Newcastle City Council

Highway Asset Management Plan

Newcastle City Council

2024/25 – 2039/40

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Contents

Document Information

Title	Transport Asset Management Plan
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Description	This document details all aspects of the City Councils Transport Asset Management Plan and associated practices.

Document History

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Introduction

Newcastle city council have produced this HAMP as part of our Transport Asset Management Plan. This document details how our Transport Asset Management strategy targets will be carried out at an operational level.

The production of a Highway Asset Management Plan is in accordance with best practice within the industry and follows the recommendations contained in the Well Managed Highways Infrastructure- A Code of Practice. This document has been produced to ensure that we get the most out of our assets and that they are maintained efficiently.

Our Transport Asset Management Plan sets out our plan of how our assets will be managed over a 15-year period (2024-2039) and the commitment the authority has given to this.

This document details how we will achieve the targets as part of our plan over this period and ensure we receive the best, most efficient outcomes with the resources we have available. The Highway Asset Management Plan is one of a suite of documents which sits under the Transport Asset Management Plan.

The Highway Asset Management Plan will be reviewed annually and revised as necessary if there are significant changes to the way we manage our highway assets.

Well-managed Highway Infrastructure: A Code of Practice

In October 2016, the UK Roads Liaison Group published Well-Managed Highway Infrastructure. This code of practice is non-statutory; however, it is deemed to be guidance of best practice by the courts. To comply with the code of practice we are required to demonstrate a robust decision-making process and an understanding of the consequences of those decisions and of how the associated risks are managed to ensure highway safety. The code of practice is designed to promote the adoption of an integrated asset management approach to highway infrastructure based on the establishment of local levels of service through risk-based assessment. It recognises that the delivery of a safe and well-maintained highway network relies on good evidence and sound engineering judgement. A risk-based approach to highway maintenance needs to be founded on information that is sufficiently robust to enable decisions on levels of service, delivery methods and priorities for improvements can be taken and reviewed over time.

Our Transport asset management plan details how information to support a risk-based approach to highway maintenance is collected, managed and made available in ways that are sustainable, secure, meet statutory obligations and facilitate transparency for network users.

Well-managed Highway Infrastructure provides guidance to support the development of approaches to highway maintenance that are in accordance with local needs, priorities and affordability. In the interest of route consistency for highway users, all authorities are encouraged to collaborate in determining levels of service, especially across boundaries with neighbours responsible for strategic and local highway networks. In order to meet this criteria we worked collaboratively with our neighbouring authorities over a number of months to develop this approach.

Moreover, the principles set out in Well-managed Highway Infrastructure are intended to influence the ongoing development and evolution of the approach taken to asset management in highways. In accordance with asset

management principles, the highway network should be considered as an integrated set of assets with due consideration given to the need to balancing the needs and interdependencies of different asset groups.

Well-managed Highway Infrastructure states that "Where authorities elect in the light of local circumstances to adopt policies or approaches different from those suggested by the Code, it is essential that they are identified, together with the reasoning for such differences, be approved by the authority's Executive and published.

Therefore, in addition to approving any deviations from the code of practice, the adoption of the principles of the code of practice and any fundamental changes to existing policies or service standards will be subject to Executive approval and publication.

This document outlines how we apply the principles in the Code of Practice to the way we work and measure our success to ensure continuous improvement and a focus on our Strategic Outcomes.

Details of our approach will be actively communicated through engagement with stakeholders in setting requirements, making decisions and reporting performance.

The Well-Managed Highway Infrastructure sets out several recommendations. Our transport asset management plan has been developed using the following recommendations.

RECOMMENDATION 1 – USE OF THE CODE

This Code, in conjunction with the UKRLG Highway Infrastructure Asset Management Guidance, should be used as the starting point against which to develop, review and formally approve highway infrastructure maintenance policy and to identify and formally approve the nature and extent of any variations.

Newcastle have worked collaboratively with our neighbouring highway authorities to develop a highway maintenance policy based on the guidance

contained in the code and the UKRLG Highway Infrastructure Asset Management Guidance.

RECOMMENDATION 2 – ASSET MANAGEMENT FRAMEWORK

An Asset Management Framework should be developed and endorsed by senior decision makers. All activities outlined in the Framework should be documented.

Newcastle have reviewed the Asset management procedures and created a new Transport Asset Management Plan containing existing policies with the addition of a Transport Asset Management Strategy and Highway Asset Management Plan (this document)

RECOMMENDATION 3 – ASSET MANAGEMENT POLICY AND STRATEGY An asset management policy and a strategy should be developed and published. These should align with the corporate vision and demonstrate the contribution asset management makes towards achieving this vision.

The new Transport Asset Management Plan is suite of documents which brings existing policies together with our Transport Asset Management Strategy and Highway Asset Management Plan to align with the council's vision.

RECOMMENDATION 4 – ENGAGING AND COMMUNICATING WITH STAKEHOLDERS
Relevant information should be actively communicated through engagement with relevant stakeholders in setting requirements, making decisions and reporting performance.

Once approved, it is Newcastle's intention to publish details of our TAMP online and encourage engagement with all stakeholders.

RECOMMENDATION 5 – CONSISTENCY WITH OTHER AUTHORITIES To ensure that users' reasonable expectations for consistency are taken into account, the approach of other local and strategic highway and transport authorities,

especially those with integrated or adjoining networks, should be considered when developing highway infrastructure maintenance policies.

Newcastle have worked collaboratively with our neighbouring highway authorities to develop a highway maintenance policy based on the principles contained in the Well Managed Highways Infrastructure – A Code of Practice.

RECOMMENDATION 6 – AN INTEGRATED NETWORK The highway network should be considered as an integrated set of assets when developing highway infrastructure maintenance policies.

The Transport Asset Management Plan details our processes across the Highway network assets integrating them under the same asset management processes.

RECOMMENDATION 7 – RISK BASED APPROACH

A risk-based approach should be adopted for all aspects of highway infrastructure maintenance, including setting levels of service, inspections, responses, resilience, priorities and programmes.

A Risk based approach is used across all of the highway network assets, this is in line with the Well Managed Highway Code of Practice.

RECOMMENDATION 9 – NETWORK INVENTORY

A detailed inventory or register of highway assets, together with information on their scale, nature and use, should be maintained. The nature and extent of inventory collected should be fit for purpose and meet business needs. Where data or information held is considered sensitive, this should be managed in a security minded way.

The network inventory is held within various asset management databases and is updated in line with our business requirements. This information is available to officers who hold sufficient permission to access the system.

RECOMMENDATION 13 – WHOLE LIFE / DESIGNING FOR MAINTENANCE

Authorities should take whole life costs into consideration when assessing options for maintenance, new and improved highway schemes. The future maintenance costs of such new infrastructure are therefore a prime consideration.

Whole life costing is a key aim in our Transport Asset Management Plan. We are currently looking to adopt a more modern, technology based system to further advance the accuracy of our whole life costing.

Definitions

- **Assets:** Any physical item that the Council acquires or constructs which gives benefit or service to the community.
- **Asset Register:** A record of asset information considered worthy of separate identification.
- **Asset Life:** Time from acquisition to disposal.
- **Asset Management:** Activities and practices through which Council optimally manages its physical assets, and their associated performance, risks and expenditures over their lifecycle for the purpose of achieving the organisational strategic plan.
- **Asset Management Plan:** A plan that details financial and technical treatments over the life of the asset or class to allow the asset to maintain an agreed level of service.
- **Level of Service:** The desired measurable service standard set for an asset group/type. Each activity is to have its service performance measured against the set level.
- **Whole Life Costs:** Total cost of an asset over its entire life including Capital Expenditure, Maintenance Expenditure and Disposal Expenditure.
- **Capital Expenditure:** Any expenditure that is used to procure or construct: a new asset, upgrade the capability of an asset, make improvements to an asset, make additions to an asset or replace an asset
- **Revenue/ Maintenance Expenditure:** Any expenditure that allows an asset to continue providing the agreed level of service until the end of life is reached.

Purpose of this document

This document is in place to ensure that the city council are adhering to our duty of care under the legal obligations set out in our TAMP strategy and the recommendations set out in the Well Managed Highways Infrastructure – A Code of Practice.

This document defines Highway asset management as a systematic approach to meeting the strategic need for the management and maintenance of highway infrastructure assets through long term planning and optimal allocation of resources to manage risk and meeting the performance requirements of the authority in the most efficient and sustainable manner.

Prior to acceptance, proposed Capital and Development Work projects shall be subjected to technical and financial life cost evaluation and prioritised using predetermined criteria developed to contribute to the goals of the Council policies.

This plan sets out how we will achieve the following:

- Predicted future changes in demand.
- Levels of service required.
- The investment required in the maintenance, renewal and replacement of assets required to meet the levels of service.
- Methods of performance monitoring and appraisal.
- Financial projections
- Life Cycle Plans
- The risks associated with the plan.

Reliable and robust highway asset data is essential to support investment decisions and to ensure that stakeholder requirements are met and that value for money and efficiency can be delivered. The HAMP relates to the Council owned assets detailed in this plan. Newcastle City Council considers data to be the most essential component of its Highway Asset Management Plan. Robust and accurate collection and management of data will allow us to:

- Provide data required to support the Council's approach to asset management.
- Describe the asset and its performance.
- Provide a basis for informed decision making.
- Facilitate communications with our stakeholders.
- Inform the assessment, evaluation and management of risk.
- Support the management of the city council's statutory requirements.
- Support continuous improvement by the Council.

Size of our assets.

The below table shows the size of our Assets as of March 2024. These figures will be updated annually as part of the review.

Asset Item	Quantity	Asset Item	Quantity
Carriageways		**Signs**	
Urban Motorways	2.8km	Principal Roads	4001
Principal Roads	68.3 km	Classified Roads	5324
B Roads	45.7km	Unclassified Roads	10873
C Roads	85.4km	**Total**	**20198**
Unclassified roads	781.5km	**Safety Fencing**	
Back Lanes	66.2 km	Principal Roads	18.2 km
Total	**1,049.9 km**	Classified Roads	15.6 km
Footways and Cycleways		Unclassified Roads	15.4 km
Prestige Area (1)	0.4 km	**Total**	**49.2 km**
Primary Walking Route (1a)	30.8 km	**Bollards**	
Secondary Walking Route (2)	117 km	Principal Roads	2052
Link & local Footways	1413 km	Classified Roads	4071
Cycleways	36 km	Unclassified Roads	11870
Bridges and Structures		**Total**	**17,993**
Road Bridge	60	**Street Name Plates**	
Accommodation Bridge	1	Principal Roads	74
Retaining Wall	113	Classified Roads	332
Footbridge	43	Unclassified Roads	6323
Culvert	31	**Total**	**6729**
Subway	39	**Traffic Signal Installations**	
Other Structures	60	Traffic Signalised Junction	173
Total	**360**	Pelican / Puffin Crossing	117
Street Lighting		Toucan Crossing	42
Lighting Columns & other illuminated assets	38,900	Pegasus Crossing	2
		Wig Wag	2
		Total	**336**

Document Owner

The Highway Asset Manager is responsible for the content, updating and an annual review of this document. The performance of this document and the findings from the annual review will be reported in the Annual Status Report and published at the end of each financial year.

Inventory / asset register

Newcastle council hold our Highway inventory and asset data within Symology software. Structures asset data is currently held within Bridge Station, our gully inventory is held within the Kaarbon Tech database and traffic signals data is held in IMTRAC.

Condition data

Condition data is collected in order to gather reliable data of the current of assets in order to allow operational decisions to be made. This data is also used in order to ensure that decisions to allocate funding in a cost effective and efficient manor are successfully administered across the highway network.

Newcastle undertakes the following inspections and surveys across the network.

- Highway inspection team – Walked inspections - 6 monthly inspections, with 3 and 1 month in areas with a high footfall (more details in Highway inspection policy)

- Highway inspection team – Monthly driven safety inspections of classified and principal network (more details in Highway inspection policy)

- Scanner Survey – Classified roads (annually), this is currently under review.

- FNS (footway network survey) – 1/3 of the network annually, this is currently under review.

- Structures inspections – Structures team (bridges and associated structures)

Condition surveys are primarily intended to identify asset deterioration which, if untreated, are likely to adversely affect long term performance, serviceability and safety. The data collected can be used to forecast life expectancy, to determine when intervention may be appropriate, to model the impact of different intervention strategies and to compare the likely costs. In addition, the information collected informs government indicators and the annual valuation of the highway network.

We are currently exploring the option to move to a new, more technology led system of condition data collection. The new system uses modern methods to collect the condition of highway assets and creates a user friendly, data orientated system to display the condition of assets and allow for a more detailed costing analysis to be undertaken.

Carriageways

The carriageway (road) is the Council's most valuable transport asset. It supports the function of all other transport assets, is the largest transport asset, and requires the greatest expenditure to maintain.

The inventory of our carriageway infrastructure is held on the asset management system database (SYMOLOGY).

It is the council's objective to minimise maintenance expenditure and disruption by maintaining the carriageway in a safe condition.

The Council recognises that if the carriageway deteriorates beyond a certain point, the expenditure required to maintain it rapidly increases. To validate and deliver on this objective, the Council is working to improve its carriageway condition data and developing lifecycle models of the carriageway.

Highway authorities are required to manage a variety of risks at strategic, tactical and operational levels. The likelihood and consequences of these risks is

used to inform and support our approach to asset management and inform key decisions regarding performance, investment and implementation of works programmes.

Successful implementation of the Asset Management Framework requires a comprehensive understanding and assessment of the risks and consequences involved. Understanding of risk enables the asset management process to address the issues identified.

The most understood risks affecting the highway service relate to safety. However, there are a wide range of other risks, and their identification and evaluation are a crucial part of the asset management process.

Risks may include:

- Safety;
- Reputation;
- Asset loss or damage;
- Service reduction or failure;
- Operational;
- Environmental;
- Financial; and
- Contractual.

Routine reactive maintenance is initiated by the Highway Inspectors / Highway Control Officers following their safety inspections. NCC has a detailed procedure for identifying defects, rating their importance and assigning a works priority / completion time. Details of which can be found in the Highway Inspection Handbook

Our planned highway maintenance budget is allocated to schemes associated with roads which are in the most need of repair. This is determined using a risk-based approach by looking at condition data, road classification, usage and location. At present the majority of the planned highway maintenance schemes are road surfacing works carried out by our highway surfacing framework contractor.

We work closely with our contractor to monitor their performance but also to monitor the development of their innovative practices to reduce environmental impact and minimise carbon emissions during the highway maintenance processes.

The Council monitors the condition of the carriageway using the number of pothole reports, data from SCANNER, and data from SCRIM. SCANNER is a vehicle-mounted technology which measures the alignment and variation of the road surface.

Deterioration modelling

The Council will develop deterioration models of the carriageway to undertake strategic modelling. This will be linked to a financial model to show how changes in investment levels are likely to affect future expenditure to maintain the carriageway.

This will help senior decision makers to set maintenance budgets and understanding the longer-term implications of budget levels. The Council will investigate the costs and benefits of developing a service impact model to show how deterioration in condition is likely to affect transport outcomes.

This would be useful for senior decision makers in deciding what is an acceptable level of investment to meet Council outcomes, and what the effects of changes in budget could be on service levels.

Footways

The asset register of footway infrastructure is held on the asset management system database (SYMOLOGY) which at present stores details of:

- Street name
- Footway classification (Prestige Area, primary / secondary walking route etc.
- Location
- Condition data
- DVI survey data
- In house condition assessment
- Date of last inspection/survey
- Length
- Width
- Area
- Surfacing material
- Kerb type / material
- Channel type / material
- Planned maintenance history Reactive maintenance history

Footways enable safe pedestrian movement throughout the city. The Councils' strategy is to maintain a steady footway surface condition.

The Council inspects footways at regular intervals from one month to one year depending on their use and classification.

The Council undertakes FNS surveys on a regular basis to record footway condition and allow for budgets to be allocated efficiently. This is currently undertaken by a third of the city each year.

Reactive maintenance is prioritised by the danger that a defect could pose to the public based on key parameters including road hierarchy, use, defect parameters and defect locations.

Highway Inspections

Roads and pavements are a top priority for residents and our highways inspection policy sets out how we will undertake highway inspections to ensure that we keep the highway in a safe and serviceable condition.

Newcastle City council have a highways inspection policy document which forms part of our Transport Asset Management Plan. Full details of our inspection process and procedures are found in our policy document. This section gives a summary of the procedure.

Our levels of service are mindful of the guidance contained in the Well-managed Highway Infrastructure, A Code of Practice (CoP), which enables the needs of our customers to be met, our statutory requirements to be delivered and our maintenance hierarchy to meet the economic requirements of the city of Newcastle.

The Highways Inspection procedure sets out how we intend to implement our risk based highway defect management inspection regime taking into account the Well-managed Highways Infrastructure (WmHI) code of practice which supersedes the previous Codes 'Well-maintained Highways', 'Management of Highway Structures' and 'Well-lit Highways'.

Recommendation 7 – Risk Based Approach of the CoP outlines the following

A risk-based approach should be adopted for all aspects of highway infrastructure maintenance, including setting levels of service, inspections, responses, resilience, priorities and programmes.

The Highway Inspection Procedure details the day-to-day technical aspects of our risk-based approach to highway inspections and is an integral part this document.

Key Principle	Aim	Level of Service
Safety	We will endeavour to ensure we provide a safe highway network.	To manage risks arising from our highway assets.
Serviceability	We will manage the current highway assets and where possible improve condition.	To manage serviceability matters arising from our highway assets.
Accessibility	We will endeavour to provide an accessible network for all our highway users.	To minimise congestion of our highway network and provide accessibility to all our customers.
Sustainability	We will make informed decisions when managing our highway assets to endeavour to achieve sustainability for our future generations.	To deliver best value in the management of our highway assets which reduces the congestion and impact on our environment.
Customer Service	We will endeavour to communicate and inform our customers on how we manage our highway assets.	To provide timely and relevant information to all our customers.

Further details of our inspection procedure can be found in our highways inspection policy document, which will be uploaded on our website.

Categories of inspection currently carried out in Newcastle are:

Driven Safety Inspections

These surveys are intended to identify defects that are likely to create a danger or serious inconvenience to users of the network. They are undertaken by a slow-moving vehicle as detailed in the Highway Inspection policy.

Service Inspections

These are more detailed inspections to ensure the individual footway elements, road signs, street furniture etc. meet the serviceability requirements that comply with the needs of users and the Transport Asset Management Plan. These inspections are undertaken at differing frequencies for different areas of the city as detailed in the Highway Inspection policy.

Condition Surveys

Condition Surveys assist in identifying deficiencies in the footways and carriageways making up the highway. If untreated they will adversely affect the long-term performance and serviceability. The condition of the asset is assessed by regular inspection and by using several assessment techniques.

The results of these inspections are captured, by our team of highly trained and experienced Highways Inspectors, on hand-held data capture devices which generate computerised inspection records.
The council also keeps records of the activities of both construction and utility companies working on our streets, plus any complaints received from members of the public via the council's 'Your Local Services' are passed on to the council's Highways Team and are actioned appropriately.

Network Hierarchy

Recommendation 12 of the WmHI provides the following brief

A network hierarchy, or a series of related hierarchies, should be defined which include all elements of the highway network, including carriageways, footways, cycle routes, structures, lighting, and public rights of way. The hierarchy should consider current and expected use, resilience, and local economic and social factors such as industry, schools, hospitals and similar, as well as the desirability of continuity and of a consistent approach for walking and cycling.

In accordance with the WmHI Newcastle's adopted highway has been assigned an inspection frequency depending on a range of factors.

This produces a hierarchy of inspections for roads, footpaths and cycleways. Table 1 details the considerations for hierarchy for each asset group.

Asset type	**Characteristics**
Carriageways	• Character and volume of traffic (where available) • Usage (higher used streets will tend to receive a higher frequency of inspection, or potential to be used as a significant diversion route) • Nearby local amenities, including schools, shops and hospitals and adjoining network • Users of the road, such as vulnerable users • Events
Footpaths	• Pedestrian usage (where available) • Current and proposed use • Contribution to the quality of public space • Pedestrian users

	• Accident history
Cycleways	• Type (including shared, partially shared and fully segregated)

Further details of our Network hierarchy can be found in our Highways Inspection policy document.

Insurance / Claims

As the Highway Authority, the council has an obligation by virtue of Section 41 of the Highways Act 1980 to conserve "highways maintainable at public expense." This means that a private individual can make a claim against the council for either personal injury or damage to personal property such as cars, clothing or premises, if the damage has been caused by a defect in the publicly maintainable highway.

Section 58 of the Highways Act 1980 provides the council with a statutory defence to any claim where it can establish that reasonable care has been taken to ensure that the area of the highway where the accident occurred "was not dangerous to traffic".

Structures and Bridges

Bridges and structures are some of the Council's highest-risk assets, and present challenges in their management as they are built to many different designs, with varying quality of 'as-built' drawings and information.

Activity is prioritised based on risk factors such as the type of structure, its method of construction, its location, and the services which depend upon it.

It is estimated that to maintain the highway structures asset in its current condition an average investment of approximately £8.6m per annum is required in structural maintenance works.

The budgets available for structures in the short term, are insufficient to deliver a steady state. Overall, the strategy is to manage an acceptable level of deterioration using a risk-based approach as detailed in Well Managed Highways Infrastructure, a code of practice. The repair of potential hazards and the like are managed via budgets for reactive maintenance and are to be given priority when allocating funding and kept at levels sufficient to maintain current standards for defects warranting repair and associated response times to minimise the risk to road users.

Information on the inventory of highway structures is held on BridgeStation. This is a cloud-based asset management tool for bridges and highway structures, which holds details of:

- structure name
- structure no
- structure type
- structure owner
- structure location
- maintenance responsibility
- construction details
- inspection details
- BCI (Bridge Condition indicators)

In addition, historical paper records of structure drawings, inspection and assessment reports have been scanned and are also held, within the structures team folders on the shared council network drive.

There is a high level of confidence in the records held which are continually reviewed and updated as part of the inspection process. In the event that any unrecorded council owned structures are identified they will be added to BridgeStation.

Structural Inspection Regime

Bridge inspections are carried out in accordance with the requirements and recommendations of the Well-managed Highway Infrastructure A Code of Practice.

Bridge Inspection Details		
Inspection Type	**Frequency**	**Asset Type Covered**
General Inspections (A visual examination of all parts of structure without using access equipment)	All structures biennial.	All highway structures (unless subject to a Principal Inspection)
Principal Inspections (a close examination within touching distance to all parts using access equipment)	Every 6 years on bridges only Every 10 years on all other structures	Bridges All other Structures
Special Inspections (the type depends on the aim of the inspection)	1, 3, 6, 12 monthly or as requested.	On weak or potentially hazardous structures
Post Tension Inspections	Once only (subject to national guidance)	Post Tensioned Structures

Underwater Inspections	Every 6 years	On vulnerable structures carried out as part of a principal inspection

The results of these safety inspections are recorded in BridgeStation and held in an electronic structure file. These records are used to determine the reactive work requirements.

Condition Assessment

The condition of a structure is identified following a General Inspection and is rated using the County Surveyors Society (CSS) Bridge Condition Index. The condition indicators for an individual bridge (BCI) or a stock of bridges (BSCI) are evaluated using the data collected during the bridge inspections, which typically report the condition of different elements (e.g. main beams, abutments, drainage etc.) according to a predefined scale set out in the CSS inspection procedure.

The BCI values can be interpreted broadly as the "percentage service potential" of a bridge. Thus a BCI value of 100 implies that the bridge has retained 100% of its service potential; a value of 60 implies that the bridge has lost 40% of its service potential and a value of 0 implies that the bridge is no longer serviceable.

The BCIav is the average BCI for a bridge evaluated considering the condition of all structural elements in a bridge.

The BCIcrit is the critical BCI for a bridge evaluated considering the condition of those elements deemed to be of a very high importance to the bridge.

The BSCIav and BSCIcrit is a measure of the above condition index values for all bridges in the stock.

Table below gives an interpretation of the BSCIav and BSCIcrit values in terms of the general condition of the bridge stock. In deciding on the level of funding to be allocated to different bridge stocks, it should be recognised that the funding required for a stock, which is in poor condition, e.g. BSCI 50, can be very high

compared to another stock which is in a fair condition with a BSCI 75, to obtain the same increase in BSCI value.

Interpretation of Average and Critical Stock values		
Score	**Average Stock Condition based on $BSCI_{av}$**	**Critical Stock Condition based on $BSCI_{crit}$**
100 – 95 **Very Good**	Structure stock is in a very good condition. Very few structures may be in a moderate to severe condition.	Very few critical load bearing elements may be in a moderate to severe condition. Represents very low risk to public safety.
94 – 90 **Good**	Structure stock is in a good condition. A few structures may be in a severe condition.	A few critical load bearing elements may be in a severe condition. Represents a low risk to public safety.
89 – 80 **Fair**	Structure stock is in a fair condition. Some structures may be in a severe condition.	Some critical load bearing elements may be in a severe condition. Some structures may represent a moderate risk to public safety unless mitigation measures are put in place.
79-65 **Poor**	Structure stock is in a poor condition. A significant number of structures may be in a severe condition.	A significant number of critical load bearing elements may be in a severe condition. Some structures may represent a significant risk to public safety unless mitigation measures are put in place.
64 – 40 **Very Poor**	Structure stock is in a very poor condition. Many Structures may be in a severe condition.	Many critical load bearing elements may be unserviceable and close to it and are in a potentially hazardous condition. Some structures may represent a significant risk to public safety unless mitigation measures are put in place.

39 – 0 **Sever**	Structure stock is in a severe condition. Many structures may be unserviceable or close to it.	Majority of critical load bearing elements may be unserviceable or close to it and are in a potentially hazardous condition. Some structures may represent a very high risk to public safety unless mitigation measures are put in place.

The Structure Condition shall be measured for the following structure types,

1. Bridges – structures with a span of 1.5 metres or above. This category includes subways, culverts, footbridges, tunnels and underpasses.
2. Retaining Walls – all retaining walls associated with the highway, 1.35 metres or above, are included provided their dominant function is to act as a retaining structure
3. Culverts - a drainage structure with a span of 0.9m or more passing beneath a highway embankment that has a proportion of the embankment, rather than a bridge deck, between its uppermost point and the road running courses.
4. Sign/Signal Gantries – a structure spanning or adjacent to the highway, the primary function of which is to support traffic signs and signalling equipment.
5. Other Structure Types - structure types associated with the highway that are not covered by the categories above.

Current Condition

The current condition ratings BSClav & BSClcrit for structures are measured and recorded against the road hierarchy e.g. Principal, Primary, Classified and unclassified and are reported on from data held in Bridgestation.

Current targets have been set that all structures will be maintained such that the BClav rating for any structure should not be allowed to fall below **70**, that any

structure on a classified road should have a BClav of no less than **80** and that those on a Principal/Primary route network should have a BClav of at least **90**.

Where the BClav falls below the required minimum it shall be assessed and programmed for works within 12 months or sooner if there is a risk to safety.

Construction/Asset Acquisition

Creation/Acquisition/Upgrading is major work that creates a new asset that did not previously exist or works that upgrade or improve an asset beyond its existing design capacity. Examples of Creation, Acquisition & Upgrading activities are detailed in the table below.

Creation, Acquisition & Upgrading activities	
Activity	**Explanation**
Creation	Although it is very unusual to have a new structural asset created it does occur where a new route is required or where an existing substandard structure needs replacing.
Acquisition	Acquisition of structures is normally associated with the taking up of maintenance responsibilities following new developments; this is normally managed by the development control team using Section.38 or 106 legal agreements.
Upgrading	Several upgrading activities, which may take place to improve the existing stock condition, are detailed below.
Waterproofing	Waterproofing of unprotected decks. Structures built prior to the introduction of the present standards may need the addition of waterproofing to protect against corrosion.
Post-tensioned bridges	Rehabilitation of post tensioned bridges. Following checks for corrosion of tendons in incompletely grouted ducts particularly in segmental decks.
Parapet replacement	Replacement of substandard parapets installed before the introduction of the present standards or at sites where the risk rating calls for a higher standard of parapet. Associated strengthening of the edges of the bridge deck may be required.

Strengthening of columns	Possible collision may require strengthening of piers and columns to resist higher impact forces, due to the increase in numbers and weights of HGVs.
Deflected tendons	Repairs to deflected tendons in pretensioned beams including replacement of mortars with calcium chloride additives.
Mechanical & Electrical	Check and maintenance of mechanical and electrical installations are carried out in accordance with current legislation.
H & S aspects	Health and safety aspects of access to bridges. Size and location of access manholes, which do not comply with present day requirements.

New assets are typically acquired from either adoption or from taking over improvement works completed by contractors on behalf of the council. This is normally managed by the development control team using Section 38, 278 or 106 legal agreements. Newly constructed 'adoptable' structures are only adopted once they meet current council specifications.

Where new assets are commissioned from within the authority, the schemes will only be introduced into the Capital Programme following their approval within the Local Transport Strategy (LTS).

At present there is no arrangement for long term maintenance costs to be funded for new assets which can lead to increased maintenance requirements. The Council is now looking into requiring commuted sums from the developers for the ongoing maintenance of new infrastructure.

Where internal works entail a change to the existing infrastructure as built records are passed to the road's user team and once again plans are circulated to all interested parties. This is an informal process that at present may not be picking up all the changes to the asset.

It is the responsibility of the Principal Engineer to inform the inspectors of any newly acquired assets such that they can be included on the inspection programme.

Routine Maintenance

Routine reactive repairs that are identified during the bridge inspection process are prioritised using the engineering judgement of responsible officers.

Reactive repair prioritisation categories	
Emergency	Works undertaken as soon as physically possible, structure may be restricted or closed until works are undertaken.
High	Works programmed for completion within 24 months wherever possible, subject to financial constraints.
Medium	Structures monitored or works undertaken in conjunction with any works identified above.
Low	Note placed on file and subject to additional review during next scheduled inspection.

Operational/Cyclic Maintenance

Operational / Cyclic Maintenance is the regular ongoing day-to-day work that comprises servicing rather than repair and is necessary to keep assets operating, Cyclic maintenance activities for structures are detailed in the table below.

Routine Maintenance Activities		
Structure/substructure component type	**Maintenance Activity**	**Maintenance Interval**
Piers, abutments, wing-walls, retaining walls, reinforced earth walls and crib walls	Remove graffiti*	12 Months
	Remove vegetation from structure	
	Clear debris from bearing shelves	

Routine Maintenance Activities		
Structure/substructure component type	**Maintenance Activity**	**Maintenance Interval**
	Clean drainage channels	
	Rod outlet pipes	
	Clear drainage outlet manhole chambers	
	Rod weep pipes and remove silt & debris	
	Check operation of flap valves and grease where required	
	Repair gap sealant to movement joints	
	Check pedestrian protection measures	
Columns	Remove graffiti*	12 Months
	Remove debris and bird droppings	
Steel beams, girders, trusses, concrete beams, and fascias	Remove graffiti	12 Months
	Remove debris and bird droppings from flanges	
	Clear drainage holes for box sections	
Deck carriageway, verge and parapet cantilever	Remove grass and weeds from verges and channels	12 Months
	Repair gap sealant to movement joints	
Expansion joints	Clean out debris and vegetation (water jetting where appropriate)	12 Months
	Clear drainage systems	
	Check and tighten where necessary any loose nuts and	

	bolts. Replace where necessary.	
	Replace gaskets where there is a specific requirement in the structure maintenance manual	
Metal parapets	Check and tighten where necessary any loose nuts and bolts. Replace where necessary.	12 Months
	Clear hollow section drain holes	
Masonry and concrete parapets	Remove graffiti*	12 Months

Routine Maintenance Activities		
Structure/substructure component type	**Maintenance Activity**	**Maintenance Interval**
	Remove any vegetation	
Bearings (elastomeric, sliding & roller)	Remove general dirt & debris	12 Months
	Where appropriate, clean sliding and roller surfaces if accessible and regrease	10 years
Subways	Remove graffiti*	12 Months
	Clear drainage channels	

	Clean drainage outlets, rodding where required	
	Check seating of drainage gratings and covers, replace any missing or defective items	
	Repair gap sealant to movement joints	
	Check and clean security mirrors	
Culverts	Remove any vegetation and debris from within the structure	6 Months
	Remove any silt build-up which is restricting flow through the culvert	
	Repair gap sealant to movement joints	
Sign gantries and high masts	Tighten holding down bolts where necessary	12 Months

*Newcastle City Council has undertaken to remove any graffiti that is of an offensive or racist nature within 24 hours of it being reported.

Planned Maintenance: Renewals

Renewal/replacement work is major planned (programmed) work that does not increase the asset's designed capacity, but restores, rehabilitates, replaces, or renews an existing asset to its original capacity.

The table below details the structures renewal activities available to NCC and their expected programme intervals.

Steady State Maintenance Activities		
Treatment type	**Comments**	**Anticipated frequency**
Repainting	Repainting steelwork to prevent corrosion	10 – 15 years
Waterproofing	Repair or replacement of waterproofing to bridge decks. Work required to keep out water and chloride, which can cause corrosion of reinforcement.	5 - 12 years
Expansion joints	Repair or replacement of expansion joints in bridge decks. Work required to prevent damage to road surfacing. Sealing of joints required to keep out water and chloride, which can cause corrosion of reinforcement.	6 – 8 years
Impregnation	Concrete impregnation with silane to prevent chloride entry.	5 – 10 years
Resurfacing	Repair or replacement of surfacing material to protect the integrity of the waterproofing membrane and to ensure a safe and comfortable surface for vehicles or pedestrians.	5 - 12 years
Non-slip surfacing	Repair or replacement of non-slip surfacing to ensure a safe surface for vehicles or pedestrians.	3 – 5 years
Other work	Other maintenance not shown above e.g. repair or replacement of brickwork, steelwork or bearings.	10 –15 years

Disposal

The disposal of structure assets is relatively rare from the perspective of a council disposing of all responsibility for the structure. However when this does occur each location is dealt with on a case by case basis and archived in Bridgestation.

Forward Works Programme

Existing Programmes

We are working towards a 15-year forward works programme for all routine and 'steady state' maintenance operations these include: painting; waterproofing, resurfacing, joint treatments, mechanical and electrical installations etc, should funding become available.

The tables below summarise the forward work programme over the next 5 years by the number of structures attended per year and by the estimated annual expenditure.

Future Maintenance Programme by Number of Bridges & Other Highway Structures per year					
Maintenance Type	***2023-24***	***2024-25***	***2025-26***	***2026-27***	***2027-28***
General Inspection	*144*	*144*	*144*	*144*	*144*
M+E Maintenance	*2*	*2*	*2*	*2*	*2*
Major Maintenance	*2*	*2*	*2*	*2*	*2*
Minor Maintenance	*20*	*20*	*20*	*20*	*20*
Principal Inspection	*50*	*50*	*50*	*50*	*50*
Routine Maintenance	*352*	*352*	*352*	*352*	*352*
Steady State Maintenance	*6*	*6*	*6*	*6*	*6*

A forward works programme for creation, acquisition & upgrading is also being developed although this is based on a forward thinking 'wish list' of ideas which may not come to fruition and although a 5 year HMB Capital funding bid is submitted, there is less confidence in this programme, beyond the single year period for which funding has already been allocated.

Programme Coordination

Each individual programme, including those derived from the HMB process is provided to the Assistant Director of Transport as a 12-month dedicated scheme programme and a year 2 & 3 indication of probable works. All parties are made aware of other programmes and the opportunity is taken to highlight conflicts and opportunities for efficiency savings. Scheme costs are not at present included in the year 2 & 3 programmes.

It is intended that the existing procedure will be developed to provide a full 3-year programme of named schemes to include estimated costs which will be submitted to Council for approval on an annual basis should funding become available.

Option Appraisal

We are working on introducing a condition-based decision tree using the BCI data to help in this assessment.

Performance Measurement

Performance is measured using data held in Bridgestation and consists of

- Inspection frequency
- Structure availability
- Structure condition

Key Performance Indicators

At present there are no formal national indicators used to measure performance.

The Government has indicated that BCIs may be used in future to evaluate HMB bids which may entail their use as formal performance indicators. These KPI's are detailed in the below table.

Key Performance Indicators relating to the Structures				
LEVELS OF SERVICE	**PERFORMANCE MEASURE**	**REVIEW FREQUENCY**	**PI**	**CORE OBJECTIVES**
Inspections				
Structural inspections completed as per programme	Number	Annual	Local	Safety, Serviceability, Sustainability
Condition				
Maintain the condition to set BCI ratings for all structures	Minimum BCI_{av} rating	Annually	Local	Serviceability, Sustainability
Maintain the condition to set BCI ratings for structures on classified roads	Minimum BCI_{av} rating	Annually	Local	Serviceability, Sustainability
Maintain the condition to set BCI ratings for structures on Principal/Primary routes	Minimum BCI_{av} rating	Annually	Local	Serviceability, Sustainability

Street lighting and illuminated street furniture

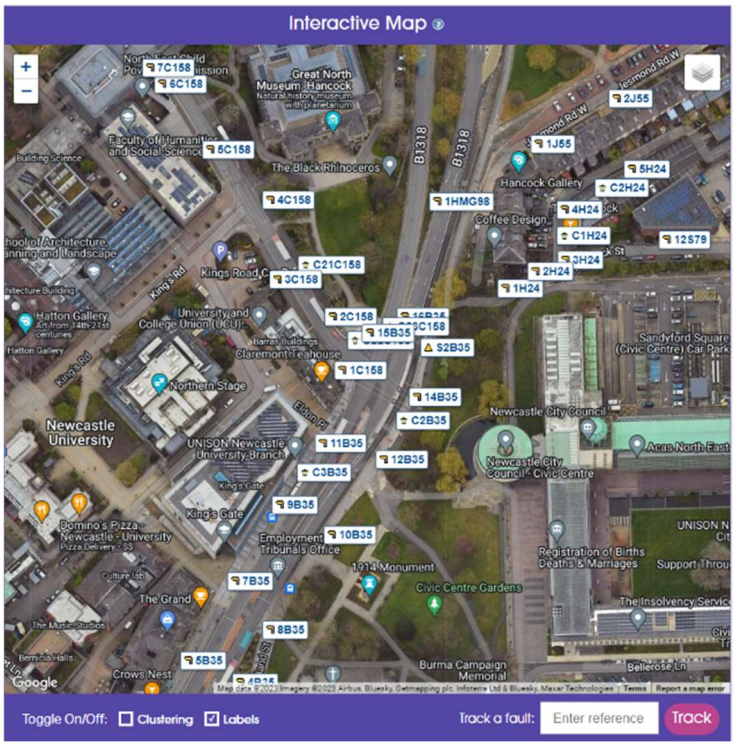
Street lighting enhances safety for all road and footway users at night. The city's street lighting is provided and maintained under a private finance initiative (PFI) contract which also facilitates energy supply. This twenty-five-year contract started in 2004. As part of the PFI, Tay Valley and sub-contractor Enerveo are responsible for keeping the inventory up to date and maintaining our street lighting assets across the city.

Enerveo have now completed the major lamppost renewal programme. The majority of our lanterns have now been replaced with efficient lanterns.

Outside the general replacement programme, there are areas where normal lighting equipment would not suit the local environment. Therefore, consideration is being given to locations in Newcastle City Centre where heritage style equipment will be installed.

Enerveo have an online fault reporting system which allows anyone to report a fault with a column or lantern. This system links into their FM system which is used to store asset inventory information.

Performance information relating to street lighting is reported at the Joint Street lighting committee. A committee report is produced every 6 months consisting of a performance report detailing outages, faults, response times and energy consumption and a finance report detailing the monthly expenditure.



Performance targets

Column 1	Column 2
Performance Target	**Frequency**
Visual Inspection PRN	2 years
" " Non PRN	3 years
Inspection and Testing Electrical 16th Edition	6 year
Inspection and Testing of Hi-Mast installation Inspect & Clean of Hi-Mast Insurance Inspection of Hi-Mast	Annual 2 yearly 3 yearly
Clean Back Lane Non PRN (principal road network) PRN (principal road network)	 3 years 4 years 4 years

PS 3 Response Targets

Non-emergency Faults involving replacement of lighting components, removal of graffiti and unauthorised attachments	Fault Rectification Period (Maximum Period for Fault Rectification)
Non-emergency Faults involving the replacement of components of Apparatus.	Five (5) Working Days
Non-emergency Faults requiring the removal of offensive and/or racist graffiti or Unauthorised Attachments which are either offensive and/or racist from Apparatus.	One (1) Working Day
Non-emergency Faults requiring the removal of all other graffiti and/or Unauthorised Attachments from Apparatus.	Five (5) Working Days

Non-emergency Faults involving replacement of complete Apparatus/Illuminated Traffic Bollard or the repair or replacement of public electricity supply equipment	Fault Rectification Period (Maximum Period for Fault Rectification)
Non-emergency Faults involving the replacement of a complete unit of Apparatus.	Fifteen (15) Working Days
Non-emergency Faults involving rectification where an Illuminated Traffic Bollard is knocked down, Belisha Beacon globe missing.	One (1) Working Day
Non-emergency Faults involving the repair or replacement of any of the Distribution Network Operator's system	Thirty (30) Working Days

Traffic Signals

Inventory

The latest asset inventory information and potential for growth is detailed in the IMTRAC asset database.

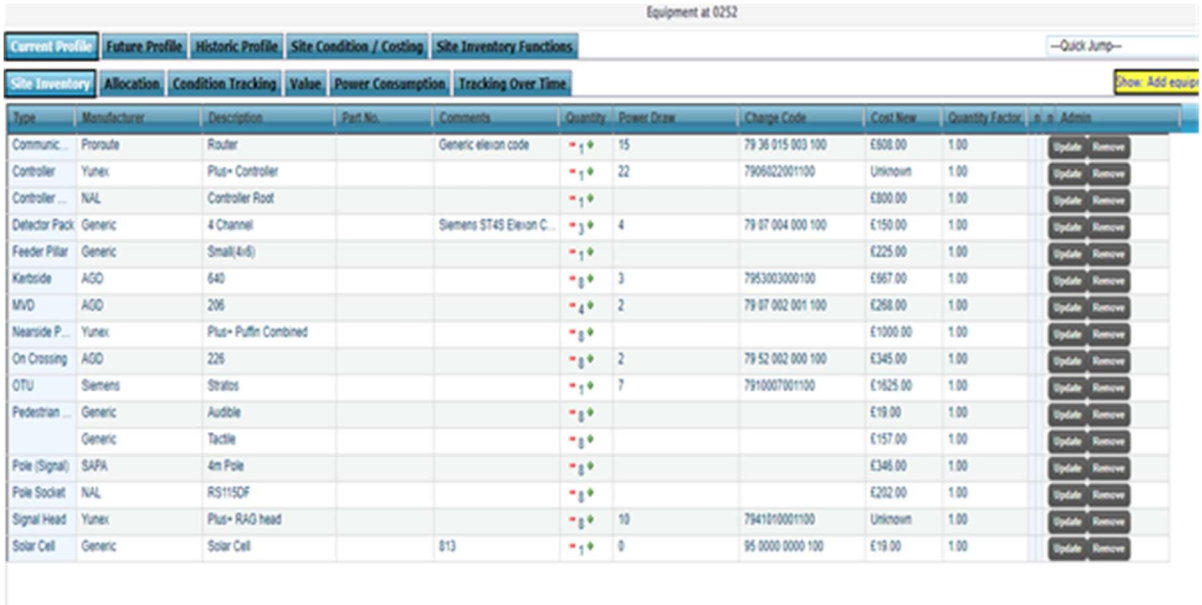
Asset Register

Information on the inventory of traffic signal infrastructure is held on the online IMTRAC asset management software operated by IRC. This is available for review by the traffic signals contract team and any other authorised persons.

This database holds details of:

- Site number
- District
- Site location (street A & street B)
- Coordinates
- Type of controller
- Control system
- All site equipment including the Elexon energy usage codes for each piece of apparatus.

Examples of the information held in the database is shown below.



Inspection Regime

Driven Safety Inspections

These surveys are intended to identify defects that are likely to create a danger or serious inconvenience to users of the network. They are undertaken by the highway inspectors from a slow-moving vehicle at monthly intervals.

Service Inspections

The Traffic Signal Section of Newcastle City Council has adopted the Department for Transport "Specification for Trunk Roads" and BS7671 (current edition) as a guideline for its inspection and testing regime. Annual inspections are undertaken to assess the operational and condition data of each installation, any faults that are found are reported and repairs undertaken.

Full records of the operational inspections are available currently available in the NCC Workforce Management System and NCC are currently working to migrate these inspections directly into the IMTRAC system.

A five yearly electrical testing inspection is also carried out at each installation, to the relevant IEE standards, with the records being kept on the NCC Workforce Management system, again the intention is to hold this information on the IMTRAC database.

Where reports of defects are received from Members or Stakeholders fault reports will be generated, with site attendance being undertaken within 4 hours, if possible repairs will be enacted immediately, however where this cannot be achieved warning boards will be erected and repairs undertaken as quickly as possible.

Condition Assessment/Monitoring

The IMTRAC system allows for a condition assessment of the site to be taken and recorded on the database. This can then be manually updates over time or allow for a programmed degradation of the asset by a predetermined value.

Asset condition is ranked from Failing to Good on user defined scales. At present NCC have the following rating scores:-

Failing	1-10
Poor	11 – 25
Average	26 - 50
Good	51 to 100

This data can then be assessed to highlight areas where the equipment is failing for urgent remedial works. From the data mine of assets, there are a significant amount of equipment that are in need of replacement. This data has is now being cross referenced with the forward plan and any overlaps removed.

N.C.C. have made the decision that all signal poles on new schemes should be undertaken using aluminium alloy poles with low level access doors in preference to galvanised steel poles. This increases the life expectancy of the pole (50 years as opposed to 12-15 years) and reduces the amount of work at height during installation and maintenance of the signals.

However a number of existing installations still require the use of steel poles as they use obsolete equipment which is not suitable for the newer aluminium poles. These sites are maintained from recycled equipment where it is no longer possible to purchase replacement parts.

All new sites are installed with ELV equipment. This provided safety benefits from the reduced of street voltage (48V instead of 240V) and increased energy efficiency (70%+ more energy efficient than legacy systems).

Construction/Asset Acquisition

New assets are typically acquired from either adoption or from taking over improvement works completed by contractors on behalf of the council. This is normally managed by the development control team using Section 38, 278 or 106 legal agreements. Newly constructed 'adoptable' streets are only adopted once they meet current council specifications. However, it is very rare for the Council to take on the responsibility for third party installations and it is far more likely that NCC would be commissioned to undertake the necessary installation work as a nominated sub-contractor for any development work.

Where new assets are commissioned from within the authority, the schemes will only be introduced into the Capital Programme following their approval by the Council.

At present there is no arrangement for long term maintenance costs to be funded for new assets which can lead to increased maintenance requirements. The Council is now looking into requiring delegated sums from the developers for the ongoing maintenance of new infrastructure.

Where internal works entail a change to the existing infrastructure as built records are passed to the fault reporting centre who then make the necessary adjustments to the inventory record. This is an informal process that at present may not be picking up all of the changes to the asset.

The data mobile data management system “Total Mobile” has an interface with Works Management

System (WMS) and IMTRAC. Automatic updates of all works undertaken and all changes to the traffic signal asset are recorded through these systems.

Routine Maintenance

Routine reactive maintenance activities for traffic signals comprise of the replacement of faulty or worn out equipment, much of which is initiated by the fault reporting system.

Operational/Cyclic Maintenance

Operational / Cyclic Maintenance is the regular ongoing day-to-day work that comprises servicing rather than repair and is necessary to keep assets operating, Cyclic maintenance activities for traffic signals are detailed in the table below:

Cyclic Maintenance Activities		
Maintenance Activity	Maintenance Interval	Responsibility
Bulk lamp changes	Every year (as a single 4 yearly operation on 100% of the asset)	Senior Traffic Signals Manager, Traffic Signals Section

anned Maintenance: Renewals

Renewal/replacement work is major planned (programmed) work that does not increase the asset's designed capacity, but restores, or renews an existing asset to its original capacity.

Disposal

Disposal is any activity that removes a decommissioned asset, including sale, demolition or relocation. Although disposal of a full traffic signals site is rare due to the politically sensitive nature of equipment it does occur where new developments or roads alter an existing route. There are no disposal activities programmed for the next 3 years.

Forward Works Programme

Existing Programmes

A programme for new and improvement schemes is developed annually and the planned maintenance works are then fitted in and around this agreed programme, which is updated on a monthly basis.

An initial programme of future works for the following 2/3 years has been produced based on the design request forms, which is then incorporated into a fully integrated 3 year rolling programme of prioritised schemes.

Programme Coordination

Each individual programme, including those derived from the LTP process is provided to the Head of Service as a 12 month dedicated scheme programme and a year 2 & 3 indication of probable works.

All parties are made aware of other programmes and the opportunity is taken to highlight conflicts and opportunities for efficiency savings. Scheme costs are not at present included in the year 2 & 3 programmes.

Due to the recent reorganisation of the directorate, internal communication between the Road Safety, Major Projects and service delivery teams have improved significantly.

It is intended that the existing procedure will be developed to provide a full 3 year programme of named schemes to include estimated costs which will be submitted to Council for approval via a delegated decision.

Option Appraisal

Planned Maintenance schemes:

- Scheme Selection: The majority of the proposed maintenance schemes emanate from inspection reports, which are collected throughout the year and recorded on the database. Each potential scheme receives a

technical assessment before being included in the planned maintenance programme.

- Scheme Validation: Many of the schemes are put forward due to the obsolescence of the existing equipment, however at present the need for works far outstrips the available budget, so the schemes are ranked on a worst first basis.
- Provisional Programme of Works: Should sufficient funding become available the works programme will take into account the type and age of equipment in order to reduce the need for maintenance knowledge of particular types of obsolete equipment and to reduce the amount of recycled equipment required to be stored.

Key Performance Indicators

At present there are no national performance indicators for traffic signals.

The most relevant to the traffic signals lifecycle are:

- inspections and repairs to defects as detailed in the table below:

Key Performance Indicators relating to the Traffic Signals Asset				
LEVELS OF SERVICE	PERFORMANCE MEASURE	REVIEW FREQUENCY	PI	CORE OBJECTIVES
Inspections				
Undertake serviceability inspections	Percentage of inspections undertaken as per the programme	Annually	Local	Serviceability, Sustainability
Maintenance				

Repair of defects	Percentage of reported traffic signal faults responded to within 4 hours	Annually	Local	Safety
Repair of defects	Number of reported traffic signal faults responded to	Annually	Local	Safety

Other Performance Indicators

The key performance indicators may be supplemented with other indicators as required to meet the changing demands on the delivery of the service.

Signage

Newcastle's road signage provides information on local and advanced wayfinding, parking, tourist and local information, cycle and pedestrian routes, and traffic enforcement.

It is essential for the safe and efficiency operation of the transport network. Routine maintenance of the physical sign asset is undertaken on a reactive basis by the Highways blacksmiths team.

The integrity of the information on signs is managed on an ad-hoc basis. This has allowed a gradual divergence between the information that should be displayed on signage and the information that is actually displayed. This is particularly evident with traffic restriction orders and advanced wayfinding signs. Asset data is available on the position of signs and the information they carry.

Street furniture

Street furniture includes assets such as bollards, signs, seats and pedestrian guardrail. These contribute to the safety of the city and convenience of the residents.

Street furniture assets are maintained reactively based on reports from the public and Council inspectors. Reported defects are prioritised according to the risk they pose to safety. The Council does not undertake routine maintenance other than inspections, during which any safety issues will be identified by our highway inspectors and repaired as required. These records are held in our asset management database, Symology.

Highway drainage

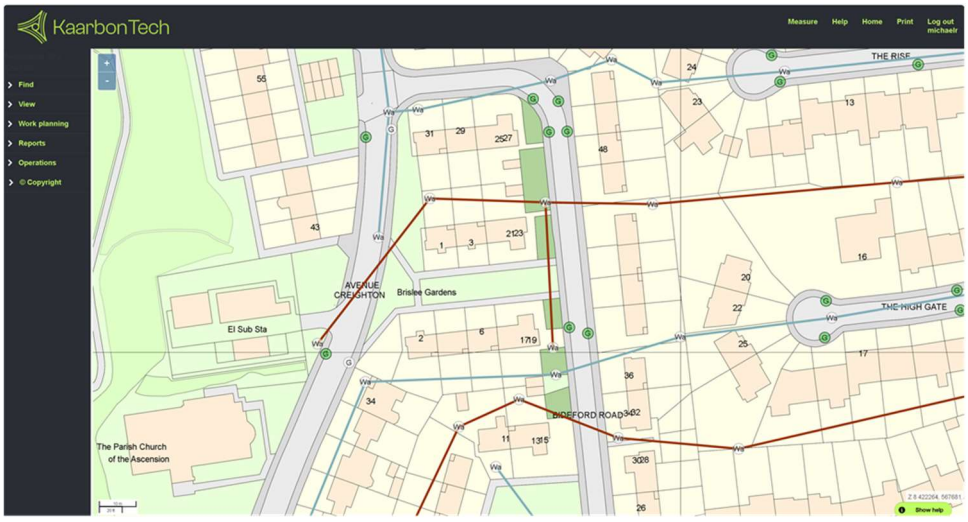
Road gullies and the pipes that connect them to the city drainage keep the roads safe and drained during wet weather.

All of Newcastle's existing gully asset inventory is stored on the KaarbonTech system.

The inventory information held in the KaarbonTech system is

- Ownership
- Cyclical maintenance schedule
- Gully Type
- Grating type
- Gully location
- Trapped/untrapped
- Gully depth

Example of Kaarbon Tech system below



Most of the Council's road gullies are in the carriageway, so cleaning them can cause disruption and presents a risk to workers, as well as being a cost to the council. The Council's strategy is to minimise the number of visits made to road gullies by targeting cleaning based on condition so that all gully pots are cleaned when they are close to being full of silt.

At present, road gullies are inspected and maintained using a risk-based approach using data held in our Kaarbon Tech System. This system is building a record of sediment levels across all of our gully assets which allows for a planned maintenance approach based on the modelled rate of sedimentation in each gully to be applied.

Newcastle have also trialled the installation of a number of gully sensors in strategic locations to alert it to when groups of gullies need to be cleaned. These have been positioned to minimise the number of visits which need to be made to gullies in dangerous locations such as high-speed roads.

Flood Risk Management

Newcastle City Council is the Lead Local Flood Authority (LLFA) in Newcastle and manages flood risk in cooperation with the other Risk Management Authorities i.e. the Environment Agency (EA) and Northumbrian Water. The Flood Management team acts as the LLFA for Newcastle City Council. The LLFA has a number of statutory duties under the Flood & Water Management Act, 2010 (FWMA), including, under s21, the duty to maintain a register of "significant" flood assets.

In Newcastle, the LLFA has taken a broad interpretation of "significant" to include all known flood assets, regardless of size or land ownership. That would include flood alleviation schemes protecting properties and infrastructure, Sustainable Drainage Systems (SuDS) in developments, highway drainage assets i.e. storage tanks, as well as other riparian or structural assets affecting flood risk.

The asset register has been populated with all of the LLFA's completed projects, development assets are added at an ongoing basis as they are adopted. The register is currently held on a QGIS layer, although the Council will shortly be adopting a new system, Enterprise, so there will need to be a data transfer from QGIS. The FWMA requires the LLFA to keep "a record of information about each of those structures or features, including information about ownership and state of repair."

Maintenance of flood assets is generally undertaken according to ownership. LLFA projects should be designed so that existing maintenance operations can

cover SuDS maintenance requirements, as the LLFA does not have a maintenance budget and, currently, the EA does not fund maintenance activities for local authority capital projects.

SuDS in developments are currently adopted by the developer and maintained by a management company, paid for by an annual maintenance charge on the residents [This arrangement is set to change from October 2024 (tbc) with the implementation of Schedule 3 of the FWMA, which will set up SuDS Approval Bodies (SABs) that grant a development the right to connect to the public sewer. SABs will effectively be LLFAs assessing planning applications on drainage and flood risk matters independently from the Local Planning Authority. Crucially, SABs will be expected to adopt SuDS. Further detail around resource, funding, adoptions, guidance, etc is expected from DEFRA prior to implantation of Schedule 3].

Maintenance of highway drainage assets, such as gullies and drainage kerbs are maintained by Highway Maintenance, although, in reality, there is no specific budget to cover annual maintenance activities. Other flood assets may be maintained by private individuals (for instance, where riparian ownership rights apply in rivers and watercourses) or other Council teams i.e. Structures for flood walls.

The Council is currently evaluating all its assets though the Assets Oversight Board. This exercise aims to ensure that assets are maintained (subject to funding and resource) in teams that have the requisite level of expertise. Recent changes to the structure of the council has left a number of unallocated assets, which the assets oversight board is aiming to clarify maintenance responsibilities.

Road markings and road studs

Carriageway markings are present almost everywhere on the road network. They communicate information to drivers, pedestrians, and cyclists.

Due to the low value of individual lines and road studs relative to the cost to maintain detailed data on them, the Council does not currently keep a database of these assets. However, with the addition of new computer software we are looking to produce a new record of road markings and keep an accurate inventory record going forward.

When the Highway Maintenance department undertakes maintenance on the carriageway, they replace, and refresh lines and road studs like for like.

The Council maintains lines and road studs reactively based on reports from its highway inspectors and the public. It prioritises replacement of damaged markings which could pose a safety issue, for example at crossings and schools.

Cycle Paths

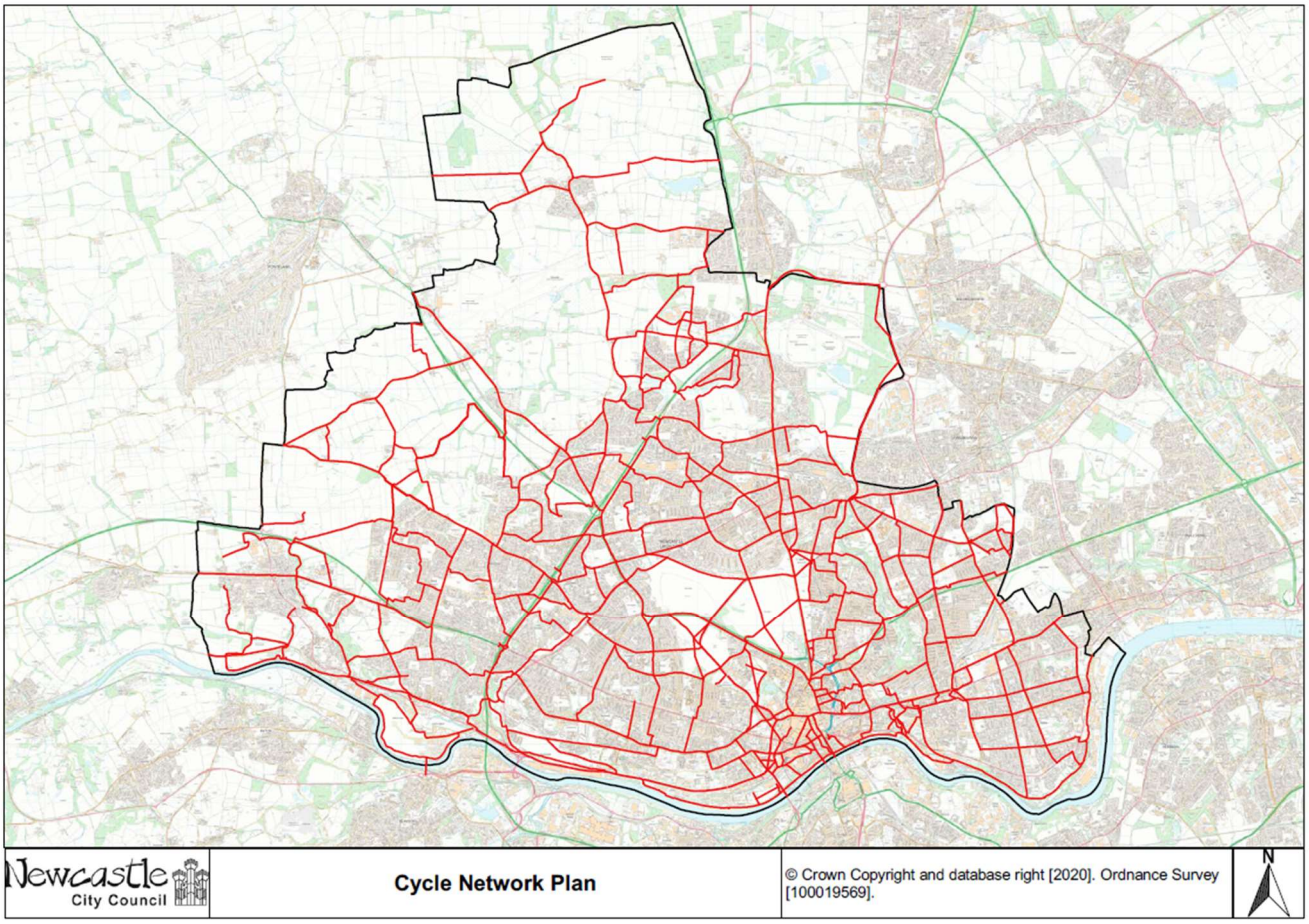
Cycle paths provide segregated and unsegregated routes for cyclists which improve safety by separating users from general traffic. Segregated routes can be either on the carriageway using kerbs, or 'stepped' up to footway level but still separate from the footway. Shared path facilities which mix cyclists and pedestrians together are often provided in 'off road' environments and at constrained locations at junctions and narrower streets. The Council's strategy for paved cycle paths is to maintain a steady asset condition.

As cycle demand increases, the connections provided by cycle paths will become increasingly important. The Council will manage its cycle paths to minimise disruption to the network and ensure that signage and markings provide adequate direction to cyclists.

The Council produced its Local Cycling and Walking Infrastructure Plan in 2021 (see network images below) which has a corresponding prioritisation list which the Council seeks to refresh in 24/25. The delivery of this priositiation list will be

dependent on developing a pipeline of funding, but the intention will be to deliver an expanding network of high-quality cycle routes across the whole city.

In many cases, improvements to walking infrastructure is combined into the delivery of new cycling infrastructure, particularly with new crossings, improved public realm and renewed footways alongside a new cycle path. The below map shows the cycle network within Newcastle.



Bus Shelters and Bus Stations

Bus Shelters

The City Council own and are responsible for bus shelters throughout the City.

Our current inventory consists of:

- 260 Advertising bus shelters
- 492 non-Advertising bus shelters
- 18 stone/brick shelters

NCC have contracts with Clear Channel UK Ltd (CCUK) for the provision, repairs, maintenance and cleaning of the Ads and Non-Ad Shelters.
CCUK own and are responsible for the advertising panel attached to the advertising shelter. NCC has no responsibility or liability for this panel.

The brick/stone shelters are maintained by NCC.

As part of the advertising contract with CCUK, NCC receive an income and profit share.

This income is used to pay for all services associated with the cleaning, repairs and maintenance of the non-advertising bus shelters.

CCUK pick up all costs associated with the advertising bus shelters.

NCC carry out structural inspections every 3 years on the brick/stone shelters. Any recommendations (repairs, maintenance & cleaning) made from these inspections are carried out by NCC and paid for through the capital budget agreed by Cabinet in 2018.

The Advertising Bus Shelter Contract expires June 2029.

The Non-Advertising Bus Shelter Contract expires June 2024. Officers are currently putting documentation together to go out to tender for a new contract of 3 years with an option to extend by 24 months.

Eldon Square Bus Station

The City Council are the freeholders of the land upon which the bus station is built.

The bus station building is repaired by Intu Debenture plc and the costs recovered from the City Council as part of the service charge under the lease agreement. Intu Debenture plc are responsible for providing insurance for the premises but the cost is payable by the City Council.

The retail units within the bus station are owned by Intu Debenture plc and are leased to tenants.

The area formed by the bus station, bus layover area and the bus station main entrances are all adopted highway and are the responsibility of the City Council as Highway Authority.

There are a number of areas/equipment within the station that are the responsibility of the City Council but are contracted under the lease agreement to be repaired/maintained by Intu Debenture plc at a cost payable by the City Council. These include:

- All bus stand doors
- Internal lighting
- Public toilets
- Heating/cooling systems
- Seating
- Internal cleaning
- Internal floor and wall finishes

NCC are responsible for:

- External lighting (this is not part of the PFI contract with Enerveo)
- Internal glass artwork/barriers at each stand
- Bus station clock

- Nexus office

Nexus are responsible for:

- Passengers Information Systems

There is an ATM within the bus station which NCC receive a small amount of lease rental income from. All costs associated with the bus station are paid for from Bus Station Revenue Budget. All the bus operators that use the station are charged a departure charge on a monthly basis. This income along with the ATM lease rental is used as a contribution towards the costs associated with the operation of the bus station.

Haymarket Bus Station

The City Council own and are responsible for the bus station.

Nexus manage the bus operators that serve the station and also provide customer services.

Nexus are responsible for the Passenger Information Systems within the station.

Nexus, through a larger contract for their bus stations and until August 2024, carry out cleaning within the station on a daily basis. NCC do not pay for this service.

Everything else is the City Councils responsibility.

There are three retail outlets within the station. NCC own and lease an outlet to Arriva Buses. Marks & Spencer own the other two units which they lease to Greggs and Cosy News.

All costs associated with the bus station are paid for from Bus Station Revenue Budget.

All the bus operators that use the station are charged a departure charge on a monthly basis.

This income contributes towards the costs associated with the operation of the bus station.

Trees

Trees are our history and our future. They define the landscape where we live, work and play. Research proves that humans feel better when they are in the company of trees. Even in urban areas we require contact with the natural world and trees bring this right into city centres, minimising the impact of the built environment by providing colour, shade, and shelter.

Trees in Newcastle and the procedures which are in place to maintain and protect them are detailed in the **City Council's Tree Policy –** Trees Newcastle

Since Trees Newcastle was adopted there have been legislative and industry best practice changes which need to be reflected in this Policy. In addition, we need to ensure that Trees Newcastle provides adequate support to protect our trees against emerging issues such as pests and diseases and changes in the City's development strategies, as well as enabling tree planting initiatives which help to protect the City against climate change and promote the health and wellbeing of our residents. Local Government has also undergone huge changes in this period with finance and labour resources reduced to the point where it was inappropriate or difficult to deliver some of the aims of the previous Policy. Trees Newcastle has therefore been revised taking these factors into account.

Climate Change / Net Zero

By 2030, we want to be the exemplar of a post-industrial city that has mitigated its greenhouse gas emissions and adapted to climate change, delivering net zero. We will attract and grow our own talent, expanding our business base and jobs in the 'new' economy - particularly the green economy - through innovation, reskilling, and encouraging locally rooted companies with sound employment practises which contribute significant economic and social benefit. By creating a new Transport Asset management plan, we are looking to address our carbon emissions and ensure we manage our assets both efficiently and in the most environmentally friendly manner.

Newcastle City Council has developed a climate change strategy that details how the City Council is working to mitigate the production of greenhouse gases which cause climate change, (primarily CO2) and how the City Council is beginning to interpret the likely impacts of climate change and plan to adapt to these.

Recognising the importance of our climate change objectives and the fact that, at least in the short-term, there will be considerably less funding available than in recent years, we have adopted a strategic framework based on three broad intervention types (measures), beginning with the lowest-cost measures that make the least impact on the environment.

- Managing the demand to travel,
- Managing and further integrating existing networks,
- Targeting new investment,

Highway surfacing

Recycling of roadstone materials is a significant factor in carbon reduction and road surfacing materials used in Newcastle contain 5% of recycled asphalt pavement (RAP) for all surface course mixes with the hope of increasing this to 10% for close graded materials. Base and binder mixes vary between 20-30% depending on moisture content & air temp.

In addition to this, all roadstone materials contain locally sourced non-recyclable waste for example milk cartons, tyre rubber crumb and car tyre residue'. These non-recyclable waste materials used would otherwise have been destined for landfill or incineration whilst their addition to the roadstone complies with national specifications. Future innovations being developed are the use of low temperature roadstones and low emission fuels for plant machinery and vehicles.

Managing Greenhouse gases.

Lighting

- Keeping the lighting to the minimum necessary for safety
- Ensure that lights and other equipment are turned off when not in use.
- Installing lighting and equipment that is energy efficient.
- Considering the use of renewable energy sources with street lighting equipment

Carriageway

- Use of locally sourced materials to reduce transportation emissions.
- Use of recycled materials to reduce manufacturing emissions.
- Use of preventative maintenance treatments to extend the life of the asset.

Footways

- Use of locally sourced materials to reduce transportation emissions.
- Use of recycled materials to reduce manufacturing emissions.
- Use of preventative maintenance treatments to extend the life of the asset.

Structures

- Use of locally sourced materials to reduce transportation emissions.

- Use of recycled materials to reduce manufacturing emissions.
- Use of preventative maintenance treatments to extend the life of the asset.

Traffic Signals

- Introduction of Extra Low Voltage (ELV) traffic signal systems
- Replacement of aged control systems with more energy efficient units

Street Furniture, safety fencing & signs

- De-cluttering and in particular the removal of unnecessary illuminated signs
- Use of recycled materials to reduce manufacturing emissions.

Possible Effects of Climate Change	
Asset Group	**Effects**
Lighting	Less corrosion of steel columns due to dry weather and reduction in the use of road salt
Carriageways	Softening and cracking of tarmac surfaces. Reduced skidding resistance on roads due to build up of road detritus in dry spells and reduced gritting in winter. Suitability of materials
Footways	Softening and cracking of tarmac surfaces. Movement of concrete flags, block paving creating trip hazards. Suitability of materials

Possible Effects of Climate Change	
Asset Group	**Effects**
Structures	Expansion joints. Scour/damage to culverts. Suitability of materials. Drainage/capacity of culverts also affected by blockages (trees etc)
Traffic Signals	Less corrosion of steel infrastructure due to dry weather and reduction in the use of road salt
Street Furniture, safety fencing & signs	Little impact likely. Fading of signs due to longer exposure to sunlight. Reduced corrosion due to less winter gritting. Suitability of materials

END OF REPORT