schemes from the Risk Rated Routine Maintenance Programme to the value of the routine

maintenance budget become the first Draft Routine Maintenance Programme.

The first Draft Routine Maintenance Programme is sent to the Principal Engineer of the structures section. Information required for each highway structure is:

- Structure Name
- Structure ID
- Location
- Description of Routine Maintenance
- Cost of Work

All this information should be provided in an Excel Spreadsheet.

The Principal Engineer of the structures section is responsible for approving Planned Maintenance Programme.

4. Management Processes – Pre Physical Works

The following process details the management aspects of completing the structures routine maintenance once approved. These will be completed by the appointed project supervisor.

1. Each structure is allocated an estimated timeframe for the completion of the physical works. This information will be provided to the Street Works Team.
2. Complete design process to identify material quantities and estimated costs are stored within a unique scheme file.
3. Apply for all permits following instructions located in unique scheme file.
4. Recalculate the total cost of the Routine Maintenance Programme and compare with approved budget.
 - a. If the approved budget is less than the cost of the estimated budget structures, will need to be removed from the Routine Maintenance Programme. Ideally the removed structures should be the lowest rated from the Risk Rated Routine Maintenance Programme.
 - b. If the approved budget is more than the cost of the estimated budget structures, will need to be added to the Routine Maintenance Programme. Structures added to the programme should always be the next highest rated from the Risk Rated Routine Maintenance Programme.

Structures routine maintenance is completed by an outside contractor. Acquiring a Contractor is undertaken by competitive tender in accordance with CCBC standing orders for contracts.

5. Post Work Process

On completion of the work the Structures Maintenance Team Leader will record for each structure repaired the following:

- i. Structure Name
Structure ID
Location of completed work
- ii. Details of Repair
 - a. Repair Type
- iii. Date Repair Completed
- iv. Financial details of work
 - a. Quantity of hours
 - b. Cost of materials
 - c. Vehicles used for work

All information will be entered into the Asset Management System by the Asset Management Database Technician

1.7.25 Planned Maintenance

1.7.25.1 Physical Processes

The following types of faults following specific work instructions are undertaken as Planned Maintenance.

Work Type	Work Instruction
Graffiti	Undertaken by Graham Owen Team / Cleansing
Repointing	Highway Structures Maintenance Term Service contract
Brickwork Repairs	Highway Structures Maintenance Term Service contract
Handrail Repairs	Highway Structures Maintenance Term Service contract
Parapets	Highway Structures Maintenance Term Service contract
Protective coatings Repairs	Highway Structures Maintenance Term Service contract
Expansion joint replacement	Highway Structures Maintenance Term Service contract
Vehicle Collisions	Highway Structures Maintenance Term Service contract

1.7.26 Management Processes

The following process details the management aspects of treating a fault.

1. Planned Maintenance Fault Identification
Planned Maintenance faults are identified by the structural inspectors, customers and other Council staff

All faults are entered into the fault module of the Asset Management System by the Asset Management Database Technician

The minimum information required for all faults is:

- Location
- Structure ID
- Fault Type
- Type of person who identified defect eg. Structural Inspector, Customer or Council Member

2. Planned Maintenance Programme Development

The Planned Maintenance Programme is created by the Principal Engineer of the structures section.

A risk rating is allocated to each identified fault by the member of staff recording the particular maintenance aspect.

The structures with faults are listed in order of risk (ie. high risk to low risk) creating the Risk Rated Planned Maintenance Programme.

The first draft of the programme is confirmed when the planned maintenance budget is approved. The highest rated schemes from the Risk Rated Planned Maintenance Programme to the value of the planned maintenance budget become the first Draft Planned Maintenance Programme.

The first Draft Planned Maintenance Programme is sent to the Roads Department Manager. Information required for each highway structure is:

- Structure Name
- Structure ID
- Location
- Description of Planned Maintenance
- Cost of Work

All this information should be provided in an Excel Spreadsheet.

3. The Principal Engineer of the structures section is responsible for approving Planned Maintenance Programme.

4. Management Processes – Pre Physical Works

The following process details the management aspects of completing the structures planned maintenance once approved. These will be completed by the appointed project supervisor.

1. Each highway structure is allocated an estimated timeframe for the completion of the physical works. This information will be provided to the Street Works Team situated within Highway Operations Group.
5. Complete design process to identify material quantities and estimated costs are stored within a unique scheme file.

2. Apply for all permits following instructions located in unique scheme file.
3. Recalculate the total cost of the Planned Maintenance Programme and compare with approved budget.
 - a. If the approved budget is less than the cost of the estimated budget structures, will need to be removed from the Planned Maintenance Programme. Ideally the removed structures should be the lowest rated from the Risk Rated Routine Maintenance Programme.
 - b. If the approved budget is more than the cost of the estimated budget structures, will need to be added to the Planned Maintenance Programme. Structures added to the programme should always be the next highest rated from the Risk Rated Planned Maintenance Programme.

Structures planned maintenance is completed by an outside contractor. Acquiring a Contractor is undertaken by competitive tender in accordance with CCBC standing orders for contracts.

Post Work Process

On completion of the work the Structures Maintenance Team Leader will record for each highway structure repaired the following:

- i. Structure Name
Structure ID
Location of completed work
- ii. Details of Repair
 - a. Repair Type
- iii. Date Repair Completed
- iv. Financial details of work
 - a. Quantity of hours
 - b. Cost of materials
 - c. Vehicles used for work

All information will be entered into the Asset Management System by the Asset Management Database Technician

1.7.27 Works Delivery

The process for managing the delivery of works is in shown in the EPG QA procedures manual.

1.7.28 Performance Measurement

This section describes the management process for the structures performance measures. It describes the following:

- Process for how they are recorded
- How each performance measure is calculated

- Where the performance measure is stored
- Where and when the performance measure is reported

Performance measure (KPI's) are recorded via Mayrise target dates, APSE return, Fynnon.

1.8 Street Lighting

1.8.1 Legislation and Good Practice

There is no statutory requirement on local authorities in the United Kingdom to provide Public lighting. In England and Wales, *the Highways Act 1980* empowers a Highway Authority to provide lighting for any highway or proposed highway under their responsibility. Highway Authorities have a duty of care to the road user, but this does not imply any duty on the Highway Authority to keep the street lighting operational.

Though excluded from *The Clean Neighbourhoods and Environment Act 2005*, obtrusive light from the street lighting system will be limited as practicable by the use of full cut off lanterns and suitable photometry. Baffles and shields to further minimise unwanted lighting overspill, will be installed following receipt of full payment covering the work from the individual making the request. Whilst providing a generally welcome benefit, the street lighting system is not installed to provide security lighting or lighting for the access or egress into properties.

Caerphilly County Borough Council will, subject to monetary restraints, endeavour to provide after dark lighting where it is deemed necessary for the safe passage of highway users, to all adopted highways other than rear access lanes, public rights of way and areas subject to the street lights affected by the existing *Reduction in Operating Hours policy*¹ by adhering to the principles herein.

1.8.2 Street lighting Asset

The street lighting asset comprises approximately 27,000 street lights, plus 4000 illuminated signs, 400 bollards (mostly non illuminated rebound bollards) plus feeder pillars and a cabling network. There are approximately 4000 street lights mounted on wooden poles, where the pole is owned by and the responsibility of Western Power Distribution (WPD). There are areas where WPD are removing poles to reduce costs and improve their infrastructure. Where the poles support only street lighting cables, it may not always be viable to reinstate them when the poles are removed.

The street lighting and illuminated traffic sign inventory will be stored within dedicated software designed for public lighting systems, currently 2016 Mayrise. This comprehensive package will include equipment inventory, work

instructions and monitoring, scheduling of cyclical activities, digital mapping and financial control.

Regular updating of the asset system is essential for both maintenance duties and to provide accurate payments to the energy provider.

The energy returns and hours of burning are verified by a photo cell array located within Caerphilly County Borough (CCBC).

The CCBC street lighting asset base includes items inherited from the four predecessor authorities including some of significant age (well beyond their design life).

1.8.3 Cable Networks

The cable network is provided and maintained by Western Power Distribution (WPD), so faults arising with the external energy supply are their responsibility.

Some areas of the street lighting asset are energised via a separate street lighting cable network beyond the extent of the WPD network. To reduce future liabilities associated with the maintenance of these cables, wherever possible, the Street lighting Engineer will specify individual lighting connections direct off the WPD network.

1.8.4 Energy

Energy procurement is administered by the Caerphilly Energy and Water Conservation Team and sourced via the South Wales Purchasing Consortium and Crown Procurement Service. The energy charge is derived from two distinct items - the energy from the supplier and the charge for the use of the energy network from the District Network Operator.

Energy costs are determined with a copy of the street lighting inventory being provided monthly (in electronic format) to the appointed meter administrator who, utilising data from the CCBC owned array, calculates the unmetered energy payment and this information is then passed to the energy supplier to raise the corrected invoices.

Steps are being taken to reduce energy in the Borough, this street lighting section is continually researching innovative ways to improve the asset, whilst reducing energy consumption. Selected equipment has and will be trialled for the suitability of its future potential usage.

1.8.5 Carbon reduction

CCBC Street Lighting Team will endeavour to comply with the *CCBC Carbon Reduction Strategy*³.

1.8.6 CCBC Street Lighting Staff

CCBC Network Management street lighting staff are and should be trained, competent with the structure maintained at a level so that this *Street Lighting Strategy* can be adhered. Minimum staffing levels are considered to be:

Street lighting Engineer
Street lighting Technician (*2)
Shared Admin support

1.8.7 Street Lighting Contractor

CCBC employs an external contractor to undertake maintenance of the street lighting asset. Contract award followed the relevant National and European compliance and adherence with CCBC Procurement procedures.

The existing street Lighting Maintenance contract, awarded in December 2015, engages Centre Great Ltd for 5 years with an option to extend up to a further 5 years.

The Street Lighting Contractor has remote access to the Mayrise system portal, installed in the contractor's office, to both manage incoming instructions and upgrade the inventory with the repair detail of each works instruction.

1.8.8 Maintenance and fault repair

Elements of a public street lighting system require inspection and maintenance to ensure it is safe, operates correctly and provides continued performance throughout its service life. To this end all units will be subject to cyclical visual, electrical and structural inspection so complying, as close as practicable, to the recommendations of *Well-lit Highways Code of practice for Highway Lighting Management*.

All new or replacement equipment will be of energy efficient design, utilising proven technology and light sources and complying, as practicable, to the recommendations of *BS EN 13201 2003 Road lighting*, *BS 5489 2013 Code of practice for the design of road lighting* and the latest edition of the *Caerphilly County Borough Council Specification for Street Lighting*².

Where street lighting apparatus has been inherited in areas contrary to this policy, their future provision will be reviewed as the equipment becomes defective.

Street lighting maintenance operatives will remove foliage only where it encroaches directly over the lantern or prevents access to the column door. Orders will be served on the appropriate Landowner where vegetative encroachment on streetlights is on private land. All other maintenance of vegetation and tree overgrowth is within the remit of CCBC Park Services.

1.8.9 Performance

CCBC Key Performance Indicators (KPIs)

Following receipt of a Service Request to repair a defective item of street lighting equipment, a works instruction is raised electronically and this is forwarded to the Contractor for attention. Key Performance Indicators for these works are:

Attend individual street lighting and illuminated traffic sign faults within 4 working days following the report of a defect.

Attend street lighting and illuminated traffic sign section faults within 1 working day following the report of a defect.

Attend emergency street lighting and illuminated traffic sign faults within 2 working hours following the report of a defect.

Following first attendance by the Contractor and their subsequent report that the works require replacement of the complete item of equipment, a second instruction to cover this additional work will be provided and the Contractor has a further 8 days in which to complete this work, subject to the availability of the equipment.

The District Network Operator (Western Power Distribution) fault attendance is determined by a national service level agreement and is currently 25 days for individual repair or 20 days for multiple units.

Electrical inspection of the asset is required once every six years and 17% of the equipment will be tested annually. The asset specification is also validated during this inspection with all test results and items of equipment recorded accordingly.

Structural inspection of the asset is recommended for each column at 12 years from the date of first installation with future frequency of inspections subject to the condition report.

After dark patrol of the entire street lighting inventory will be undertaken at least once in every 4 weekly period with repair instructions issued accordingly.

Contractor Key Performance Indicators (KPIs)

The following Key Performance Indicator (KPI) are set out in the street lighting contract in order to measure the performance of specific activities/ requirements that are deemed to be critical to the success of the street lighting contract :

No	Description	Criteria	Frequency of measurement	Target performance	Acceptable Performance
1	Time taken to attend a reported fault affecting a single unit	4 days	Reported Quarterly	100%	98%
2	Time taken to attend a reported fault affecting 2 or more units	1 day	Reported Quarterly	100%	98%
3	Time taken to rectify non routine faults following receipt of a repair instruction	8 days	Reported Quarterly	100%	98%
4	Number of repeat visits	All	Reported Quarterly	100%	95%
5	Compliance with CoP for Safety at Street and Road Services and/ or works	All	Reported Quarterly	100%	100%
6	Electronic Data Gathering	All	Reported Quarterly	100%	99%

1.8.10 Other Party Involvement

CCBC will resolve anomaly issues on a number of levels;

- **Cross Boundary**

Where street lighting apparatus crosses local boundaries, the Street Lighting Engineer will come to agreement with neighbouring Local Authorities (LAs) to

limit, where possible and subject to cable arrangements, responsibility to official boundaries.

- **Business**

Where CCBC managed street lighting is found to be installed outside the adopted highway on commercial property, the Street Lighting Engineer will place notices giving 1 month notification of disconnection. All liability for future maintenance and energy payments transfers to the property owner.

- **Housing Association**

Where CCBC managed street lighting is found to be installed outside the adopted highway on property owned and managed by an external Housing Association, the Street Lighting Engineer will place notices giving 1 month notification of disconnection. All liability for future maintenance and energy payments transfers to the Housing Association.

- **Private roads**

Where CCBC maintained street lighting exists on non adopted highway serving residential private estates, CCBC will continue to keep the equipment operational, as long as the apparatus is deemed viable by the Street Lighting Engineer. Should any apparatus not be viable, it will be dismantled and permanently removed.

- **Rear Lanes**

Where CCBC maintained Street lighting exists in rear lanes, CCBC will continue to keep the equipment operational, as long as the apparatus is deemed viable by the Street Lighting Engineer. Should any apparatus not be viable, it will be dismantled and permanently removed.

- **Rights of Way and non-specific areas**

Where CCBC managed street lighting is not located on the adopted highway, but managed by other internal departments such as Housing, charges will be allocated to the appropriate directorate. Where ownership cannot be determined, the Street Lighting Engineer will place notices giving 1 month notification of disconnection and permanent removal.

1.8.11 Adoption of new street lighting installations

All new installations and unmetered energy connections must adhere to the guidance provided within the latest edition of the *Caerphilly County Borough Council specification for Street Lighting*². Following notification of formal adoption, the street lighting inventory will be updated.

The energy and maintenance of future street lighting assets remains the responsibility of the developer until adoption.

1.8.12 Requests for the provision of additional Street lighting

All requests for additional street lighting on the adopted Highway must be made in writing and be accompanied with evidence of a demonstrable requirement for the provision of the lighting. Following consideration of the request, a scheme will be developed, costed and placed onto the Register of similar requests. This process is limited by finances, so although a need is identified it will not be actioned until the funds are made available. Should additional third party funding accompany the successful request, the installation can proceed and the new equipment added to the street lighting asset for ongoing future maintenance.

Requests for additional street lighting on areas managed by CCBC, but falling outside of the adopted Highway, will only be considered when fully funded by the requesting department who will remain liable for all future maintenance and energy payments.

1.8.13 Banners and Decorations

Advertisement banners and other forms of decoration will only be permitted with express approval from the Street Lighting Engineer. All requests will be reviewed on an individual basis and the suitability of the support equipment assessed. Further guidance will be sought from the Traffic Management section and other relevant Authorities based on risk and legal implications. No new catenary cables will be attached to any street lighting column at any time. Where permission is approved for the erection of the equipment, this must be accompanied with a signed agreement indemnifying the Authority from any incidents associated with this equipment together with an approved £10M insurance liability certificate. Any attachment that requires electricity for its operation and before installation, Network Management is to receive a current electrical test certificate and confirmation that a contract has been entered into for the payment of the unmetered energy consumed.

1.9 Condition Standards

This section outlines how different highway features contribute to the core objectives of safety, serviceability and sustainability. The table below shows how each element of the highway contributes to these core objectives (list is not exhaustive).

Table 5 Inventory items and their contribution to strategic objectives

Inventory Item	Safety	Serviceability	Sustainability
Carriageway	Nature, extent and location of surface defects; Nature and extent of edge defects; Nature and extent of surface skidding resistance.	Nature and extent of surface defects;	Nature and extent of surface defects; Nature and extent of carriageway deflection.
Footways	Nature, extent and location of surface defects; Nature and extent of kerb and edging defects.	Nature and extent of surface defects; Extent of encroachment and weed growth; The slipperiness of the surface; The quality of the surface; Integrity of the network.	Convenience and ease of use; Nature extent and location of surface defects; Extent of damage by over-running and parking.
Cycle Routes and Safe routes to schools	Nature, extent and location of surface defects; Nature and extent of kerb and edging defects.	Nature and extent of surface defects; Extent of encroachment and weed growth; The slipperiness of the surface; The quality of the surface;	Convenience and integrity of the network; Nature extent and location of surface defects; Extent of damage by over-running and parking.

Inventory Item	Safety	Serviceability	Sustainability
		Integrity of the network.	
Drainage	Accumulation of water on carriageways, footways and cycle routes.	Accumulation of water on carriageways, footways and cycle routes.	<p>Polluted effluent from highway drainage should not be directed into watercourses</p> <p>Authorities have a duty to prevent flooding, work with others to minimise the future risk of flooding</p> <p>Inadequate drainage will reduce effective life of carriageway or footway asset and increase maintenance liability.</p>
Embankments and Cuttings	Risk of loose material falling to injure users or damage facility.	Risk of damage or service interruption.	<p>Damage or loss of habitat;</p> <p>Interruption or pollution of watercourse;</p> <p>Extent of damage and reduced life.</p>
Landscaped areas and Trees	<p>Obstruction to user visibility and legibility of traffic signs;</p> <p>Falling branches from trees;</p> <p>Root growth affecting surface regularity.</p>	<p>Potential for service interruption;</p> <p>Quality of user experience.</p>	<p>Landscape conservation;</p> <p>Mitigation of climate change effects;</p> <p>Support for habitat and biodiversity;</p> <p>Problems of root growth for surface, structure and highway drainage</p>
Fences, Barriers and Highway safety restraints	Integrity and location of safety fencing for vehicles and pedestrians.	<p>Risk of livestock disrupting traffic.</p> <p>Service interruption and essential for highway safety</p>	Appearance and condition of fencing.
Signs and	Identification of	Contributes to	Support of sustainable

Inventory Item	Safety	Serviceability	Sustainability
Bollards	risk to users; Separation of potential traffic conflicts.	ease of use; Contributes to network integrity	transport mode; Contribution to local economy; Heavy traffic routing can optimise maintenance.
Road Markings and Studs	Route delineation in darkness and poor weather; Potential for damage and injury if loose.	Ease of use in darkness and bad weather;	Support of sustainable transport modes; Edge delineation to reduce edge damage; Movement of wheel tracking to reduce localised damage.
Traffic signals and crossings	Separation of potential traffic conflicts; Key safety contributor for vulnerable road users.	Contributes to ease of use and efficiency; Contributes to network integrity.	Support of sustainable transport modes; Support for local economy.

1.10 Performance Monitoring and Improvement

Performance indicators are monitored and reviewed to assess current performance and identify a programme of improvement. The review programme is set out in Table 7 (Defect Intervention levels, page 55). The review should be undertaken using a risk management approach and introduce changes to ensure that the Health and Safety, Environmental, Political and Financial risks both to users and the Authority are managed effectively. The changes made are then measured, and improvements assessed and future targets set to ensure continual improvement.

Caerphilly County Borough Council monitors key aspects of data in relation to the Highway Inspection process. Monthly reviews are undertaken to ensure that KPI's monitored and resources allocated accordingly.

The effective performance management requires data driven analysis that reproduces the operational practices. Ffynon provides scoring mechanisms that allow for comparative costs of asset performance, i.e how the asset is fulfilling it's function. Monthly Highway Operational Group reports record

performance across the service area and focuses on bench-marking against local and national providers.

Caerphilly reports through the national APSE Grp in relation to annual Highway performance review and continuously sets performance figures in – line with national drivers.

PART 2 Inspection Procedures

2.1 Introduction and Overview of the process of highway inspections

Caerphilly County Borough Council undertakes regular inspections of its entire adopted highway network.

Figure 2 (pg 49) describes the process for inspection, assessment and evaluation of defects, both during routine “safety” or ad-hoc inspections and those reported by third parties, or otherwise generated during the operations of the council.

It should be noted that all inspections are undertaken as visual inspections only with no physical actions undertaken during the preliminary visit.

The Council’s inspection process is informed by training and risk assessment principles, both in determining the frequency of inspections and in determining the type and speed of response to a defect.

2.2 Roles and responsibilities in delivering highway inspections

Within Caerphilly County Borough Council’s Highway Operations Group, the main responsibility for maintenance of the Highway asset resides with the Highways Maintenance Manager. For this function his staff consists of the Highways Maintenance Engineer, Highway Maintenance Technician and 7 Highway Inspectors who patrol and govern the authority’s asset.

The inspectors are supervised by the Highways Maintenance Engineer, who in turn reports to the Highways Maintenance Manager. The following roles are outlined below:

Highways Maintenance Manager

This role ensures compliance with both The Highways Act 1980, in particular, Section 41 and the 'Well-Maintained Highways - Code of Practice for Highway Maintenance'.

Highways Maintenance Engineer

This role covers the daily supervision of the Highway Inspectors and provides an interface between the client and the contractor, ensuring that the inspections schedules are maintained and that all works are compliant.

Highways Technician

To support the Highway Maintenance Engineer and act as the link between NCS (in-house contractor)/ external contractors and the Highway Maintenance function within the Group. Inspecting and assessing work lots, then rectifying any identified works defects.

Highways Inspectors (seven)

This primary function of this role is to police the highway network and to carry out periodic inspections of the authority's highway asset. All relevant data that is collected on site, either from scheduled inspections or ad-hoc visits is saved electronically via 'Mayrise'.

In addition, they are responsible for dealing with matters relating to the control of use of the highway, in terms of:

- Approving the issue of licences for skips,
- Vehicles for sale (causing an obstruction)
- Contractors working on the highway (including section 171)
- All emergencies that may arise that affect the highway on a 'round the clock' basis

The Highway Inspector accepts responsibility for the accuracy of the information recorded whilst undertaking safety inspections. In certain circumstances, this person may be called into a Court of Law to substantiate their recordings or actions.

The highway network is divided into seven separate areas (ref to Figure 1, page 46) of Inspection Areas). These areas have been assessed on their geography, the length of network and the number of service requests generated for that particular area. Based on this information an informed decision has been made to determine the geographical limits of an Inspectors area ensuring that adequate resources are available. This assessment allows each inspector has sufficient time to perform the appropriate inspections per annum, as set out in the Network Hierarchy.

Within the highway maintenance department monthly or quarterly meetings are held between the operational staff. This ensures that any dynamic changes to the highway or amendments to the existing asset (new adoptions etc) are discussed and recorded.

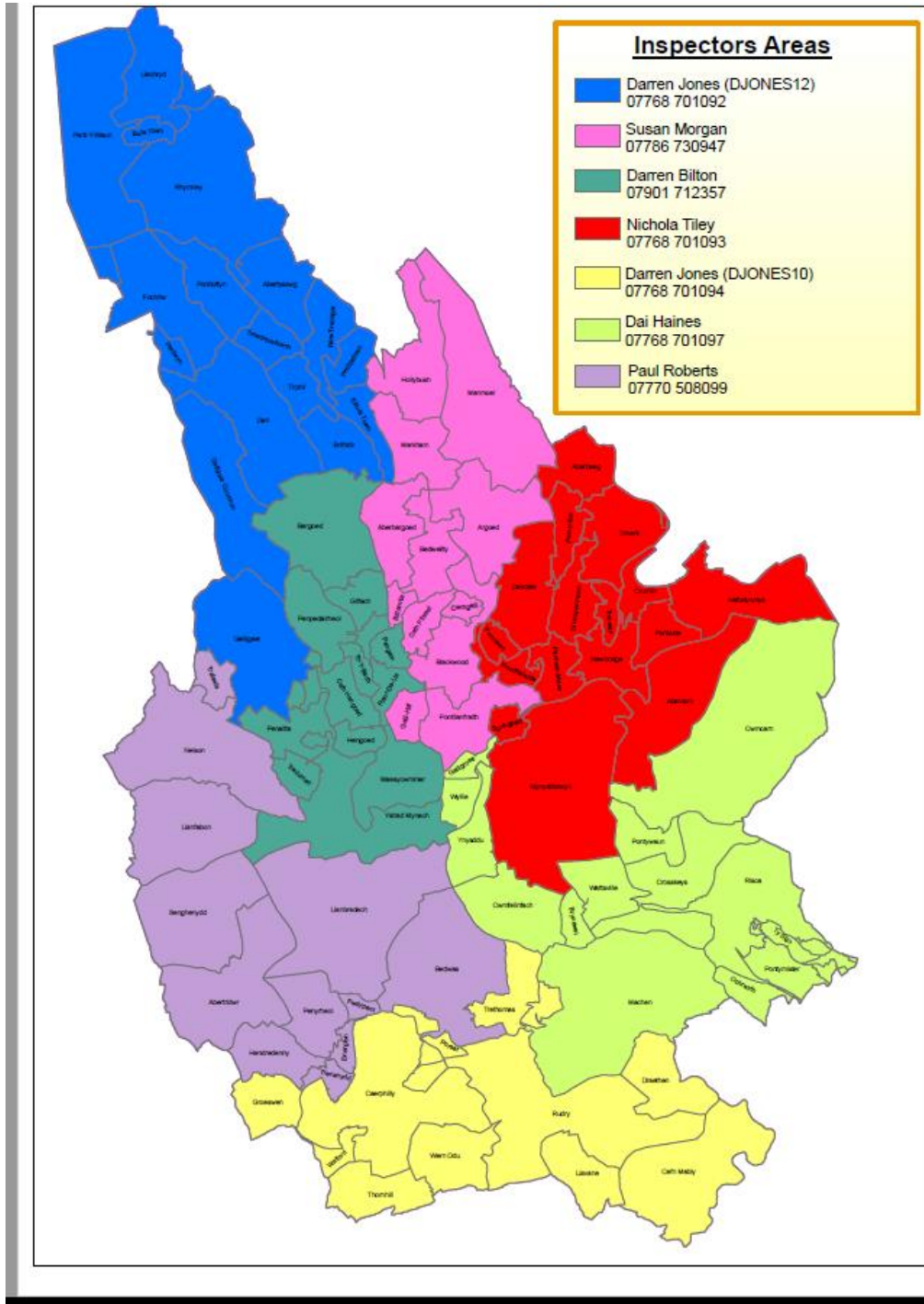
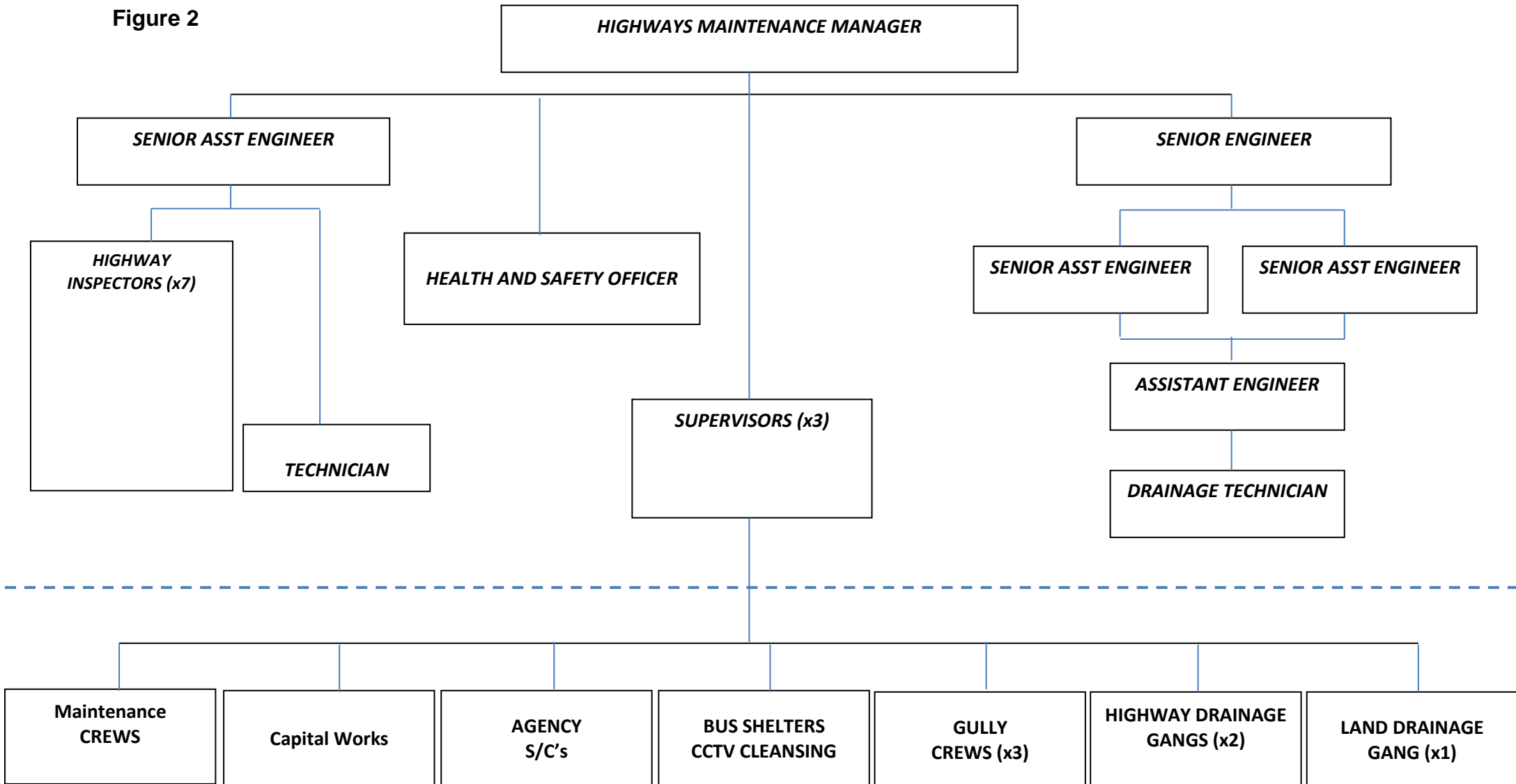


Figure 1 Inspection Areas

The following organisational structure (Figure 2) shows how highway inspections are resourced:

Figure 2



2.3 Record keeping and data managing

All information obtained from the highway safety inspections, together with the nature of the response, including all nil returns shall be recorded consistently. The information obtained will be able to be reviewed independently and in conjunction with other survey information. Highway Inspection returns are recorded within Mayrise.

Each inspection must be recorded against the relevant unique street section number. Additional information relating to the overall condition of both the footway and carriageway should be observed during each inspection. This information is utilised for both identifying potential treatments for future planned works and to update to the asset management register.

The Mayrise system makes provision for recording service requests, complaints, reports or information from users and other third parties. These may require immediate action, special inspection, or influence future inspection or monitoring arrangements (refer to Appendix A for further details).

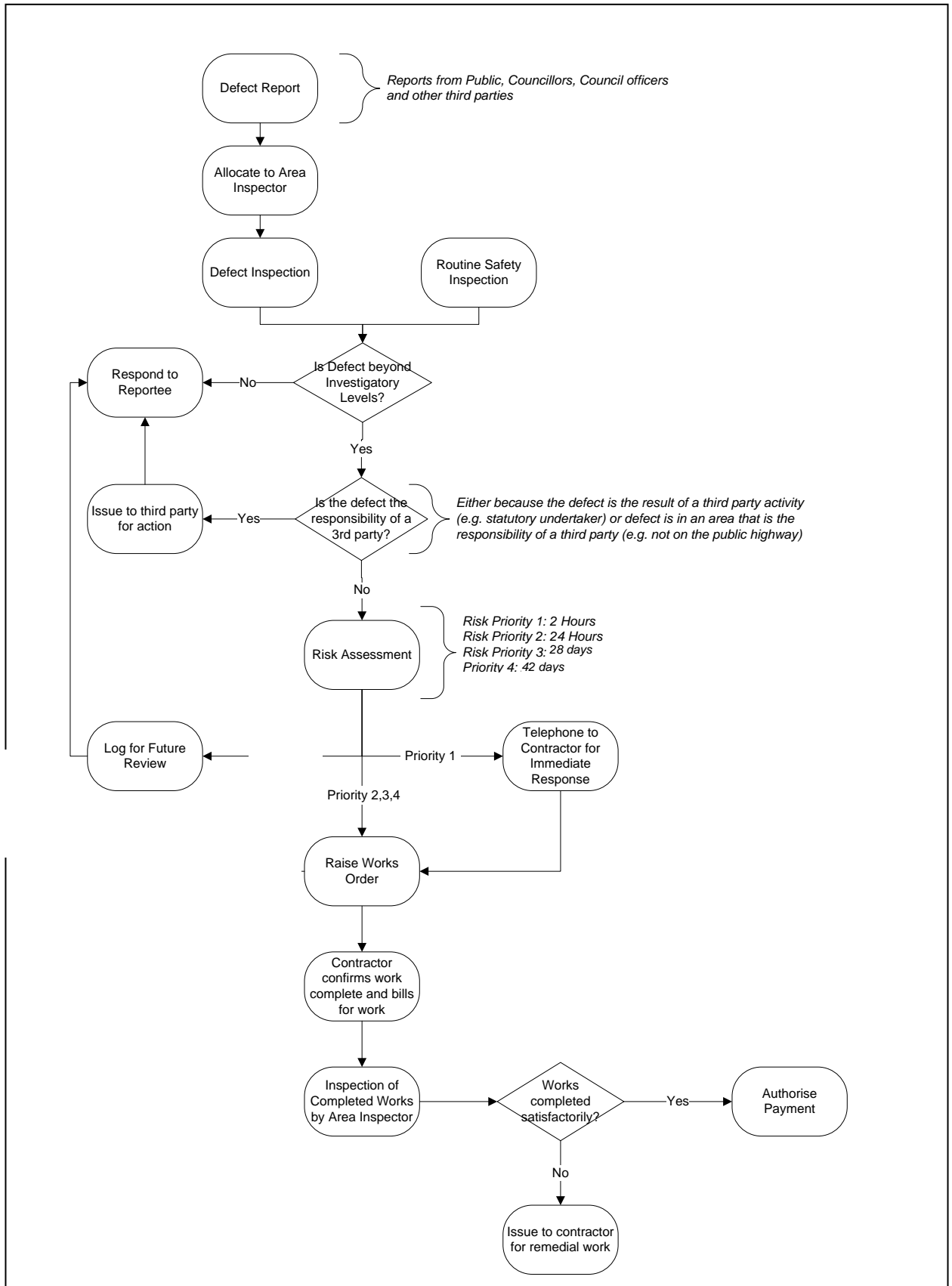


Figure 3 Overview of the process of highway inspections

2.4 Summary of Highway inspections

Table 6 Summary of inspection types and procedures

Inspection type	Asset Description (Coverage)	Survey methodology	Data recording methodology	Defects and Investigatory Levels (degree of deficiency)	Inspection frequency and guidance to be used **	Nature of response (times and procedure etc)
Safety Inspections						
Carriageway	Carriageways, Pedestrian crossings, Surfacing, Kerbing Ironwork, Drainage Road markings, Signs, bollards, lights, signals, Safety fencing and barriers, trees and vegetation	Driven/Walked	Electronically Logged until return to office base, where information is saved electronically into Mayrise	Refer to Table 10	Variable according to category. Refer to Table 10 in part 2	Risk Matrix - Tables 11 and 12
Footway	Pedestrian crossings Surfacing, Kerbing Ironwork, drainage, markings, signs, bollards, lights, barriers, trees and vegetation	Walked	Electronically Logged Electronically Logged until return to office base, where information is saved electronically into Mayrise	Refer to Table 10	Variable according to category. Refer to Table 10 in Part 2	Risk Matrix - Table 12
Cycleway	Pedestrian crossings Surfacing, Kerbing Ironwork, drainage, markings, signs, bollards, lights, barriers, trees and vegetation	Walked/ Cycled	Electronically Logged until return to office base, where information is saved electronically into Mayrise	Refer to Table 10	Variable according to category. Refer to Table 10 in Part 2	Risk Matrix - Table 12
Service Inspections (including Detailed Inspection)						
Structural Maintenance	Bridges, Structures	Driven/Walked	Electronically	Visual inspection only	Variable according to	Refer to structures

Inspection type	Asset Description (Coverage)	Survey methodology	Data recording methodology	Defects and Investigatory Levels (degree of deficiency)	Inspection frequency and guidance to be used **	Nature of response (times and procedure etc)
			<i>Logged until return to office base, where information is saved electronically into Mayrise</i>	<i>and refer to Structures department</i>	<i>category. Refer to Table 10 in Part 2</i>	<i>department</i>
<i>Structures</i>	<i>Bridges, Structures, Retaining Wall Inspections, Safety Barrier - Routine Structural Inspection</i>	<i>Driven/Walked</i>	<i>Electronically Logged until return to office base, where information is saved electronically into Mayrise</i>	<i>Visual inspection only and refer to Structures department</i>	<i>Variable according to category. Refer to Table 10 in Part 2</i>	<i>Refer to structures department</i>
<i>Bridge Assessment (and Strengthening)</i>	<i>As above</i>	<i>Driven/Walked</i>	<i>Electronically Logged until return to office base, where information is saved electronically into Mayrise</i>	<i>Visual inspection only and refer to Structures department</i>	<i>Variable according to category. Refer to Table 10 in Part 2</i>	<i>Refer to structures department</i>
<i>Tips (disused mines and quarries)</i>	<i>Stability of disused tips</i>	<i>Walked</i>	<i>Manually recorded</i>	<i>Refer to Tips Inspection Manual</i>	<i>Refer to Tips Inspection Manual</i>	<i>Refer to Tips Inspection Manual</i>
<i>Street lighting and Illuminated Traffic Signs equipment</i>	<i>Streetlights, feeder pillars</i>	<i>Walked/ Driven</i>	<i>Electronically Logged until return to office base, where information is saved electronically into Mayrise</i>	<i>Refer to Street Lighting Department</i>	<i>Refer to Street Lighting Department</i>	<i>Refer to Street Lighting Department</i>
<i>Highway Drainage</i>	<i>Condition assessment for gullies</i>	<i>Walked</i>	<i>Electronically Logged until</i>	<i>Refer to drainage section</i>	<i>Refer to drainage section</i>	<i>Refer to drainage section</i>

Inspection type	Asset Description (Coverage)	Survey methodology	Data recording methodology	Defects and Investigatory Levels (degree of deficiency)	Inspection frequency and guidance to be used **	Nature of response (times and procedure etc)
			<i>return to office base, where information is saved electronically into Mayrise</i>			
<i>Land Drainage</i>	<i>Culverts</i>	<i>Walked/ Driven</i>	<i>Electronically Logged until return to office base, where information is saved electronically into Mayrise</i>	<i>Refer to Land drainage Department</i>	<i>In line with inspection schedule, Ad hoc basis and via service requests</i>	
<i>Street works inspections</i>	<i>Statutory undertakers (utility) defect</i>	<i>Walked/ Driven</i>	<i>Electronically Logged until return to office base, where information is saved electronically into Mayrise</i>	<i>Refer to NRSWA department</i>	<i>In line with inspection schedule, Ad hoc basis and via service requests</i>	
<i>Condition assessment surveys</i>	<i>Skid resistance, CVI, DVI</i>	<i>Walked/ Driven, Visual only</i>	<i>Electronically Logged until return to office base, where information is saved electronically into Mayrise</i>	<i>Record as per inspections and refer to Highways Engineer</i>	<i>In line with inspection schedule</i>	
<i>Inspections for Network Integrity (relating to operational efficiency)</i>	<i>Traffic signs or markings</i>	<i>Walked/ Driven</i>	<i>Electronically Logged until return to office base, where information is</i>	<i>If signs are obscured or damaged, action as necessary</i>	<i>In line with inspection schedule</i>	

Inspection type	Asset Description (Coverage)	Survey methodology	Data recording methodology	Defects and Investigatory Levels (degree of deficiency)	Inspection frequency and guidance to be used **	Nature of response (times and procedure etc)
			<i>saved electronically into Mayrise</i>			
<i>Inspections for Regulatory Purposes (regulation and enforcement activities)</i>	<i>All assets within the Highway</i>	<i>Walked/ Driven</i>	<i>Electronically Logged until return to office base, where information is saved electronically into Mayrise</i>	<i>Varies depending on action/ notice served</i>	<i>Undertaken as part of routine inspections, on a ad-hoc basis and via service requests</i>	<i>Refer to table</i>
<i>'Ad-hoc' inspections</i>	<i>Carriageways, Pedestrian crossings, Surfacing, Kerbing Ironwork, Drainage Road markings, Signs, bollards, lights, signals, Safety fencing and barriers, Trees and vegetation</i>	<i>Walked/ Driven</i>	<i>Electronically Logged until return to office base, where information is saved electronically into Mayrise</i>	<i>Refer to table 10</i>	<i>Adhoc basis not routine</i>	<i>Refer to table</i>
<i>Inspection of 'requests for service'</i>	<i>All assets within Highway</i>	<i>As required</i>	<i>Electronically Logged until return to office base, where information is saved electronically into Mayrise</i>	<i>Refer to table 10</i>	<i>Adhoc basis not routine</i>	<i>Refer to table</i>

2.5 Defect risk assessment process (Safety Inspections)

Our Risk Based Approach to defect categorisation and repair timescales, enable the cost effective repairs proportionate to the level of risk presented to the user. The Highway inspections procedure has been developed using a risk assessment process in order to provide a practical but robust approach to managing the risks identified. The inspection regime should take account of the potential risks to all road users:

1. Risk Identification, where a defect is identified as a potential risk
2. Risk Evaluation, where the nature and degree of risk is assessed based upon the likelihood of an incident resulting from a defect and the impact of that incident, should it arise
3. The selection of a response appropriate to the assessed level of risk

2.5.1 Risk identification

Any item with a defect level which corresponds to, or is in excess of the defect intervention level adopted by the Council is to be assessed for likely risk.

The basis for the identification of risk in relation to highway defects is the use of “intervention” levels. These are set out in the table below, and are intended to be a guide for inspectors, who will also exercise their discretion in identifying defects that present risks, particularly where not included below:

Table 7 Defect Intervention levels

Safety Defect Rating System

CATEGORY	INSPECTION INTERVAL	DEFECTS - DEFINITION
CARRIAGEWAYS	(SAFETY)	TRIPPING HAZARDS
2. Strategic Routes ('A' Roads) 3(a). Main Distributor ('B' Roads)	3 Months	40mm
3(b). Secondary Distributor 4(a). Link Roads 4(b). Local Access Roads/Rear Lanes	6 Months	50mm
FOOTWAYS/CYCLEWAYS		TRIPPING HAZARDS (Inc. protrusions)
1&1a. Prestige & Primary Walking Zones 2. Secondary Walking Route	1 Month	20mm
3. Link Footway and Cycleways remote from carriageway 4. Local Access Footway	6 Months	40mm
C. Cycle Trails	1 Year	40mm
GENERAL – other 'emergency' safety defects (not exhaustive)		
<ul style="list-style-type: none"> ● Missing covers – manholes, inspection chambers, gullies, stop taps etc.; ● Lighting columns/illuminated signs – missing door/exposed electrical cables; ● Unsafe roadwork's sites; ● Recently damaged safety barrier systems; ● Traffic Signals – complete failure; ● Missing slabs/kerbs; ● Obstructions including major c/way flooding 		

2.5.2 Risk assessment

The key to selecting the appropriate action for a defect is the risk assessment process. All defects that reach the investigatory level should be evaluated for their significance and the likelihood of injury or damage to a highway user.

Having identified a defect that presents a potential risk, a structured process of assessing the defect in-line with Caerphilly Councils intervention ensues. This considers the probability of the defect resulting in an incident and, should an incident arise, the potential level of impact.

Table 8 Risk assessment matrix

Probability \ Impact	Very low	Low	Medium	High
Negligible	1	3	3	4
Low	2	4	6	8
Moderate	3	6	9	12
High	4	8	12	16
Priority	Priority 4	Priority 3	Priority 2	Priority 1

Inspectors assess the risk probability on a scale of 1 to 4 as follows:

1. 0-6 Very Low – No action
2. 8-9 Low – standard 28 day works instruction
3. 12 Medium – 24hr Emergency Response
4. 16 High – 2hr Emergency Response

The probability is a reflection of the likelihood of a user (i.e. pedestrian, cyclist or vehicle) encountering the risk, and as such, the inspector will need to take into account the following:

- The amount of vehicular or pedestrian flow
- The network hierarchy
- The defect location within the street
- The likelihood of further deterioration

The impact is quantified by assessing the extent of damage likely to be caused should the risk become an incident. As the impact is likely to increase with increasing speed, the amount of pedestrian or vehicular traffic and type of road, are clearly important considerations in the assessment, as is hierarchy, as a reflection of the type of pedestrian or vehicular traffic likely to encounter the defect. Having assessed and categorised, an appropriate response is determined.

Table 9 Priority and Response times

Priority	Response
Priority 1	2 Hours
Priority 2	24 Hour Response
Priority 3	28 Day Response
Priority 4	42 Day Response (Veh Xing)

When assessing each defect and the subsequent response time, the inspector may consider the following (this list is indicative and does not include every factor):

- The depth, surface area or other degree of deficiency of the defect or obstruction
- The volume, characteristic and speed of traffic
- The location of the defect relative to highway features such as junctions and bends
- The location of the defect relative to the positioning of users, especially vulnerable users, such as in traffic lanes or wheel tracks
- The nature of interaction with other defects
- Forecast weather conditions, especially potential for freezing or surface water

2.5.3 Risk management

Risk management can be defined as:

“The process of identifying significant risks to achieve an authority’s strategic and operational objectives, evaluating the potential consequences and determining and implementing the most effective way of controlling and monitoring them”

Risk management is an essential tool for asset management and is a requirement of the CoP (Code of Practice). It informs the development of safety inspection regimes contributes to the establishment of levels of service and determines priorities, hierarchies, programmes and procurement strategies.

In relation to highway inspections, risk management principles can be applied to:

1. Determine the frequency of inspections for particular sections of road, footway and cycle track.
2. Determine the guidance for inspectors set out in this document as to investigation levels for defects in particular circumstances.
3. Determine whether defects and incidents encountered during inspections present a risk to users of the roads or to the integrity and future performance of the road
4. Determine an appropriate response to a defect or incident.

2.6 Highway Safety Inspections

2.6.1 Introduction

Safety inspections are carried out at regular frequencies that vary in accordance with the level of use and importance of the road or footway. They are designed to identify all defects likely to create danger or serious inconvenience to users of the network or the wider community. The risk of danger is assessed on site and an appropriate priority response identified.

Caerphilly County Borough Council has set its own standards for the frequency of its highway safety inspections. These take into account National guidelines for the definition of highway type, hierarchy and inspection frequencies issued in the latest Code of Practice for maintenance management, 'Well Managed Highway Infrastructure'.

2.6.2 Inspection mode

Driven inspections should always be undertaken by two people in a slow moving vehicle in both directions, with one person driving and the other carrying out the inspection. The driver does not actively record defects as they are expected to manoeuvre the vehicle on a safe passage.

The vehicle used for the driven inspection has to be equipped with a roof mounted high intensity beacon, reflective markings and a first aid kit. Traffic sensitive routes should be inspected outside of the main peak flow periods.

Walked inspections are undertaken alone. If the section of network being assessed only has a footway on one side then the inspector is able to survey both the footway and carriageway simultaneously. If there is a footway on either side of the carriageway then an inspection has to be undertaken in both directions.

Cycled inspections of the cycle network can be inspected individually and undertaken on a bicycle. Cycleways that form part of the highway will be inspected as part of the scheduled highway inspection.

2.6.3 Inspection Coverage

The following is an example of items that should be given due consideration whilst undertaking a routine highway inspection:

- Debris, spillage or other contamination on pavement surfaces
- Overhead Wires that are damaged or low
- Displaced road studs
- Defective street furniture (lights, benches, bollards etc)
- Unstable embankments or cutting
- Overhanging vegetation both in the footway and carriageway
- Standing or discharging water
- Damaged safety fencing, parapet fencing or pedestrian guardrail
- NRSWA (New Roads and Street Works Act 1991) defects (utility apparatus etc.)
- Dirty or obscured traffic signs
- Trees with loose limbs or that appear unstable
- Unauthorised signs
- Abrupt level difference in running surface
- Potholes, cracks or gaps in the running surface
- Loss of skid resistance on network (SRV)
- Broken or displaced kerbs
- Blocked drains
- Damaged or missing ironwork (gullies, manhole covers etc)

(This list is not comprehensive, it is just an illustration)

If there is any uncertainty over any potential hazard then the Highways Inspector should seek guidance from their line manager. The overriding issue is to ensure the safe passage of highway users.

2.6.4 Frequencies

Frequencies for safety inspections of individual network sections are based upon a consideration of the category within the road, footway or cycle track network hierarchy. The default inspection frequencies are set out in table 7 (page 55), and a full inventory of all Caerphilly County Borough Council including intended inspection frequency can be referred to in Appendix I.

A review of hierarchies and inspection frequencies will take place on an annual basis to assess whether changes are required and whether an inspection frequency in excess of that determined by the road, footway and cycle route would be more appropriate. Such enhancements (on a temporary or permanent basis) are recorded within Mayrise and will be based upon an assessment of risk, taking into account:

- Traffic use, characteristics and trends (for example, if future levels of traffic significantly higher than that suggested by the hierarchy are likely to occur on a section, perhaps as the result of development works);
- Incident and inspection history (for example, if a section has exceptional levels of accidents [See Appendix C] or repeated occurrences of defects);
- Characteristics of adjoining network elements (for example, where a section joins a trunk road);
- Wider policy or operational considerations.

Where there is uncertainty about the category to be applied an on-site ‘reality check’ will be undertaken, and inspectors will report any instances where, having carried out an inspection it would be appropriate to carry out inspections more frequently.

2.6.5 Inspection programme

The inspection programme is arranged in such a way as to distribute the anticipated defect repair workload evenly across the County. Concentration of inspections in any single area are avoided to eliminate large amounts of work falling on single areas, with the consequent risk of repair response times being exceeded

It is important that the inspection frequency regime is adhered to. The Section 58 defence is highly dependant on regular inspections and every effort must be made to keep to the programme. In the event that the inspection frequency is not maintained, then efforts must be made to ensure that the inspection regime of streets in the higher part of the hierarchy are protected as these streets by definition, present a greater risk to the public and thus expose the Council to greater risk from claims.

2.6.6 Response times

Each defect has a specific response time associated with it, depending on the degree of deficiency. The response times are as follows:

Table 9 Response times

Priority	Response
Priority 1	2 Hours
Priority 2	24 Hour Response
Priority 3	28 Day Response
Priority 4	42 Day Response (Veh Xing)

Where defects with potentially serious consequences for network safety are made safe by means of temporary signing or repair, arrangements should be made for a special inspection regime to ensure the continued integrity of the signing or repair is maintained, until a permanent repair is made.

2.6.7 Follow-up action

There will be certain defects that upon being made safe will require the Highways Inspector to notify other engineering personnel within Street lighting, Dangerous structures, NRSWA etc. It is they who will then decide upon the appropriate course of action. The standard response time is shown as 28 days although in practice the prioritisation of remedial works will be determined by the individual Highway Engineer, Street Works Inspector or Street Lighting Engineer as necessary.

2.6.8 Record keeping and data management

Where a defect has been 'made safe', by coning, temporary reinstatement etc., then it is important that the follow-up permanent repair is initiated and included in the recording system.

2.7 Condition/ Service Inspections (planned maintenance)

2.7.1 Introduction

The service inspection regime is designed to ensure that the network meets the needs of the users by providing more detailed inspections of particular highway elements to ensure that they meet the requirements for serviceability.

Service Inspections comprise of a more detailed inspection, tailored to identify issues that may have an effect on the reliability, comfort or quality.

These inspections are undertaken in conjunction with safety inspections and follow the same frequency.

2.7.2 Inspection Frequencies

Refer to 'safety Inspection' frequency table (Table 7, page 55)

2.7.3 Changes to inspection frequencies

Service Inspection frequencies are to be reviewed annually.

2.7.4 Inspection Programme

The Inspection programme has been developed utilising CCBC core maintenance policies that address maintenance and historical approved codes of practice. Regular meetings are convened to review the core data sets for all policies and procedures, to ensure a consistent and thorough approach to highway inspections.

In addition to the safety inspections, several modes of data collection are used to provide reports on the sustainability, serviceability and existing condition of the Highway network, such as

- SCRIMM
- SCANNER
- Condition Surveys (visual)
- CVI
- DVI
- FNS
- GDR (financial depreciation)

Condition surveys are undertaken in-line with the safety inspection and their primary function is to identify deficiencies within the highway infrastructure.

In addition there should be at least one overall carriageway condition inspection each year so as to assess the overall deterioration of each road. The purpose of this minimum annual condition inspection is to provide input

into the development of the asset management-led programmes of future work with a particular focus on prioritised preventative maintenance opportunities.

This information and data from the other modes of asset assessment provide Caerphilly with their Planned Maintenance scheme Identification

The Planned Maintenance List is the responsibility of the Construction Team Principal Engineer and are derived from the following

Schemes are identified from the following sources

- SCANNER – The UKPMS (United Kingdom Pavement Management System) provides a report detailing all the sections of road with red and amber levels of condition.
- The Construction Team Principal Engineer inspects each section identified by UKPMS. The inspector decides what action is required and notes it on the report. Planned Maintenance Schemes are added to the Planned Maintenance Identified Scheme List
- SCRIM – The UKPMS would provide a report detailing all the sections of road where the skid resistance value was less than the assigned Investigatory Level. Note: the assigned Investigatory Levels are documented Sections which require Planned Maintenance are added to the Planned Maintenance Identified Scheme List.
- Highway Inspectors – Highway Inspectors may recommend that the best treatment for one or a group of more than one safety defect is a planned maintenance treatment (CVI/ DVI plus condition/ service insp)
- Requests – Council Members contact the council about carriageway defects raised by their constituents. Customers – Customers contact the council about carriageway defects. The Highway Inspector is responsible for inspecting and evaluating the imperfections. The sections of Network with greater volume of surface imperfections, will be inserted into the Planned Maintenance Identified Scheme List.

The following actions are completed by the Highway Inspectors. All schemes on the Planned Maintenance Identified Scheme List are rated using the following prioritisation matrix

Condition	Priority	Risk Level
1 - Good	1 - Rear lane	1 - Low
2 - Fair	2 - Rural	2 - 1 year re-assessment
3 - Moderate	3 - Unc	3 - 6 month re-assessment
4 - Worn	4 - B Road	4 - Action needed soon
5 - Poor	5 - A Road	5 - High

2.7.5 Items for inspection

Service inspections should incorporate the elements of safety inspections as detailed above and supplemented by requirements for serviceability. The range of inspection types to be carried out can be seen in *Table 6 Summary of inspection types and procedures (page 50)*.

2.7.6 Response times

All defects identified during the Service Inspections, that are not deemed Safety Defects, should be incorporated within a Planned Maintenance Programme with priorities assessed by reference to approved standards, relative priorities and available budget, and priorities should conform to the policies and objectives specified in the Caerphilly Asset Management Plan (See Policies and documents).

2.7.7 Follow-up action

Certain defects will require notification to highways or street lighting personnel who will then decide upon the appropriate course of action. The standard response time is shown as 28 days, although in practice the prioritisation of remedial works will be determined by the individual Highway Inspector, Street Works Inspector or Street Lighting Engineer as necessary. It is intended that client staff, which are responsible for downloading defects from the Mayrise system, carry out this notification.

2.7.8 Record keeping and data management

If an inspector has undertaken some temporary action during a Service Inspection then it is important that the follow-up permanent repair is initiated and included within Mayrise..

2.7.9 Inspections for network integrity

Inspections for network integrity are to be undertaken at a frequency of 12 months as these relate to operational efficiency rather than the individual elements of the network, although they routinely coincide with the Safety Inspection frequency for CCBC highway network.

Typical items that reflect operational efficiency include:

- Traffic signs or markings may be poorly sited or the legend may be either incorrect, confusing or not reflect current priorities
- Traffic signs or markings may be obsolete or redundant and affect street clutter
- Facilities for walking, cycling or public transport might be discontinuous or poorly defined and opportunities for installation of dropped kerbs or textured paving should be taken

- Opportunities might be taken to modify layout as part of future maintenance schemes.

2.7.10 Inspections for regulatory purposes

In addition to the maintenance of the highway infrastructure, the highway maintenance service also comprises regulation and enforcement activities. The most significant of these involves responsibilities and requirements under the New Road and Street Works Act (NRSWA) 1991. These provisions together with the associated Codes of Practice and Standards are not covered in this manual.

Other important regulatory duties include (list is not exhaustive):

- Dealing with encroachment on the highway
- Dealing with illegal and unauthorised signs
- Licensing skips, hoardings, temporary closures and other authorised occupation of the highway
- Enabling the enforcement of street parking regulations (CPE)
- Scaffolding
- Debris and overgrowth
- Vehicle Crossing applications
- S171 Applications
- Highway Adoption (S58 works)

2.8 Inspection Method

2.8.1 Safety Inspection

These are designed to identify all defects meeting intervention criteria that could potentially create danger or serious inconvenience to users of the network. The risk of danger is assessed on site and the defect is then categorised for the appropriate response.

2.8.2 Service Inspection

Service inspections are a more thorough inspection, which are tailored to the requirements of a particular highway related element. This allows an informed decision to be made regarding the serviceability of that section.

Service inspections fall into two categories; Network Integrity and Regulatory. Network Integrity inspections focus on Street lighting and road markings, whereas the Regulatory Inspections are aimed at:

- New Developments - Section 38 of the Highways act 1980
Inspections of these sites are subject to Section 38 adoption agreements (Highway Planning) and typically take place from inception to completion as well as prior to adoption. Highway inspectors routinely concentrate on the pre adoption inspection.
- New Roads and Street Works Act (NRSWA)

In addition information recorded, forms an integral part of the HAMP (Highway Asset Management Plan) for the authority when creating an inventory

2.8.3 Condition Assessment

Condition surveys (CVI & DVI) are intended to identify deficiencies within the highway infrastructure which, if untreated, are likely to adversely affect its longevity and levels of serviceability.

The surveys provide information on the mode and severity of deterioration, which is used to determine the appropriate maintenance treatments.

All forms of survey data utilised to measure the condition of the highway asset in order to provide assessments on overall performance, KPI's (Key Performance Indicators), maintenance requirements and to determine planned, maintenance programmes.

2.8.4 Training and Development of inspectors

In accordance with Caerphilly CBC policies and guidelines all Inspectors are assessed via a 'performance development review', which is undertaken

annually. The review is conducted between the Inspector and nominated line manager, with the intention of meeting the following objectives:

- Identifying training needs
- Assisting the individual to self appraise and set targets
- Provides a platform for the Inspectors to feed back to the line manager regarding any concerns or queries that they may have

Safety inspections are to be undertaken through a risk assessment procedure. Consequently the training of all highway inspection personnel in the risk management regime is an essential pre-requisite before such inspections can be undertaken.

Under the provisions of the Health and Safety at Work Act (1974) and Construction Design and Management Regulations (2015), it is important that all operatives undertake comprehensive Site Safety training specific to their duties.

A vital component of inspections is to ensure that inspectors are able to undertake their duties consistently, accurately and within the current guidelines and standards. The County Borough Council offers training for inspectors on a regular basis and will ensure appropriate refresher courses are also offered.

The training will include coverage of the following areas, but may also include other subjects when appropriate:

- Inspector training and accreditation
- Site Safety Training
- Lone working briefing
- Dynamic Risk assessment training
- Induction and briefing
- Introduction to risk management
- Workshops on risk assessments
- Insurance requirements for third party claims

It is the aim of Caerphilly CBC that all inspectors will be trained in accordance with City and Guilds scheme 6033.

2.8.5 Safe working practices

All Inspectors are trained to carryout dynamic risk assessments whilst undertaking safety inspections. This empowers the Inspector to assess their environment and act accordingly. At no point in time should the inspector act in a manner that may affect their wellbeing or the welfare of others.

Information on both the Dynamic RA and lone-working policy together with other safe systems of work can be located at Highways Operations Group offices. Below is an illustration of the SSOW and training undertaken:

SSOW-GEN-INSP 1	Inspection of Street & Road Works
SSOW-GEN-INSP 2	Traffic Light Signal Adjustment
SSOW-GEN-INSP 3	School Crossing Patrols
SSOW-GEN-INSP 4	Measuring Work – Live Carriageways
SSOW-GEN-INSP 5	Inspection of Construction Developments
SSOW-GEN-INSP 6	Use of Ladders
SSOW-GEN-INSP 7	Culvert Inspections
SSOW-GEN-INSP 8	Car Park Monitoring
SSOW-GEN-INSP 9	Driving on Authority Business
SSOW-GEN-INSP 10	Bridge Inspections
SSOW-GEN-INSP 11	Working in Excavations
SSOW-GEN-INSP 12	Inspection of Bus Stop Services
SSOW-GEN-INSP 13	Canal Inspections
SSOW-GEN-INSP 14	Driving on NCS Business
SSOW-GEN-INSP 15	Topographical Surveys
SSOW-GEN-INSP 16	Manual Handling Long Objects
SSOW-GEN-INSP 17	Moderately Heavy Loads
SSOW-GEN-INSP 18	Ladders Pre-Use Checks
SSOW-GEN-INSP 19	Lifting Manholes Covers
SSOW-GEN-INSP 20	Work in Wet Weather
SSOW-GEN-INSP 21	Inspections of Mines-Tips and Quarries
SSOW-GEN-INSP 22	Working in Water
SSOW-GEN-INSP 23	Working Near Water
SSOW-GEN-INSP 24	Driving in Adverse Conditions
SSOW-GEN-INSP 25	Inspections in Vehicles and on Foot
SSOW-GEN-INSP 26	Confined Spaces Emergency Plan
SSOW-GEN-INSP 27	Confined Space-Deep Manholes- High Risk
SSOW-GEN-INSP 28	Lone Working – Remote Locations- Mines & Tips
SSOW-GEN-INSP 29	Lone Working
SSOW-GEN-INSP 30	Wetlands- Work-Ponds-Streams Rivers etc.
SSOW-GEN-INSP 31	Safety at Street & Road Works
SSOW-GEN-INSP 32	Signing of Roadworks
SSOW-GEN-INSP 33	Work on Highways 1 Signing and Guarding
SSOW NEW REF	ACTIVITY
SSOW-GEN-INSP 34	Syringes- Hypodermic Needles

SSOW-GEN-INSP 35	Emergency Procedure LPG Gas Cylinders
SSOW-GEN-INSP 36	Dispensing & Storage of Petrol & Diesel
SSOW-GEN-INSP 37	Work on Small Repairs and Patching
SSOW-GEN-INSP 38	Working with Sewage
SSOW-GEN-INSP 39	Bodily Fluids Removal of Blood
SSOW-GEN-INSP 40	Working with Hazardous Substances
SSOW-GEN-INSP 41	Prevention of Bridge Strikes
SSOW-GEN-INSP 42	Footway De-Icing Spraying Inspectors

2.8.6 Data Management

The Mayrise system makes provision for recording service requests, complaints, reports or information from users and other third parties. These may require immediate action, special inspection, or influence future inspection or monitoring arrangements (refer to Appendix A for typical example).

All information obtained from inspections, together with the nature of any response made by the inspector, including nil returns, is recorded.

2.9 Inspection Procedures

2.9.1 Data Capture

All defects that meet intervention levels are to be recorded whilst on site and retained for auditing purposes . All information will be retained within Mayrise.

CCBC utilise remote hand held devices to enable the inspectors to capture and store defect information whilst on site.

2.9.2 Section Information

At the start of each section the following data must be recorded.

Table 10 Section Information Data

Section Information data	Description
USRN	10 character alphanumeric character combination of the district code the road number and the link number.
Section Description	Up to 80 alphanumeric characters
Reverse Direction	Is the inspection to be carried out in the reverse direction? (Y/N)
Inspector/s	Inspector's initials, up to 3 alphanumeric characters. If two inspectors carry out an inspection, then both of the initials should be entered.
Inspection Type	Type of inspection. Safety will automatically be recorded
Initiation	NRW (normal walking), NRD (normal driven)
Weather	Fine, Rain, Snow or Fog
Road Condition	Dry, Wet, Snow or Ice

2.9.2 Defect Details

Table 11 Defect Details

Location	Required – a text description of the location of the defect up to 40 alphanumeric characters
Identity code	ID code on lighting columns signs bollards etc.
Diagram number	road traffic sign diagram number if required
Inventory item code	2 character inventory item code
Modifiable code	Modifiable code list, including the client's highway maintenance, street works and street lighting sections
Special instructions	Special instructions free text, up to 255 characters
Defects	4 alphanumeric character defect code as listed elsewhere
Response	Defect priority 1 2 3 as listed elsewhere
Action	Action recommended or taken by the inspector
Record action	A 40 character action text to fully describe the repairs recommended for the defects found
Date and Time	Are automatically recorded from the DCD calendar/clock
Comments	240 character free text – notebook type entry

2.9.3 Sections with no identified defects

Sections that have been inspected but have no defects must be recorded as such electronically.

2.9.4 Locations of defects

In addition to recording the location of the defect in terms of coordinates, a text based description such as outside No 32 or adjacent to lamp column No 7. Alternatively a distance measurement can be given from a junction of significant landmark. All defects are marked in highly visible yellow paint.

2.9.5 Activity codes

A code is used to record the defective asset. These are as follows:

Defect Code	Defect Type Description
CCSC	C/W Spalling/Cracking (Concrete)
CCVS	C/W Vertical Step at Joint (Concrete)
CEDT	C/W Edge Deterioration
CMCR	C/W Major Cracking/Loss of Material
COTH	C/W Other
CPOT	C/W Pothole/Loss of Material
CSTW	C/W Standing Water / Seepage
CTRF	C/W Trench Failure
CUNE	C/W Uneven Surface
CWTR	C/W Wheel Track Rutting
DBLK	Gully / MH / Catchpit silted
DCBK	Culvert inlet / outlet blockage
DCMS	Missing cover / manhole / gully etc
DDIF	High / Low Cover / MH / Gully etc.
DDSD	Drainage ditch silted
DDUS	Damaged / US Cover / Grating
DOTH	Drainage: Other
FBCR	Corroded/Rotten Post
FBDM	Damaged Fencing/Guardrail/Barrier
FBMS	Missing Fencing/Guardrail/Barrier
FBOT	Fencing: Other
FCRK	F/W Cracked Flag / Slab or Block
FMIS	F/W Missing Flagstone/Slab/Blockwork
FOTH	F/W Other
FPOT	F/W Pothole / Loss of Material
FROC	F/W Uneven or Rocking Flag/Slab/Block
FSTW	F/W Standing water / Seepage
FTFL	F/W Trench Failure

FUNE	F/W Uneven Surface > 20mm
KDAM	KBS/EGS/CH Damaged
KLOR	KBS/EGS/CH Loose / Rocking
KMIS	KBS/EGS/CH Missing
KOTH	KBS/EGS/CH Other
KPRO	KBS/EGS/CH Projection > 20mm
NRSW	Statutory Undertakers Defect
RMOT	RD MARKS Other
RMWR	RD MARKS Wear
TALN	Sign/snp misalignment
TDAM	Sign / Street name plate damaged / US
TDRT	Dirty/graffitti to sign/snp
TMIS	TR SIGN/SNP Missing
TOTH	TR SIGN/SNP Other
TPOS	TR SIGN/SNP Defective post
TVEG	Sign/snp obscured by vegetation

2.9.6 Formal Notifications

Whilst undertaking the safety inspection an officer may detect a number of highway related discrepancies that require additional action. Instances of such normally require the inspector to formally serve notice on a person/ homeowner or business for performing an illegal highway activity that contravenes the 'Highways Act 1980'.

The following are an example (not exhaustive) of formal highway notifications to be used as the highway custodian to ensure safe passage for members of the public and can be found in the appendices;

SECTION 154	TREES/HEDGES/ OVERHANGING THE PUBLIC HIGHWAY
SECTIONS 143 & 149	OBSTRUCTION OF THE HIGHWAY
SECTION 184	CONSTRUCTION OF VEHICULAR CROSSING
SECTION 184	ILLEGAL CROSSING OF THE HIGHWAY
SECTIONS 148 & 149	DEPOSIT OF MUD/REFUSE/EFFLUENT/MATERIAL ON COUNTY HIGHWAY
SECTION 180	DEFECTIVE CELLAR COVERING IN FOOTWAY
SECTION 163	WATER FLOWING ONTO THE HIGHWAY
SECTION 165	REPAIR OF WALL IN YOUR OWNERSHIP

In addition with the implementation of CPE to aid with enforcement of 'Traffic Regulation Orders', the Police should be utilised to discharge their duties to remove obstructions within the Highway.

2.9.7 Coding response times

The inspector is to code the response times in accordance with the risk assessed Priorities Section 2.5.2 (Page 56)

2.9.8 Material

The inspector should make every effort to describe the material in which the defect occurs. If the pavement is of blacktop material and the inspector is not sure of the exact type then he should record it as blacktop. If unsure of the material specification seek guidance from your line manager.

2.9.9 Measuring flags, small element paving and blocks

Precast concrete paving can be found in a variety of styles and sizes, therefore an on site measurement and photograph would be beneficial. This should ensure that the correct specification of paving is being replaced

2.9.10 Programming and works

All instructed works are programmed to be completed within the agreed timescales in accordance with the defect priority categorisation 1–3 (ref to table 9, page 57).

2.9.11 Remedial works

Remedial works may be instructed if a defect has failed or been completed to an unsatisfactory standard. This should be recorded in the first instance on your inspection records and escalated to your line manager so a prompt or satisfactory outcome is obtained.

2.9.12 Procedure following inspection

Refer to the flow chart, Figure 3 (Pg 49).

2.9.13 The client and works contractor's responsibility

Highway Operations Group undertake all repairs in a safe and timely manner within the specified target date range. During the periods where external contractors supplement our activities, they adhere to the agreed contract details and best working practices.

2.9.14 Statutory undertaker apparatus

All defects should be reported to the NRSWA personnel, which in turn report the defect to the relevant statutory body under section 81 of the 'New Roads & Streetworks Act 1991'.

Statutory undertakers have a legal right to excavate in the highway to install, maintain and remove their apparatus. Section 50 of the Act also permits private builders to install, maintain or remove private apparatus such as sewers and drains in the highway under licence. The builder or person granted a 'Street Works Licence' becomes an 'undertaker' for the purposes of the NRSWA and therefore attracts the relevant duties and responsibilities imposed by the Act and associated secondary legislation and codes of practice.

Reinstatement of the highway is the responsibility of the statutory undertaker. The role of the County Council is to monitor all statutory and non-statutory performance, but not to supervise the whole works.

The Highway Authority has a duty to inspect statutory undertakers' works at 3 stages

- During Excavation
- 6 months post completion
- 3 months preceding the end of the maintenance period

If remedial action is not carried out within a specified timeframe then the Highway Authority may take it upon them to repair the defective apparatus and recharge the owner.

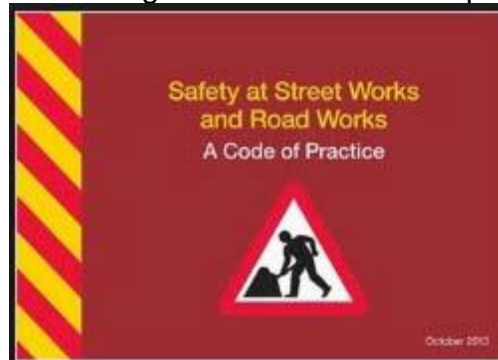
The legal duty for the provision of a safe highway still resides with the local highway authority, notwithstanding any other duties imposed upon statutory undertakers.

The Traffic Management Act 2004 (TMA) impacts upon how the County Council co-ordinates works. As a result, the County Council has appointed a 'TMA noticing officer', whose role is to oversee the co-ordination of all works within the highway to minimise inconvenience to road users. To facilitate co-ordination and inspection, works are and will be notified in advance to the County Council under a formal notice system. The amount of notice required will vary dependent on the type of work and location. The County Council has powers to designate certain streets to restrict the working hours or to require special procedures or materials to be used, for instance in conservation areas.

Sample inspection, for which a fee is recoverable from the relevant undertaker, ensures work complies with national standards. Target levels of inspections are set as internal targets to help ensure that inspections are representative and fee income is maximised.

The performance of each undertaker and their contractors is monitored and recorded. Section 74 of NRSWA imposes financial penalties on undertakers who fail to comply with the requirements of the NRSWA.

Signing and guarding of works should comply with the 'Safety at Street Works and Road Works – A Code of Practice'. Undertakers are required to implement the 'Code of Practice of the Reinstatement of Openings'. There are other codes of practice covering co-ordination and inspections.



The performance standards which apply to the execution of the works themselves are set down in regulations and codes of practice. These are normally determined nationally and the County Council cannot impose more onerous standards or grant relaxations. Performance issues can be raised with individual undertakers

In cases of persistent or extreme failure by a statutory undertaker to comply with legislation, the County Council has powers to prosecute.

2.9.15 Normal working hours

During normal working hours the main point of contact for emergencies is the Customer First department Contact Number: 01495 866533 The core working hours for staff in the Operations Section who are the main point of contact are:

8 a.m. to 5 p.m. Monday to Thursday inclusive and 8 a.m. to 4.30 p.m. on Fridays.

2.9.16 Outside normal working hours

The Out of Hours contact number for the Authority as a whole is 01443 875500.

Outside normal office hours from Monday to Friday and for 24 hours a day on weekends and bank holidays the County Borough Council operates a client side 'standby' system. The 'standby' system has been designed to enable direct contact to be made with a County Borough Council officer at any time outside normal working hours in order to deal with any highway emergency. The 'standby' system is operated using a rota for duty officer service. Staff availability during statutory holiday periods is planned and the information circulated to senior management.

The Out of Hours (Duty Officer) Manual contains details of the procedure for the order of call outs that duty officers should follow (Appendix L)

2.9.17 Emergency Situation Reporting

During periods when road conditions (significant/ inclement weather.) are affecting the free and safe passage of vehicles and pedestrians, emergency situation reports are prepared and distributed.

Incidents that require reporting will generally relate to road closures and flooding of property but other significant incidents will also need to be reported. There is a need to be particularly sensitive/alert to media interest in such situations, particularly if serious injury or fatalities have occurred. Situation reports are intended to be brief, accurate and additional information should be provided as necessary whilst the emergency conditions prevail. Out of hours reports should be made directly to the appropriate level of management (and escalated in due course) Customer Services Manager/Operations Engineer by telephone and email. In instances where land lines and email are inoperative mobile phones are to be used for communication. The procedure for emergency situation reporting is as described below. Observance of this formalised procedure will ensure that information is precisely relayed to those people and organisations that require it in a timely fashion and minimises multiple requests for such information.

The Highway Operation Group manager or designated representative is the designated person for gathering the information in order that a single clear point of contact is available for other departments and organisations that need to use such information. Operations personnel may assist in gathering information where appropriate.

A report should be compiled by the Highway Operations Group manager or designated representative and sent via email to the following personnel:

- CEO and Communications manager
- Director of Technical Services
- Head of Infrastructure
- Principal Traffic Engineer
- Street Lighting Manager
- Customer Care Officer
- Communications Officer
- Emergency Planning Officer

And any other relevant, or affected parties.


Please refer to the 'Out of Hours Manual' (Appendix K) for a more detailed plan of dealing with emergency situations outside of normal working hours.

PART 3 Inspection Guidance

The example defects shown in this section are for guidance only. The inspector may assess risks from first principles with the benefit of local knowledge and this could result in a different risk factor from that contained in the register. In such cases the inspector must record the reasons for the variation.


The response times shown in the following tables are to be used as a guide and are applicable under 'normal' conditions. The risk matrix (table 8) in Part 2 of this manual is to be used by safety inspectors to assess all defects with particular attention paid to those that may not present such a significant risk to the public and the response time is to be adjusted accordingly.


All assessments will be made on site via a visual inspection and not made by reference to photographs.

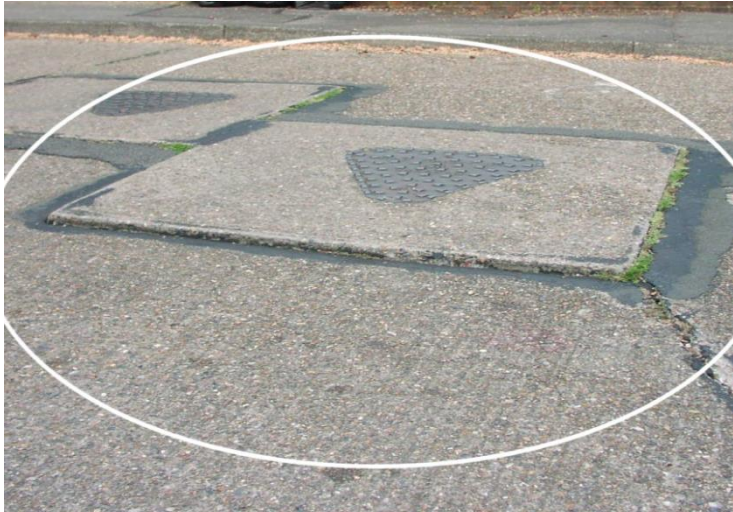
Asset & defect	Photograph	Indicative Response
<p>CARRIAGEWAY</p> <p>Detritus: Accumulation of dirt, stone, gravel or other material</p>		<p>Make safe with the appropriate traffic management and arrange for its removal</p>

Asset & defect	Photograph	Indicative Response
<p>CARRIAGEWAY</p> <p>Debris: Debris on the hard shoulder or carriageway that could damage a vehicle or cause road users to take avoiding action.</p>		<p>Make safe with the appropriate traffic management and arrange for its removal</p>

Asset & defect	Photograph	Response
<p>CARRIAGEWAY</p> <p>Flooding: Where standing water projects into the carriageway by 0.5m or where there is an excessive flow of water across the carriageway.</p>		<p>Erect flood warning signs in both directions</p> <p>Report to Highway Drainage Engineer</p>


Asset & defect	Photograph	Response
<p>CARRIAGEWAY</p> <p>Worn Surface: Road looks smooth and fatted up, such is a risk of skidding for the road user</p>		<p>Install appropriate traffic management warning of reduced traction</p> <p>Monitor and instigate repairs if necessary</p>





Asset & defect	Photograph	Response
<p>CARRIAGEWAY</p> <p>Significant Rutting: Wheel track rutting of 20mm or greater which extends for a length greater than 10m</p>		<p>Instigate repairs if defects are at intervention levels</p> <p>Report to Senior engineer for resurfacing</p>

Asset & defect	Photograph	Response
<p>CARRIAGEWAY</p> <p>Stepping at Concrete Joint: Difference in level between adjacent concrete bays, exceeding defect intervention level</p>		<p>Instigate repairs if in excess of intervention limits</p>


Asset & defect	Photograph	Response
<p>CARRIAGEWAY</p> <p>Spalling in concrete: Deep spalling exceeding defect intervention criteria</p>		<p>Instigate repairs if in excess of intervention limits</p>


Asset & defect	Photograph	Response
<p>CARRIAGEWAY</p> <p>Difference in Level: Difference in level between the carriageway and ironwork exceeding defect intervention criteria</p>		<p>Determine ownership, check with NRSWA officers</p> <p>Instigate repairs if in excess of intervention limits</p>


Asset & defect	Photograph	Response
<p>CARRIAGEWAY</p> <p>Pothole: Exceeding intervention criteria</p>		<p>Instigate repairs if in excess of intervention limits</p>

Asset & defect	Photograph	Response
<p>Fixed Traffic lights / Pedestrian crossings / Loops and Links</p> <p>Accident Damage: Bent/leaning columns or posts, which project into, or may fall onto the carriageway.</p> <p>Damage to cabinets that exposes wiring/internal equipment.</p> <p>Traffic signals out of sequence</p> <p>Exposed traffic sensors in carriageway</p>	   	<p>Refer to appropriate department; Traffic management</p> <p>If creating an immediate hazard to highway users then action appropriately by cordoning off the area and appropriate traffic management</p>

Asset & defect	Photograph	Response
<p>COMMUNICATIONS EQUIPMENT</p> <p>Electrical Condition: Exposed wiring or other electrical fault likely to pose a hazard</p>		<p>Report to NRSWA officer.</p> <p>If posing an immediate danger to highway users then remain on site until qualified personnel arrive to resolve</p>


Asset & defect	Photograph	Response
<p>CULVERTS</p> <p>Flooding: Indications that flooding of the highway or any private property is imminent.</p>		<p>Refer to the drainage engineer to assess if severe weather culvert cleansing is required</p>


Asset & defect	Photograph	Response
<p>EMBANKMENTS & CUTTINGS</p> <p>Slippage: Any earth slip that threatens to obstruct any part of the carriageway or footway or endanger lighting or communications equipment.</p>		<p>Utilise appropriate Traffic management to protect the highway user from potential areas of conflict</p> <p>Refer to the structures engineer for them to assess</p>

Asset & defect	Photograph	Response
<p>FENCES, BARRIERS & GUARDRAILS</p> <p>Structural Condition: Corrosion, rot or other serious defect likely to affect the structural integrity of the fence, barrier or pedestrian guardrail.</p>		<p>Remove any barriers / fence panels or pedestrian guardrails that may be affecting the highway, if it is safe to do so.</p> <p>Identify ownership</p> <p>Instigate repairs if required</p>


Asset & defect	Photograph	Response
<p>FENCES, BARRIERS & GUARDRAILS</p> <p>Accident Damage: Accident damage that: -Compromises the protection previously offered to steep slopes or water hazards. -could potentially allow livestock to escape onto the highway. -leaves components projecting into the carriageway or footway. -creates gaps that would enable pedestrians to cross the road in inadvisable locations.</p>		<p>As pg 55</p>

Asset & defect	Photograph	Response
<p>FILTER DRAINS</p> <p>Difference in level: Where filter material has been displaced and resulted in a difference in level from the carriageway or hard shoulder to the filter drain of 200mm or more.</p> <p>Displaced material: Filter material displaced onto the carriageway or hard shoulder if severity equal to or greater than “Detritus” defect.</p>		<p>Make safe and initiate the appropriate repairs.</p> <p>If required speak to the land drainage engineer</p>




Asset & defect	Photograph	Response
<p>FOOTWAYS & CYCLETRACKS</p> <p>Rocking/Uneven Slabs: Rocking, uneven or missing slabs resulting in a trip hazard that exceeds intervention criteria.</p>	 <p>The photograph shows a concrete footway with several slabs that are uneven and appear to be rocking. The slabs are set in a dark, possibly asphalt, base. The footway is bordered by a brick wall and a metal fence in the background.</p>	<p>Assess the site and instigate repairs where defects exceed intervention criteria</p>



Asset & defect	Photograph	Response
<p>FOOTWAYS & CYCLETRACKS</p> <p>Difference in Level: Difference in level between the footway and any trench, repair or ironwork that exceeds intervention criteria</p>		<p>If defect meets intervention criteria then action the replacement / renewal of the damaged section of footway</p>


Asset & defect	Photograph	Response
<p>FOOTWAYS & CYCLETRACKS</p> <p>Pothole: A pothole is a sharp edged depression anywhere in a footway where part or all of the surface layers have been removed that meets intervention levels.</p>		<p>Instigate repairs if defects are at intervention levels</p>



Asset & defect	Photograph	Response
<p>FOOTWAYS & CYCLETRACKS</p> <p>Standing water: Where standing water deeper than 50mm obstructs the footway to such an extent that pedestrians are likely to step off the footway to pass.</p>		<p>Close the footway and install appropriate signs advising pedestrians of the hazard.</p>


Asset & defect	Photograph	Response
<p>FOOTWAYS & CYCLETRACKS</p> <p>Depressions: Depressions caused by vehicle over-run or settlement resulting in a hazard to pedestrians if exceeding intervention criteria</p>		<p>Instigate the necessary repairs if defect intervention limits are met</p>


Asset & defect	Photograph	Response
<p>HEDGES, TREES & GRASSED AREAS</p> <p>Obscure Visibility: Where grass or growth obscures visibility splays or the visibility to regulatory or mandatory signs.</p> <p>Dead or Leaning: Trees or hedges that appear dead, or have dead/damaged limbs that could fall onto the highway or are projecting into the carriageway or footway.</p> <p>Clearance: Trees with less than 5.2m clearance above the carriageway or 2.5m clearance above the footway</p>	  	<p>If defect poses an imminent to the highway user then this will be treated as an emergency.</p> <p>Refer to Grounds maintenance department for their attention</p>



Asset & defect	Photograph	Response
<p>KERBS & CHANNELS</p> <p>Dislodged, Misaligned, Missing or Rocking: Dislodged or misaligned kerbs that project into the carriageway or hard shoulder which are likely to impede water flow or potentially damage vehicle tyres. Displaced, misaligned or rocking kerbs that could present a hazard to pedestrians crossing the road if exceeding defect intervention criteria.</p>	 	<p>Instigate repairs as required if exceeding intervention levels</p>


Asset & defect	Photograph	Response
<p>ROAD LIGHTING & ILLUMINATED SIGNS</p> <p>Accident Damage: Columns or posts projecting into the carriageway or footway. Damaged columns, arm lanterns or posts that may fall onto the carriageway, footway or private land. Damage to cabinets that exposes wiring/internal equipment.</p>		<p>If posing an imminent danger to the highway user ten remain on site until experienced personnel arrive.</p> <p>Refer to the street lighting department</p>


Asset & defect	Photograph		Response
<p>ROAD LIGHTING & ILLUMINATED SIGNS</p> <p>Electrical condition: Exposed wiring or other electrical fault</p> <p>Structural condition: Missing or unsecured doors on columns or feeder pillars (excluding central reserve). Insecure lanterns or arms. Any indications of instability of columns or other equipment.</p>	 		<p>If posing an imminent danger to the highway user ten remain on site until experienced personnel arrive.</p> <p>Refer to the street lighting department</p>


Asset & defect	Photograph	Response
<p>ROAD LIGHTING & ILLUMINATED SIGNS</p> <p>Outages: Any lamp outage (single or multiple) considered to present a safety hazard e.g. at a pedestrian crossing. Outage of lamp at regulatory or mandatory signs.</p>		<p>Refer to the street lighting department</p>


Asset & defect	Photograph	Response
<p>ROAD MARKINGS White line marking on strategic and main distributor roads of high safety risk or with a relevant accident record should be renewed when they are no longer adequate for their intended purpose</p> <p>Missing or significantly worn: Missing markings or markings significantly worn to such an extent that less than 70% of the marking remains.</p>		<p>If intervention criteria is met then refer to the Capital maintenance works section</p>


Asset & defect	Photograph	Response
<p>ROAD STUDS</p> <p>Loose: Road studs which appear to be loose in their rebates</p> <p>Missing: 25% loss on straight or large radius curves or 10% loss on bends where road studs are required to maintain the legality of prohibitory road markings.</p>	 	<p>Assess and instigate repairs as required</p>


Safety Defects					
Asset & defect	Photograph	Probability	Impact	Risk Factor	Response
<p>SAFETY FENCES</p> <p>Structural condition: Corrosion or other serious defects likely to affect the structural integrity of the safety fence. Accident Damage Two or more posts bent or disconnected from the safety fence rails. A single bent post if facing oncoming traffic. Rails encroaching into the carriageway or footway.</p>					<p>If the defect is posing an imminent danger to the highway user then utilise the appropriate traffic management to make the area safe.</p> <p>Refer to the relevant asset manager</p>

Safety Defects					
Asset & defect	Photograph	Probability	Impact	Risk Factor	Response
<p>SIGNS & BOLLARDS</p> <p>Accident damage: Sign or post projecting into the carriageway or footway. Damaged post or partly detached sign face that may fall onto the carriageway, footway or private land.</p>					<p>Assess and instigate the necessary repairs</p>

Safety Defects					
Asset & defect	Photograph	Probability	Impact	Risk Factor	Response
<p>SIGNS & BOLLARDS</p> <p>Obscured: Regulatory or mandatory signs obscured by growth or any other obstacle.</p>	 <p>The photograph shows a road sign on a blue metal post. The sign is partially obscured by a diagonal metal bar that crosses over it. The background shows a road with a guardrail and some greenery.</p>				<p>Assess and action appropriately by removing the obstruction</p>

Safety Defects					
Asset & defect	Photograph	Probability	Impact	Risk Factor	Response
<p>SIGNS & BOLLARDS</p> <p>Structural condition: Corrosion of the posts likely to cause the sign to collapse. Corrosion, loose or missing fixings that may allow the sign to become detached from the posts.</p>					<p>Assess onsite and instigate repairs accordingly</p>

Safety Defects					
Asset & defect	Photograph	Probability	Impact	Risk Factor	Response
<p>IGNS & BOLLARDS</p> <p>Missing: Missing regulatory or mandatory signs. Missing traffic cylinders at central reserve crossings.</p>					<p>Generally damaged or exposed electrical components will be made safe as an emergency and reported to the Street Lighting Team for permanent repair</p>

Safety Defects					
Asset & defect	Photograph	Probability	Impact	Risk Factor	Response
<p>SIGNS & BOLLARDS</p> <p>Legibility: Graffiti, posters or other defects, which reduce the legibility of regulatory or mandatory signs.</p>					<p>Remove whatever is obscuring the sign where possible and instigate the necessary repairs</p>

PART 4

Appendices

Appendix A	Customer Care Service Procedure
Appendix B	Inspections of accident/ Third party claims
Appendix C	Personal Injury Accident Analysis
Appendix D	Inspections of disused tips
Appendix E	Treatment Codes
Appendix F	Inspector's Areas / Wards
Appendix G	Nature Conservation and Biodiversity
Appendix H	Legislation and Statutory Acts
Appendix I	Network Hierarchy (revised in-line with RBA WMHI 2015)
Appendix J	Sample Letters/ notices
Appendix K	Well Managed Highway Infrastructure 2015
Appendix L	CCBC Out of Hours (Duty Officer) Manual 2015