Halton Borough Council

Highway Infrastructure Asset Management Plan (HIAMP) 2026

Foreword

As the Portfolio Holder for Environment and Urban Renewal, I am proud to present Halton Borough Council's Highway Infrastructure Asset Management Plan (HIAMP) for 2026–2029.

Our highway network is one of Halton's most valuable assets, spanning over 1,400km and valued at approximately £2.3 billion. It plays a vital role in connecting communities, supporting economic growth, and enabling safe and sustainable travel across the borough. This plan outlines our strategic approach to maintaining and improving this essential infrastructure in the face of evolving challenges, including climate change, financial constraints, and increasing demand.

Since our last plan, Halton has become a key member of the Liverpool City Region Combined Authority (LCRCA), aligning our ambitions with regional and national priorities. This HIAMP reflects our commitment to delivering a resilient, safe, and accessible network that meets the needs of our residents, businesses, and visitors—now and into the future.

Through a data-driven, risk-based approach, we aim to maximise value for money, reduce whole-life costs, and ensure that every pound spent delivers tangible benefits. Our focus on preventative maintenance, stakeholder engagement, and environmental responsibility will help us maintain high standards and secure future funding opportunities.

I commend the dedication of our officers and partners in developing this comprehensive plan. It is a testament to Halton's commitment to transparency, accountability, and continuous improvement in the stewardship of our highway infrastructure.

Councillor Paul Nolan (Portfolio Holder for Environment and Urban Renewal)

Introduction

Highway asset management is a way of running the 'business' of operating a highway network. Halton Borough Council (Halton) is responsible for 606 km of roads and 838 km of footpaths which are comprised of many diverse assets and which all need to be managed throughout their lifecycle to ensure they continue to fulfil their purpose. Asset management helps Halton, as the local Highway Authority, to understand the value of the highway asset and the costs linked with maintaining that asset, providing a framework to ensure that available funding is targeted to where it is needed most to deliver on local priorities. It achieves this by linking high level business objectives, stakeholder expectations and legislative requirements to actions on the ground to deliver the optimal level of service within the available funding at the lowest risk.

Highways are by far the most valuable asset Halton owns, reported at £2.3 billion in 2021-22. Significant investment is required year on year to prevent deterioration in the condition of highway assets and provide the best level of service possible. Key to maximising value for money in highway maintenance is to understand when and how to intervene over the long term.

Asset Management also provides a clear evidence base to justify the need for investment in highway maintenance by providing a means of demonstrating how different investment strategies impact on our business goals over time. Making use of this long term approach on investment options allows decision makers to make informed choices, minimising whole-life costs in favour of more expensive, reactive short terms actions which arise because of under investment.

This Highway Infrastructure Asset Management Plan (HIAMP) includes all the key documents to our asset management approach. It provides the framework for asset management and provides a "line of sight" between business priorities and ambitions, stakeholder requirements and expectations and deliverable actions on the ground. In so doing it encourages the development of existing good practices and so improves the management of the whole network. In addition, the HIAMP provides information regarding the highway asset base and identifies the funding needed to addressing maintenance issues and deliver on business and stakeholder priorities.

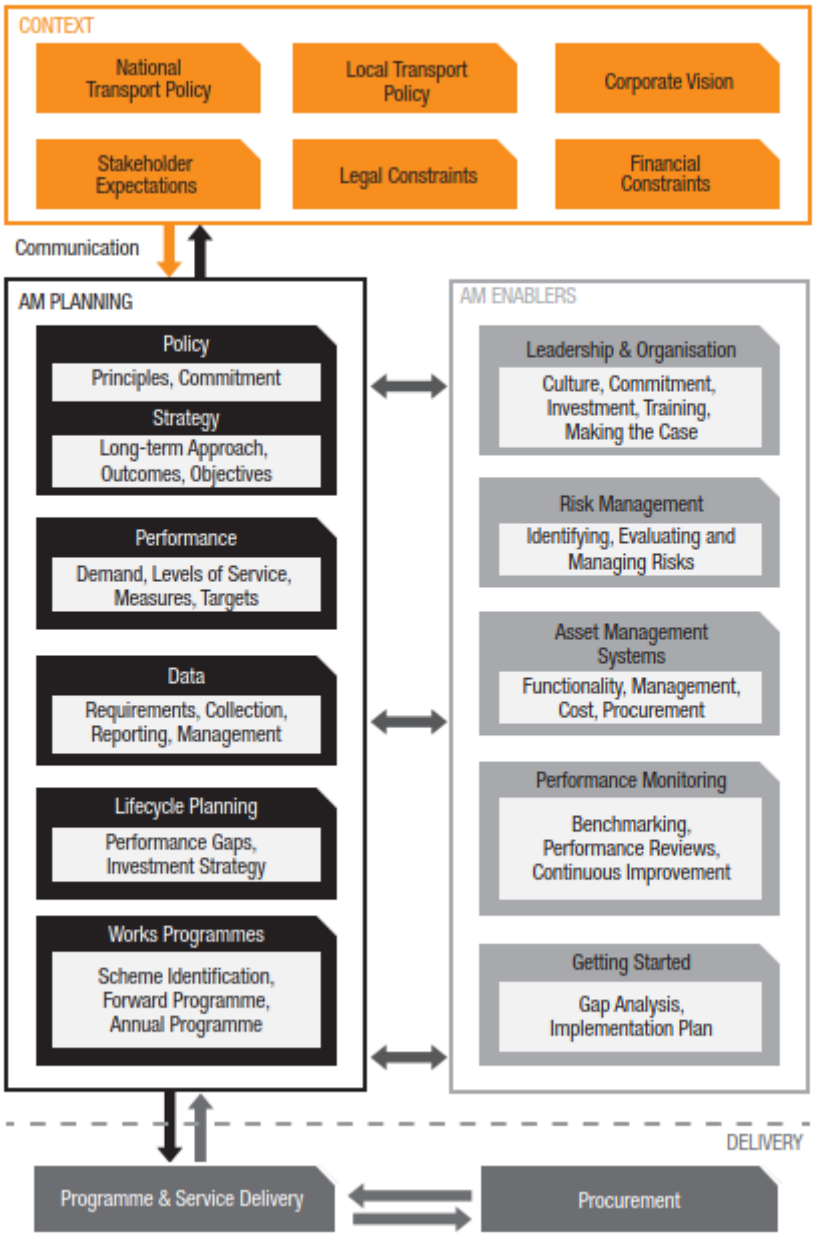
The HIAMP demonstrates our commitment to the adoption and continued development of an Asset Management approach. In practical terms, as well as demonstrating Best Practice, it also contributes significantly to our ability to access the Department for Transport's Funding. This not only affects Halton but could also affect the other councils which form the Liverpool City Region Combined Authority (LCRCA).

This HIAMP is the latest of Halton's developments in Highway Asset Management which began in 2007 with the publication of our first Transport Asset Management Plan. It marks a significant advancement from the previous Highway Asset management Plan published in 2017 in reflecting current best practice, changes in the availability of, and access to funding streams, updates in guidance, regional and national changes in strategic direction and internal development of systems and practices.

1 Asset Management Framework

This HIAMP is built on the framework defined in the UKRLG/HMEP Highway Infrastructure Asset Management Guidance (The Guidance) shown in Figure 1.1 below.

Figure 1.1 UKRLG/HMEP Highway Infrastructure Asset Management Guidance Document Framework



Using this framework as a basis, the layout of this HIAMP has been developed to represent the approach we have adopted. At its current stage of development, the HIAMP includes all Context and Asset Management (AM) Planning elements, at least in part, as well as many of the AM enabler functions where these are relevant. These will continue to be developed and further elements introduced as the asset management system continues to mature and further benefits can be realised through the implementation of the recommendations contained in this framework.

2 Organisational Context

2.1 Halton's Context

The Highways and Transportation management team is planned but not yet formed, with its meeting schedule to be confirmed.

As the Highway Authority, we are under a duty to maintain highways which are maintainable at public expense, although that duty excludes motorways and trunk roads which are the responsibility of National Highways and the Mersey Gateway network which is maintained under a Design, Build, Finance and Operate (DBFO) contract.

In April 2014, Halton became part of the LCRCA which has assumed our previous responsibilities for production of the Local Transport Plan and Bus Strategies for the region, although we still have overall responsibility for the delivery of the supported bus route network and bus related infrastructure as well as for the highway network as the Highway Authority.

We have set out our strategic ambition, aspirations and direction in our vision statement.

> *"Halton will be a thriving and vibrant Borough where people can learn and develop their skills; enjoy a good quality of life with good health; a high quality, modern urban environment; the opportunity for all to fulfil their potential; greater wealth and equality, sustained by a thriving business community; and safer, stronger and more attractive neighbourhoods."*

2.2 Regional Context

The LCRCA is led by the Metro Mayor and brings together the City-region's six local authorities (Halton, Knowsley, Liverpool, Sefton, St. Helens and Wirral). The LCRCA has devolved transportation responsibilities for the city region and so directly influences the delivery of services in relation to how the transport network operates. Transportation relates to how people move around the region by any mode; so, it includes cars, freight, trains, buses, ferries, cycling and walking both locally, regionally and nationally. The transport network relates to the physical infrastructure that transportation uses.

From November 2015, the initial LCR devolution deal secured £900M of funding over a 30 year period which included a range of powers and functions for transport planning and delivery. In relation to highway infrastructure, these responsibilities include the production of the Local Transport Plan for the region, which defines the transportation goals and objectives, and powers to enter into agreements with Halton and the other authorities to undertake highway construction, improvement or maintenance works, road safety improvements and traffic regulation functions.

In relation to Highway Infrastructure, the LCRCA functions are governed through the Transport Committee which leads the Transport and Air Quality portfolio that directly links to the Cleaner and Connected City Region priority area.

2.3 National Context

Central government provides the strategic framework which regional and local authorities operate within, determining the high level goals and national investment strategy. There are three key documents that provide the national context, the Transport Infrastructure Strategy (July 2017), the National Infrastructure Strategy (November 2020) and Decarbonising transport: a better, greener Britain (July 2021).

The Transport Infrastructure Strategy identifies objectives for investment which includes creating a more reliable, less congested and better connected transport network. It also recognises that decisions affecting transportation regionally and locally need to be made at that level.

The National Infrastructure Strategy considers all infrastructure of national importance, including energy, transport, water and wastewater, waste, flood risk management and digital communications and how these areas support economic growth by boosting productivity and competitiveness. Highway Infrastructure forms a major part of the strategy with investment of £5bn on bus services and cycling infrastructure being specifically identified along with a £4.2bn investment in intra-city transport outside London.

Decarbonising transport: a better, greener Britain sets out the government's plan to deliver transportation's contribution to legally binding carbon budgets and delivering net zero by 2050.

2.4 Stakeholder Expectations

Highway Infrastructure ultimately exists to support the needs of the stakeholders that use it. The needs, requirements and expectations of stakeholder groups in relation to the highway network has been widely researched and documented and this influences national, regional and local policy. However, these needs vary geographically and while policies are influenced by stakeholder expectations, the specific needs for Halton are unique to the area and as such it is key that those expectations are not only considered but are built into how that infrastructure is managed to ensure it delivers for those who use it every day.

2.5 Legislative Requirements

As the Highway Authority, we have many legal responsibilities defined through various Acts and Regulations which we must discharge. Meeting these legal requirements provides the foundation of service delivery and must be funded before any other considerations to ensure we are acting within the requirements of the law. Legislative requirements span from extensive duties, such as the duty to maintain the highway under section 41 of the Highways Act, to details relating to how to exercise Powers, such as the power of entry to any land under the Weeds Act.

2.6 Financial Constraints

The biggest limitation to what can be delivered is the availability of funding. Funding the work needed to develop and maintain highway infrastructure competes against other priority public services such as the Health, Education and Social Services. Hard choices, often outside of Halton / Local Government, are always made on what money can be made available. Consequently, the funding to maintain highways is very restricted beyond the need to fulfil statutory obligations.

Because of the importance of the highway network, other funding streams are made available by central government which can be bid for and are allocated nationally. We can and do bid for these through the LCRCA.

The considerable financial constraints which exist provide one of the strongest drivers for the adoption of asset management because of the need to ensure all available funding is accessed and is focussed on the right places to realise the maximum benefit.

3 Highway Asset Management Policy

Halton is committed to using Asset Management as the principal mechanism to ensure local, regional and national objectives and ambitions are realised and translated into realistic and measurable outcomes across the highway network for all stakeholders. This commitment is aligned with our corporate vision, our commitments as a member of the LCRCA and ultimately the government's strategic aims for highway infrastructure.

Figure 3.1: The Runcorn Expressway

3.1 Scope

This policy applies to all highway infrastructure assets purchased, constructed, installed and maintained on the publicly maintainable highway network within our boundaries.

3.2 Guiding Principles

In developing, implementing and delivering actions across the highway network, we will follow these guiding principles.

In all that we do we aim to be:

- **Community focused:** ensuring that residents' concerns are of prime importance in defining how we deliver effective services. We will maintain our open and democratic processes that encourage local people to become involved in decisions that directly affect them and future generations.
- **Sustainable:** improving the quality of life for residents without compromising that of future generations whilst also enhancing the biodiversity of the area through initiatives such as carbon reduction and active travel.
- **Leaders:** giving clear strategic leadership to the Borough and to agree roles, responsibilities and relationships that are fit for purpose and enable people to contribute and to make a difference.
- **Fair and inclusive:** promoting equal access to opportunities and facilities and helping ensure that everyone in the community can access the opportunities and progress being made in Halton.

- **Good value:** enabling and coordinating the delivery of high quality, value for money services that are accessible, affordable and focused on local needs.
- **Collaborative:** taking full advantage of the benefits for Halton from the community, organisations and groups both locally and more widely, working constructively in partnership and sharing responsibility whilst also recognising the changing roles of some of our key partners and working with emerging new structures.
- **Evidence-based :** In making decisions and policy we will ensure that we learn from best practice elsewhere and make good use of available data and research about what works in addressing our priorities.

3.3 Our Priorities and Goals

Our Corporate Plan sets out what, within available resources, we plan to achieve over the next five years to improve lives within all the communities of the Borough. It guides the development of more detailed strategies and actions to deliver our priorities through the following key themes, set out in the Corporate Plan 2024-2029, Our Community, Our Priorities, Our future:

- Improving Health, Promoting Wellbeing and supporting greater independence
- Building a strong, sustainable local economy
- Supporting children, young people and families
- Tackling inequality, helping those who are most in need
- Working towards a greener future
- Valuing and Appreciating Halton and our community

As stated above, Halton is also one of the six local authorities which form the LCRCA. With delegated powers relating primarily to transportation functions, the LCRCA sets out its priority areas within its Corporate Plan (2024-28), which we are also committed to.

- Economy
- People
- Place
- Transport
- Digital Infrastructure

3.4 Our Commitment

It is recognised that a good transport network is essential for a successful economy and for the efficient and effective movement of people and goods in and through Halton and the wider LCR. Our roads provide safe and reliable access to jobs, services and schools; facilitate the delivery of goods to the shops and allow us to make the most of our free time. The highway network is by far our biggest single asset and is used by or on behalf of every single member of the community, often many times a day.

Provision of safe, reliable and accessible routes to all destinations by walking, cycling, road vehicles and public transport is vital to the future of Halton's economy and the quality of our environment. Highway asset management will help meet our aims and objectives for shaping Halton's future, and its place within the LCR.

Our aim is to retain and develop a safe, reliable, attractive, well-managed and maintained transport network that is easy to use by all users and which:

- Is maintained in the most efficient and effective manner
- Maintains a steady state of maintenance in terms of overall condition that meets the expectations and aspirations of the users
- Addresses the concerns of residents
- Is achievable with available resources

We are committed to the responsible management of its highway network asset and to being accountable for:

- The standards of maintenance of that asset
- The way that maintenance works are identified and prioritised
- Using an asset management/ whole-life costing approach to all highway maintenance activities
- The commissioning of maintenance works by internal or external agencies
- Identifying and using sustainable solutions to minimise waste and landfill wherever possible, for highway maintenance works
- Maintaining the highway network to standards which will significantly reduce the number and costs of third party accident claims
- Implementing highway inspection regimes

4 Highway Asset Management Strategy & Objectives

This strategy has been designed to support Halton's business priorities and objectives. To do that the plans, strategies and policy documents which define these business priorities and objectives, also identified as aims, ambitions & goals, have been reviewed and the key objectives identified. Alongside this, other key drivers are identified, such as Stakeholder expectations, building the framework of drivers which we need to deliver on.

By aligning the outcomes of this strategy with these priorities, objectives and other drivers, this strategy provides a line of sight between the high level business priorities and deliverable Asset Management Objectives which in turn allow the impact of works completed on the ground to be assessed in terms of how they meet those objectives through performance measures.

4.1 Business Priorities and Objectives

4.1.1 National Strategy

As outlined in Section 2 above, the national strategy is primarily defined through the objectives, ambitions and commitments contained the following three key documents.

4.1.1.1 The Transport Infrastructure Strategy (July 2017)

This identifies four main objectives nationally for Transport Infrastructure.

- Create a more reliable, less congested, and better connected transport network that works for the users who rely on it

  Our intensively used networks are ageing and face increasing demands, creating delays and undermining reliability. In places they don't provide the connections people and businesses need.

- Build a stronger, more balanced economy by enhancing productivity and responding to local growth priorities

  Our national productivity lags behind other countries and prosperity hasn't been shared evenly between different places, leaving some communities feeling left behind.

- Enhance our global competitiveness by making Britain a more attractive place to trade and invest

  Our long term success in a globalised world will depend on our ability to attract job-creating investment in our industrial strengths and to trade as effectively and efficiently as possible with partners old and new.

- Support the creation of new housing

  We face an immense challenge to provide the houses that people need in the places they need them. Transport infrastructure is one of the keys to unlocking development.

The Strategy recommends that to meet the challenges these objectives identify requires the prioritisation of different types of investment:

- Improving the condition and performance of the existing network

- Expanding existing capacity to ease congestion
- Enhancing connectivity by adding new capability
- Improving the user experience
- Adapting the network to safeguard our environment, safety and health* (Preventing suicides in public places -Public Health England)

The National Infrastructure Strategy (Nov 2020)

This defines the government's ambition in relation to Transport, digital, energy and utility networks. In terms of highway Infrastructure, specific reference is made within Section 2 "Levelling Up the Whole of the UK" which highlights a £5bn investment to transform bus services and cycling infrastructure and £4.2bn intra-city transport settlements for the largest city regions, which includes Halton as part of the LCRCA.

4.1.1.2 Decarbonising Transport: A Better, Greener Britain (July 2021)

This plan sets out the governments commitments and the actions needed to decarbonise the entire transport system in the UK as part of its legally binding requirement that the UK's emissions must be net zero by 2050.

Its strategic priorities are:

- Accelerating modal shift to public and active transport
- Decarbonising Road transport
- Decarbonising how we get our goods
- UK as a hub for green transport technology and innovation
- Place-based solutions to emissions reduction
- Reducing carbon in a global economy

4.1.2 Regional Strategy

The LCRCA has published several plans and strategies which reflect on the requirements and expectation for highway infrastructure, outlined below.

4.1.2.1 The Combined Authority Transport Plan (June 2019)

While not currently a statutory document, this articulates the vision for Transport for the region and provides an updated statement on current policies that provides a bridge

between the current Local Transport Plan, LTP3, and the new LTP4 currently being developed by the LCRCA which is due for publication in 2026. The plan defines the strategic vision for transport which is to be delivered through the following 5 strategic objectives:

1. To support inclusive economic growth across a thriving city region. This is by developing a transport network that effectively and efficiently connects people, freight, businesses and visitors, and in a way that is fully integrated with wider policy objectives.
2. To exploit the city region's role as a global gateway that is served by all forms of transport that supports Northern Powerhouse and Transport for the North's aims to rebalance the UK's economy, through economic agglomeration and de-congestion benefits.
3. To deliver the objectives above through a new mobility culture, where transport services are modern, safe, clean, healthy and inclusive. This has a focus on boosting healthy forms of travel for short trips and where the public transport networks are the modes of choice.
4. To develop a mobility system that enhances the health and wellbeing of our citizens. This will include the development of liveable and resilient city region that addresses the

challenges of poor air quality and supports the move to a zero carbon Liverpool City Region (LCR) by 2040.

5. To secure a transport network that is well maintained, safe and resilient.

4.1.2.2 Developing a vision for local transport to 2040

In April 2022 the Combined Authority Transport Plan was published which is the first stage consultation document for the next Local Transport Plan (LTP4) itself the first LCR LTP which includes Halton as part of the City region.

While it is only the initial consultation, this sets out the emerging vision, objectives and goals for LTP4.

GOAL 1: Ensure that transport supports recovery, sustainable growth and development, and that our transport plan, Plan for Prosperity, Climate Action Plan and Spatial Development Strategy are fully aligned

GOAL 2: Achieve net-zero carbon emissions by 2040 or sooner, whilst safeguarding and enhancing our environment

GOAL 3: Improving the health and quality of life of our people and communities through the right transport solutions, including safer, more attractive streets and places used by zero emission passenger and freight transport

GOAL 4: Ensuring that our transport network and assets are resilient, responsive to the effects of climate change, and are well maintained

GOAL 5: Ensuring that we respond to uncertainty and change but also innovation and new technologies in the movement of people and goods

4.1.2.3 Other LCRCA Strategy Documents

The LCRCA has also published a number of strategic transport documents covering can be found on the LCR website.

- Local Cycling and Walking Infrastructure Plan (2023)
- Local Journeys Strategy (2023)
- Strategic Investment Fund Strategy (2018)
- Rights of Way Improvement Plan (2018)
- Road Safety Strategy (2024)
- Long Term Rail Strategy (2018)
- Mersey Ferries Strategy (2016)
- Bus Strategy (2024)

Together these provide the framework for development of a high quality active travel network across the region as well as highlighting the LCRCAs commitment to non-vehicular modes of transportation, aligning with the national de-carbonising agenda.

4.1.3 Local Strategy

4.1.3.1 The Sustainable Communities Strategy

As detailed above, the Corporate Plan defines the vision for Halton. This is built on by the Sustainable Communities Strategy (2011-2026) which identifies 5 Priority Themes which are delivered through key plans and strategies as illustrated below:

Figure 4.1 The SCS 5 Priority Themes

In the context of Highway Infrastructure, the principal document and mechanism for delivery is the current Local Transport Plan 3 (LTP3).

4.1.3.2 Halton's Local Transport Plan 2011/12-2025/26 (LTP3)

At this point of publishing, Haltons LTP 3 is still valid, however moving forward post 2026 Halton will be part of the LCR LTP4. The LTP3 defines our strategic direction for transportation through the following set of goals to be achieved over the LTP period.

- Ensure transport network resilience with particular regard to enhancing cross Mersey linkages, by the implementation of the Mersey Gateway project and the Mersey Gateway Sustainable Transport Strategy
- Ensure the transport system supports the priorities of the Halton's Local Strategic Partnership (LSP), the Local Enterprise Partnership (LEP) and LCR
- Provide and promote a clean and low carbon transport system
- Ensure the transport system promotes and enables improved health and wellbeing
- Ensure the transport system allows people to connect easily with employment, services and social activities
- Ensure the transport network supports the economic success of Halton and the LCR by the efficient movement of people and goods
- Maintain our transport and highway assets to a high standard

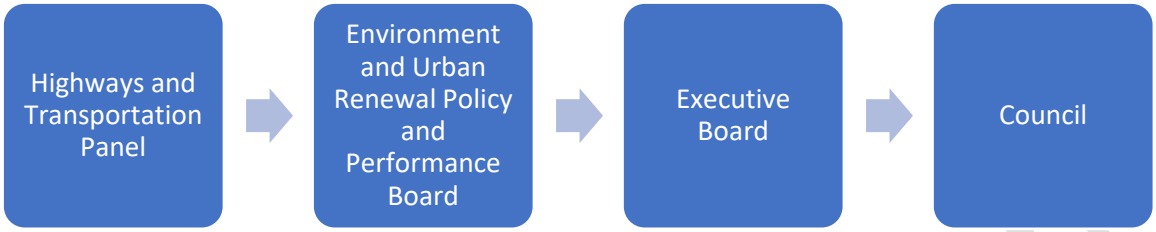
The regional and national context has changed since the publication of LTP3, so it is important that these are considered alongside the emerging LTP4 goals.

4.2 Governance

All Highway Infrastructure Asset Management processes are overseen by the HMT. This group aims to meets bi-annually and its remit includes reviewing delivery of the HIAMP against predicted performance targets and provides a focus point for delivery of continued improvement by ensuring the HIAMP objectives remain a focus for service delivery.

Overview and scrutiny of the teaml is by the Environment and Urban Renewal Policy and Performance Board, one of 7 Performance Boards which cover all of Halton's functions and who report in turn to the Executive Board and Full Council.

Figure 4.2 Asset Management Governance



4.3 Legislation

As Highway Authority, Halton has two primary legislative functions, legal duties which we must discharge to be acting lawfully and legal powers which we can exercise to provide a legal basis which support the delivery of services.

The following is a list of legislation, though not exhaustive, that places a duty on the Local Authority:

- The Highways Act 1980
  - Section 41 defines the duty to maintain all highways maintainable at public expense with specific reference to the duty to provide safe passage which is not endangered by snow or ice
  - Section 150 places a duty to remove snow, soil and other obstructions from the highway
- The Environment Protection Act 1990
  - Section 34 places a duty of care with respect to (highway) waste
  - Section 89 places a duty to keep land and highways clear of litter
- The Equality Act 2010
  - Section 20 places a duty to make reasonable adjustments to ensure equitable treatment of individuals with Protected Characteristics, most relevant of which in relation to highways are age and disability
- The New Roads and Street Works Act 1991
  - Section 59 places a duty to co-ordinate works on the highway
- The Road Traffic Regulation Act 1994
  - Section 1 places powers for making an Order to close a Highway to traffic
- The Traffic Management Act 2004
  - Section 33 places powers to enable the Preparation of Permit Schemes
- The Countryside and Rights of Way Act 2000
  - Section 60 Places a requirement to prepare Rights of Way Improvement Plans
- The Wildlife and Countryside Act 1981
  - Section 53 places a duty (in relation to public rights of way) to maintain the definitive map and statement
- The Transport Act 2000

  Creation of quiet lanes or home zones and therefore the requirement to maintain
- The Weeds Act 1959 (and Ragwort Control Act 2003)

  Halton has an obligation to disrupt the growth and spread of weeds within the highway boundary

- The Traffic Signs Regulations and General Directions 2016
  Defines requirements for all Traffic signs and road markings which must be complied with
- Electricity at Work Regulations 1989
  Electrical installation must conform to the regulatory requirements
- The Highways (Road Humps) Regulations 1999
- The Zebra, Pelican and Puffin Pedestrian Crossings Regulations and General Directions 1997

4.4 Risk Management

All activities, from the management, identification and prioritisation of works to the establishment of budgets, have risks associated with them.

Risks are identified and managed throughout an organisation at each level of the management hierarchy (strategic ,tactical and operational) using appropriate tools and procedures. For asset management purposes, these risks are considered at three different levels of our management structure:

- Strategic risks - managed at a corporate senior manager level
- Tactical risks - managed at an asset management/ network management level
- Operational risks - managed at a service delivery/ operations level

Strategic risks are included in corporate level plans and objectives which direct the priorities that drive asset management and as such do not need to be considered further here.

Tactical risks affect all aspects of decision making within the asset management remit and as such need to be identified, assessed and minimised.

Operational risk relates to activities on the ground and so are managed through operational plans.

4.4.1 Risk Management Processes

There are four main steps of a risk management process:

- Risk Identification - To identify key risk exposure
- Risk Profile - Probability and severity level (assessment/evaluation)
- Risk Control and Management - Manage and control risk exposure
- Risk Reporting and Review - Monitor, review and report on progress

It will never be possible to remove all risks; some may be reduced and/or mitigated but there will be a cost aspect that must be considered as part of the decision making process.

4.4.2 The Application of Risk Management

The assessment of comparative risk is a key asset management tool. It can be used for option appraisal and selection by assisting with the assessment of:

- The comparative risks of providing differing levels of service, eg is it acceptable to fund only a minimum level of service for certain asset groups such as a ‘repair if broken’ approach.
- The comparative risk of funding works on different assets, eg is it better to fund works on streetlights as opposed to footways?
- The comparative risk of funding improvements to the network as opposed to maintenance works, eg is it better to provide additional speed control facilities or to increase response time to certain defects?

4.4.2.1 Key Risk: Future Demand

The future demands on the network by all users, is one of the main risk management areas for a highway network. The carriageway and other network assets should enable the "free passage of vehicles". With any network this is not always satisfied; this could be due to accidents or other incidents and necessary maintenance. In addition, network failures may also be responsible for impairing traffic. The network could also have insufficient capacity.

To plan and develop the network for future growth, needs and demands; factors including the following must be considered to minimise risks relating to future demand:

- The network having sufficient capacity to minimise delay and congestion
- Providing a network that is safe and reliable for all vehicles, including public transport and goods vehicles
- Providing access to all users, including people with disabilities
- Providing a network that will support urban renewal and provide benefits to the community by attracting new business
- Providing a network that will enhance the community by providing routes for employment, education, shopping, leisure, recreation and emergency access requirements
- Provide a network with low environmental impact
- Ensuring that network design and performance is suitable for usage and designed to provide an effective whole-life cost
- Provision of both on and off-street parking suitable for user needs

4.4.2.2 Key Risk: Climate Change

The effects of climate change now feature centrally in government policy. Its impact is uncertain but it is a key risk management area which needs to be considered. Climate change impacts show that the UK can expect warmer, wetter winters and hotter, drier summers with more extreme rainfall events at any time of year, accelerating increased sea level rise, and possible stronger wind speeds.

Risks from climate change include:

- Hot weather causing melting of roads, embankment subsidence, deterioration of concrete, problems with expansion joints, increase in dust levels and a reduction in skid resistance.
- Flooding which can occur from the overwhelming of impervious pavements such as roads, due to drainage capacity constraints, and from ingress by rivers and the sea. At particular risk are routes located adjacent to rivers and floodplains, although flash flooding can affect most places.
- The expected decline of cold weather and snow in the future with the consequential reduction in the salting of roads, the occasional cold-snap could cause problems if systems are unavailable or vehicle drivers become unfamiliar with such conditions.

The long lifespan of highway assets means that adaptation measures require implementation sooner rather than later. Many adaptation measures require the co-operation of third parties and it is important for local authorities, government bodies and transport providers to work together with the Environment Agency, water companies and other planning authorities to identify critical impacts and solutions and to incorporate the risks associated with climate change into the management of highway infrastructure to mitigate the effect of future adverse events when the opportunity arises.

The costs of adapting to climate change can be minimised if adaptation is built in:

- At the planning stage for new developments

- When infrastructure is upgraded
- When plans come up naturally for review
- Before organisations are forced to act by a sudden extreme climatic event(s) or mounting maintenance costs

Decision-makers should ensure climate risk management measures are sufficiently flexible and schemes can be adapted (if necessary) to manage uncertainty in future impacts. Where possible, decision-makers should avoid actions that will make it more difficult and costly to cope with future climate impacts, eg new infrastructure projects (such as storm drainage) should include a reasonable allowance for climate change risks where the costs of subsequent upgrading would be prohibitive or very difficult to engineer.

4.4.2.3 Key Risk: Network Resilience

Areas of the highway network are essential in ensuring access to key services and to maintain economic activity. Should these areas of the network become inaccessible due to planned, adverse or disruptive events, the impact can be at the least inconvenient but at most life threatening. To mitigate this risk a "Resilient Network" plan has been prepared which identifies areas susceptible to adverse climatic conditions, civil emergencies, structural or utilities failure or road traffic incidents. This network is recognised as a priority for maintenance to mitigate the risks of these routes becoming unavailable.

4.4.3 Risk based decision making

The national code of practice "Well Maintained Highway Infrastructure: A code of Practice" herein known as "the code" recommends that authorities should adopt a risk based approach to all areas of highway service delivery, including investment based on business risk. A better understanding of asset deterioration and failure rates provides an evidence base to support risk-based decision making. For example, where a footway or carriageway has the potential for high costs resulting from liability claims, investment to reduce the risk of these claims may be a cost effective option. Conversely, Surface Condition Assessment of the National Network of Roads (SCANNER) surveys may indicate where a carriageway has failed but no liability claims may ensue. This may indicate that resources could be better focused on other roads at a particular time.

4.4.3.1 Categorisation of Risks

Some general risks are shown in the following table. This demonstrates how risk affects all areas of decision making and highlights the importance of managing those risks through all asset management processes.

Table 4.1 General risks example

Risk Group	Risk	Summary Description
Political / Governance	Political / Governance	Changes in political power and policies, legal changes and unsupportive policies
	Governance	Decisions that do not define expectations, grant power, or verify performance
Financial /Economic	Economic	Changes in budget provision
	Financial	Availability of financing
	Competitive	Delays due to competition, tendering from multiple companies
	Partnership /Contractual / Supplier	Inappropriate operation, higher operation and maintenance costs; faulty construction, cost escalation and delays
	Budgets	Financial Forecasts exceed budgeted provision
Reputational Risk	Social	Major disruption
	Customer / Citizen	No customer gain, expectations not being met

	Environmental	Adverse environmental impacts and hazards
	Reputational	Expectations not met or accepted leading to loss of image
	Physical	Unforeseen difficulties
Legal /Legislation	Legislative & regulatory	Changes in legislation
	Managerial & Professional	Policy decisions inappropriate; inability to appoint staff due to no appropriate skills in the workplace
	Legal	Delays associated with the procuring and award of Contracts
	Legal / Liability	Not meeting our duty of care under various legislations.
Technology / Information	Information /Knowledge	Information needed to develop decisions not available/incorrect
	Technological	Due to engineering or design failure
Safety	Safety	Poor maintenance decisions

4.5 Stakeholder needs

With the significant constraints on what can be delivered with the available funding over and above meeting all legal requirements, while strategies and policies have been developed to support the best overall service delivery, stakeholder expectations is another key consideration in making sure the available funding is targeted to best use.

Our understanding of stakeholder requirements and expectations is one of the drivers to identify asset management objectives which this HIAMP will deliver and links with the performance framework and levels of service to demonstrate how these expectations are being managed and delivered.

Other mechanisms by which data on stakeholder expectations is collected are given in Section 5, Communications Strategy. The lines of communication available allow all stakeholders to communicate to Halton where they believe we are doing well or could do better and this is used to identify common themes or locations of particular concern as a stakeholder priority.

We are one of over 100 local authorities to take part in the National Highways & Transport (NHT) Public Satisfaction Survey. This is an annual standardised survey that asks members of the public the same questions, whether they live in Halton, Hull or Hampshire.

The NHT Public Satisfaction Survey is managed by performance management specialists, measure2improve, the NHT Network administrators. The survey is carried out on behalf of the participating local authorities by market research specialist, Ipsos MORI.

Our residents are asked for their views on our highways and transport services aligned with the following themes:

- Accessibility
- Public Transport
- Walking & Cycling
- Tackling Congestion
- Road Safety
- Highway Maintenance

The questionnaire is sent to a random sample of 3,300 of Halton's residents. Their answers are compared with the views of other members of the public across England and Scotland. It offers local authorities the opportunity to compare results, share in best practice, identify further opportunities to work together in the future and to benchmark themselves against similar authorities.

The 2021 survey showed that public satisfaction with Highways and Transport overall ranked 1st nationally (out of 111 participating authorities) with highway maintenance and road safety indicators continuing to remain in the top quartile nationally and local road safety ranked 1st nationally. Tackling Congestion continues to show the significant improvements achieved following the opening of the Mersey Gateway. Accessibility, communications and walking & cycling are ranked average. Satisfaction with Public Transport came out lowest compared to national averages.

As Halton is in a position where public satisfaction is high, it is important that is maintained and if possible improved upon so the following have been identified as stakeholder priorities for highway infrastructure based on NHT survey results

- To maintain or improve the number of highway maintenance indicators scoring in the top 10 of Halton's highest scores
- To retain the position that no Highway Maintenance Indicators appear in the lowest 10 ranking scores
- That all Key Benchmark Indicators for Highway Maintenance will be in the top quartile nationally.

4.6 Funding

The highway funding environment for all councils has changed in recent years; from an allocation directly from central government in the form of single block allocations for highway maintenance and an integrated transport block, to that of a All Capital funding is aggregated into the Single Sustainable Transport Settlement (CRSTS), which is allocated to the respective Highway Authorities by the LCRCA.This is detailed further in this section. The table and graphs below are taken from Central Government returns and LCRCA documents.

Table 4.2 Halton's Capital funding allocation (all figures £M)

Scheme Name	2023-24	2024-25	2025-26	2026-27	Total
Misc. Travel Improvements	0.043	0.045	0.046	0.047	0.181
Carriageway Inlay	0.169	0.168	0.169	0.168	0.674
Carriageway reconstruction	0.062	0.064	0.066	0.068	0.260
Carriageway Surface Treatments	0.909	1.000	1.000	1.000	3.909
Cycling and Walking Active Travel Improvements	0.174	0.150	0.150	0.150	0.624
Footway reconstruction	1.067	1.000	1.000	1.000	4.067
Buses Access Improvements	0.050	0.059	0.061	0.063	0.233
KRN maintenance	0.763	0.763	0.763	0.763	3.052
Structures	3.126	1.086	0.386	0.386	4.984
Electric Charging points	0.025	0.015	0.015	0.015	0.070
Halton Flood and Drainage - KRN including Expressways	0.067	0.069	0.071	0.073	0.280
Street lighting LED upgrade (high mast) including ITS	0.529	0.719	0.529	0.373	2.150
Bus stop shelter including RTS	0.150	0.150	0.150	0.131	0.581
Total (£M)	**7.134**	**5.288**	**4.406**	**4.237**	**21.065**

Note: The above figures are indicative only and are subject to change.

The current Government have also announced that the previous Governments commitment to distribute £8.3b over 11 years of Network North funding for road resurfacing is no longer certain and authorities should not assume the indicative allocations will remain the same. They have committed £500m for local highway maintenance in 2025/26.

4.6.1 Valuation and Whole of Government Accounts

The Government's Whole of Government Accounts (WGA) initiative was introduced to align UK Government funding with International Financial Reporting Standards (IFRS). This requires all local authorities in the United Kingdom to include the adopted highway network in their Financial Statements as a fixed asset on the balance sheet.

The objectives of the WGA are to promote greater accountability, transparency and improved stewardship of public finances. WGA objectives and procedures align closely with those of asset management.

Highway infrastructure assets are included within the financial statement as a Depreciated Replacement Cost (DRC). DRC is a method of valuation that provides the current cost of replacing an asset with its modern equivalent asset or Gross Replacement Cost (GRC), less deductions for all physical deterioration and impairment (Accumulated Depreciation).

Therefore, the difference between the GRC and DRC is the cost of restoring the asset from its present condition to 'as new'. This figure can be used as an indication of how the Highway Authority is performing over time since the larger the difference, the greater the depreciation which implies worse overall condition.

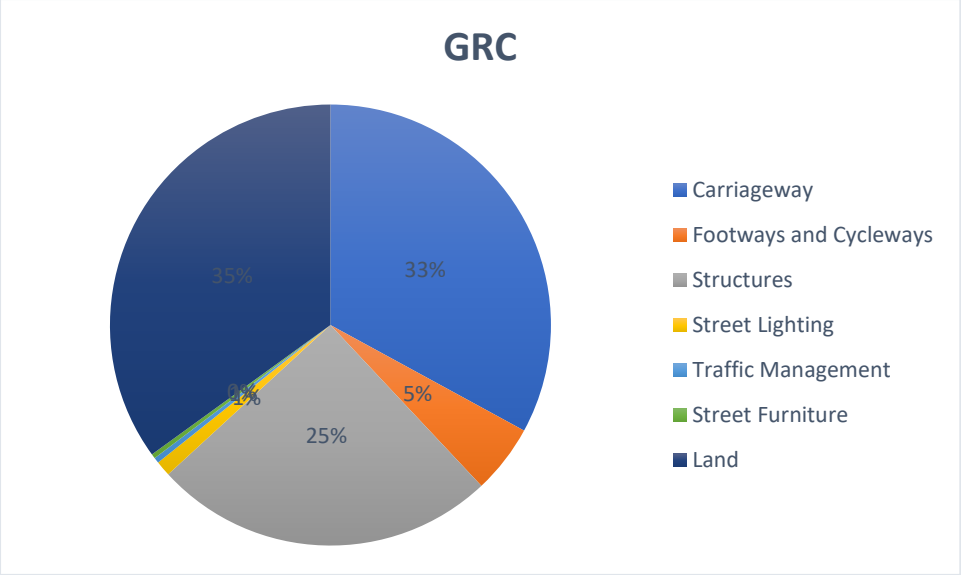
The following data is taken from the Halton 2023-24 year estimates of value, as the original CIPFA hamfig data has not been refreshed nationally a inflation factor has been added over subsequent years.

Table 4.3 Gross Replacement Cost of highway assets 2023-24

Asset	GRC £,000s
Carriageway	760,584
Footways and Cycleways	116,770
Structures	580,900
Street Lighting	25,860
Traffic Management	9,322
Street Furniture	7,696
Land	807,547
Total	**2.31Bn**

The following graph illustrates the proportions of the assets reported in the WGA for 2023-24, a regional factor is also applied automatically as part of the works .

Figure 4.4 GRC 2023-24 percentages



4.7 Investment Strategy

To realise the maximum benefit from infrastructure assets, decisions need to be taken on the most appropriate investment strategy. Investment strategies need to consider the short, medium and long term benefits of budget spending with a view to maximising value in terms of the benefits that investment will bring. In asset management terms, this means developing a data led investment strategy which will deliver the highest level of service (best performance of the Asset Management Objectives) whilst delivering the optimum balance between competing demands:

- Fulfilling statutory obligations
- Providing the optimum Level of Service
- Delivering on Stakeholder requirements
- Minimising risks
- Ensuring investment delivers long term benefits (minimum whole-life cost)

These elements are considered to build an outline long term programme that delivers the optimal investment of available funding for the short, medium and long term.

To build this investment profile, the following steps are followed:

- Identify a “long list” of locations where maintenance is being considered across all asset types

  Information from all and any relevant source should be used to establish these lists, including condition data, inspection data, third party claims, complaints, known historical issues, stakeholder groups and survey results.

- Prioritise the long list for each asset type based on alignment with asset management objectives, statutory obligations, asset hierarchy, condition & safety inspection data, works history, risk, links to other required works and cost estimate.

- Identify Short list of highest priority locations for detailed assessment and works programming based on the available budget.
- Complete scheme design for shortlist locations across all asset types in line with each asset lifecycle plan, including collection and collation of supporting data (condition, safety inspections, objectives supported, risk, Statutory obligation, site records (eg history/construction).
- Create a fully detailed annual programme of works for all works types, including:
    - Planned – major, minor, structural & preventative
    - Cyclical/routine – eg gully emptying, grass cutting
    - Reactive & Winter Service, based on historical requirements.

4.8 Asset Management Objectives

Asset Management Objectives provide alignment between business priorities, objectives and the other drivers which are detailed above with deliverable benefits on the ground. These objectives are a set of high level statements which relate to infrastructure specific outcomes which align with those business priorities. These objectives also need to be quantifiable so that the level of service achieved and required can be measured to demonstrate the extent to which meeting those objectives is achieved through the performance framework (Section 7).

We have developed five Asset Management Objectives for this HIAMP which are detailed below. Each is identified in a summarising statement which is explained in more detail to provide an idea of the scope of that objective.

1. To provide a highway network that is safe for all users

Everyone should expect to be able to use the highway network safely, not just pedestrians and motorists, but other groups such as cyclists, horse riders and vulnerable users (eg the elderly or disabled). The requirement and expectation of a safe network runs through all aspects of good stewardship of the highway network.

2. To ensure the highway network is fit for purpose

This objective focuses on the functionality of the network. Highway infrastructure exists to serve a specific purpose so it is important that purpose remains relevant and that the assets which serve that purpose are well maintained.

3. To support stakeholder requirements and expectations

The highway network only exists because of the stakeholders which use it. In consideration of this it is recognised that the network needs to do more than just provide functionality. Where possible it should also do so in a way that satisfies those it is designed for.

4. To support the decarbonising agenda

In recent years there has been an increasing focus on the needs of the environment, which have been recognised at national level by the National Infrastructure Strategy and subsequent policy paper “De-carbonising Transport: A Better, Greener Britain”. The importance of the de-carbonising agenda is also recognised by the goals and aspirations of

the LCRCA. This focus on carbon reduction and modal shift is of such importance that it is only appropriate that this forms one of the primary objectives of this HIAMP.

5. To support the objectives of the Liverpool City Region Combined Authority

As a constituent member of the LCRCA, our ambitions are aligned regionally with those of our neighbouring Authorities to deliver the Transportation function for the whole region. The business priorities and objectives for the wider region can only be delivered if all its members support that ambition.

Success in delivering on these objectives is defined as the level of service. This is measured through the Performance Framework in Section 7 which links performance measures and indicators to each of these objectives to show what the current level of service is, how this has changed over time and what the future targets are to improve on these priority areas.

5 Communications Strategy

The Halton Highway Infrastructure Assets Management Communications Strategy has been developed to raise both awareness and understanding of our approach to highways asset management. This provides the framework of all work that goes into maintaining and improving the borough's roads, footways, structures and street furniture, including lighting. Our Communications Strategy is to ensure that all communications are timely, informative, positive, and accessible.

5.1 Best practice guidance

This communications strategy has been produced in line with the DFT's recommendations relating to communications within UKRLG/HMEP Highway Infrastructure Asset Management Guidance Document.

The Guidance states that:

> *"Relevant information associated with asset management should be actively communicated through engagement with relevant stakeholders in setting requirements, making decisions and reporting performance…"*
>
> *"Highway defects can be a major area of requests for service, complaints or claims to an authority. Processes must therefore be in place to deal with these communications and provide high quality reporting and feedback. It should be made easy for the public to make a report and track progress…"*

This communications strategy details how we will use our channels to ensure effective and accessible communications of highway infrastructure updates.

5.2 Communications approach

The purpose of this strategy is to support our highways team in informing and engaging with community residents, businesses, council partners, visitors, and other stakeholders about activity on the highway network and the policies supporting that work.

Those activities include highways maintenance, capital works and emergency repairs.

The communications strategy will help us to:

- Gain political commitment and senior officer support for effective and efficient asset management
- Inform stakeholders and communities about how Halton spends their money on maintaining and improving the highways network using the best methods
- Engage and listen to stakeholder and community concerns about the highway network and feedback progress on a regular and timely basis
- Promote how stakeholders and communities can provide feedback on Halton's infrastructure assets and services
- Demonstrate the positive work being carried out to maintain and improve the network
- Communicate with businesses, partners, community groups and other organisations as well as community residents
- Demonstrate that people's views matter and make a difference

This strategy is a way of describing how we manage our highway assets and how our approach is actively communicated through engagement with all relevant stakeholders to set requirements, make decisions and report performance.

5.3 Who we will communicate with

A wide range of stakeholders are impacted by highway infrastructure works. Individuals, organisations or groups could be affected by our policies and actions and are all stakeholders of the highway network. Managing the expectations of each stakeholder and meeting their needs is vital and plays a key part in asset management.

Given the wide variety and number of highway stakeholders, we use various channels to engage with them and their individual requirements are managed accordingly.

Key stakeholders include:

- Central Government – HM Treasury, Department for Transport and other departments that have an interest through policy, legislation and funding
- Halton's elected members
- Halton's residents and businesses
- None Halton residents and Businesses
- Utility providers
- Parish Councils
- Emergency services
- National Highways
- Representative groups; disability or access
- Interest groups; walking and cycling, youth council, environmental and equine
- Seldom heard; elderly, travellers, disadvantaged
- Liverpool City Region Combined Authority
- Neighbouring local authorities
- Transport providers (such as taxi, bus or coach operators)

5.4 What we will communicate

We will communicate the following to highway stakeholders:

- Real-time information on planned roadworks and activity affecting the highway network
- Longer-term projects and the policies and funding that support them
- Unexpected/emergency disruption to the network such as road closures once known which could be due to accidents, extreme weather or major utility faults

5.5 Communication channel

5.5.1 How we will communicate with you

We use a variety of tools to communicate highway infrastructure updates with stakeholders and the local community. For details about how **you can communicate with us**, please see Section 2.9.2.

Our website, www.halton.gov.uk, is the primary source of information for our different audiences. Within the site a dedicated section ('Bridge, Travel and Roads') holds the key information for highway infrastructure. The following sub areas can be found in this section:

- Traffic alerts
- Bridge cameras
- How to report a road or street issue
- Gritting

- Blue badge and parking bays
- Parking
- Cycling and walking routes

In addition, information is cascaded via press releases held on our online newsroom and issued to the local media, including the Liverpool Echo, Runcorn and Widnes World, BBC Radio Merseyside. The fortnightly 'News in Brief' e-bulletin is used to cascade information to elected members and staff. The term-time school circular is used to brief head teachers and teaching staff. Where required, in-depth briefings are offered to elected members. We also ensure that where possible that the contact centre staff have the information they need to answer questions from you.

Our corporate press office coordinates all proactive and reactive media activity. The Executive Board Member for Transportation is our main spokesperson, supported by senior officers as appropriate.

Table 5.1 below details the different channels of communication that we use to engage with stakeholders. Communication and engagement is two-way regarding highway infrastructure matters (ie both Halton and all stakeholders can report issues and updates across the borough).

Table 5.1 Channels of communication

Communication Channel	Aim	Details
Website	To provide a hub for accurate information about highway infrastructure. This includes information about planned works, longer-term projects and emergency disruption.	Our webpage provides a copy of the current HIAMP. Website URL: www.halton.gov.uk We also feed known roadworks into https://one.network
Social media	To publicise highway infrastructure updates. This may include reporting of existing issues, expected issues or upcoming consultations.	Use of social media to reach online audiences. Ongoing and activity-related monitoring of social media commentary. We use Twitter and Facebook to provide updates. • Twitter: @HaltonBC • Facebook: www.facebook.com/haltonbc
Media relations	To share relevant highway infrastructure information with media outlets in the borough to ensure stakeholders are made aware of ongoing or upcoming issues/updates.	All media activity developed and delivered by our communications team. Media outlets will include: • Liverpool Echo • Runcornandwidnesworld.co.uk • InsideHalton.com • Cheshire Live • BBC Radio Merseyside • Greatest Hits Radio North West
INSIDE Halton Magazine	Quarterly magazine used to provide information on the Borough to stakeholders including highway infrastructure updates.	Inside Halton will complement other channels of communication to maximise our outreach.
Public Information Event(s)	To provide and raise awareness of highway infrastructure updates (including new proposals) and obtain feedback from stakeholders.	Face to face event(s), to provide detailed information about a particular highway scheme.
Email updates	To provide road work information updates.	• Stakeholders can sign up to the email service via the 'Sign Up for Traffic Alerts' button on our website. • You can sign up for traffic alerts via this link: https://one.network/accounts/#sign-up

Communication Channel	Aim	Details
Phone	A customer phoneline for highways emergencies, traffic signal issues or for other queries.	• Customer phoneline: 0303 333 4300 • More information about reporting road issues can be found here: www3.halton.gov.uk/Pages/traffic/Report-it.aspx
Email	For reporting highways or lighting issues.	• Highways issues: highways@halton.gov.uk • Street lighting issues: Street.Lighting@halton.gov.uk
Contact us form	For reporting any other issues you may have.	• Contact us form: webapp.halton.gov.uk/GeneralEnquiry

5.5.2 How can you communicate with us?

Social media: Our official Twitter and Facebook accounts are monitored daily, with any questions raised through these channels being shared with the appropriate team, to provide a prompt response.

Phone: Call the customer phoneline for highways emergencies, traffic signal issues or for other queries. Our number is 0303 333 4300.

Email: To report a highways issue, our highways email address is Highways@halton.gov.uk or to report a street lighting issue, our street lighting email address is Street.Lighting@halton.gov.uk.

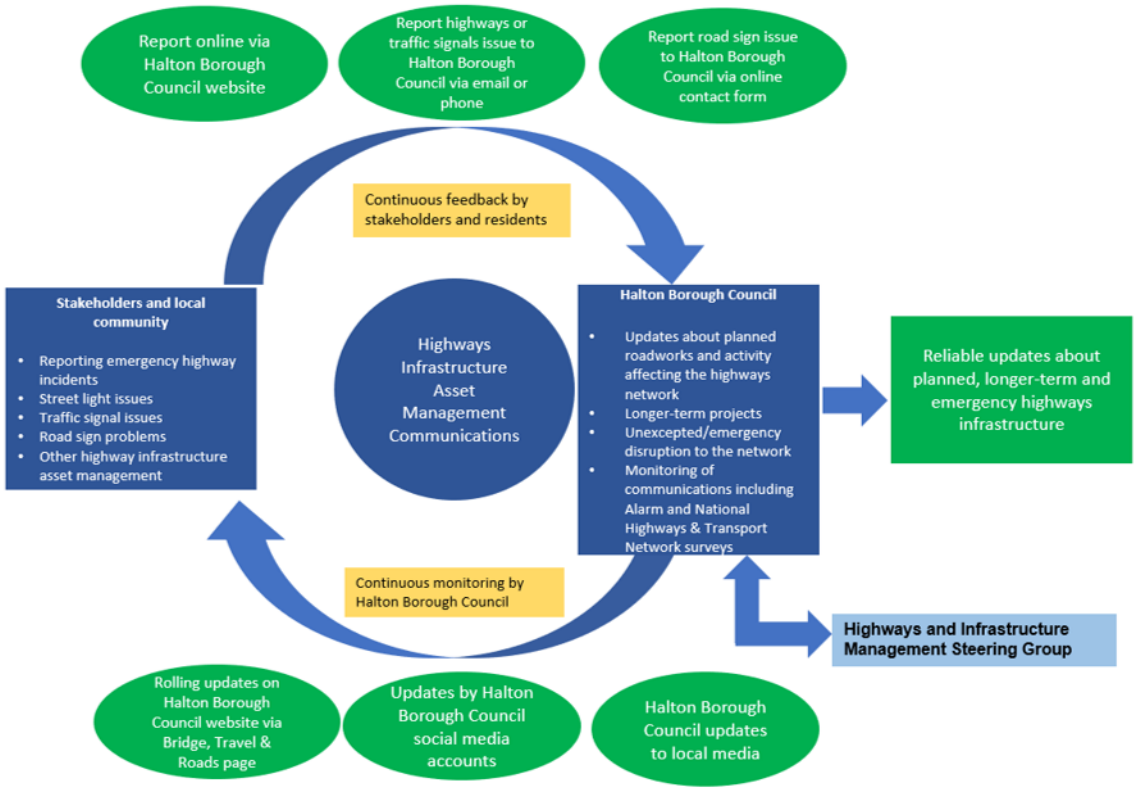
Contact us form: Contact us online using our online form for any other issues. The contact us form can be accessed at: webapp.halton.gov.uk/GeneralEnquiry

5.5.3 Feedback process

Communication of highway infrastructure updates is a two-way process. We ensure updates are available through our channels and encourage you to get in touch with us as explained above. The HTP will be engaged regularly, and we will continue to report and monitor highway infrastructure issues.

This process is displayed in Figure 5.1 below.

Figure 5.1 Feedback process



5.5.3.1 The Highways and Transportation management team is planned but not yet formed, with its meeting schedule to be confirmed.

Governance of this HIAMP is primarily through the HTP which aims to meet bi-annually and review emerging aspects such as:

- Review how highways infrastructure matters are currently reported
- Review how effectively the methods for reporting highways infrastructure matters are publicised
- Review ways of improving methods for reporting highways infrastructure matters

5.5.3.2 How are we measuring up?

Evaluation of this strategy will be carried out on an ongoing basis to understand, monitor and improve how effective our communications are. The following methods help us do that:

Media relations: Monitoring how media outlets report highway infrastructure issues following information provided by us (through press releases or other).

Social media analytics: Monitoring the reach of our posts; number of engagements (likes, shares, comments) and the tone of comments. We will look to monitor the effectiveness of our tone and tailor messages to ensure information is shared accessibly and effectively to enable a maximised audience.

Website analytics: Monitoring the number of visitors to our website and the source of visitors (ie whether visitors to the site were redirected from social media posts, news articles or other sources).

Customer complaints (via phone, email and contact us form):

- Collating the number of complaints specifically related to highways generally
- Collating the number of complaints specifically related to how easy or difficult stakeholders find it to report highways issues
- Collating the number of complaints specifically related to how effectively Halton communicates and reports on highway updates

Highways & Transport Network public satisfaction survey: Increased satisfaction with highway condition and increased satisfaction with highway maintenance.

Other surveys: We will monitor other relevant national, regional and local surveys related to the performance of highways and highway reporting mechanisms. This includes the Annual Local Authority Road Maintenance (ALARM) Survey.

6 Data Management Strategy

Data management is fundamental to the overall asset management process. To apply an asset management approach, there are three main types of data that are required:

- **Inventory**
  Details of the number, location, size and age for each asset
- **Condition**
  What state the asset is presently in
- **Usage**
  Residual Life based on usage of asset against expected lifespan

These records enable us to:

- Monitor and report on the condition of the highway network
- Assess the expected life of assets or their components
- Assess current levels of service and develop targets
- Model future maintenance options and identify future investment strategies
- Develop long term forward work programmes and associated budget requirements
- Carry out valuation assessments of each of the assets and calculate depreciation

Effective asset management is not just about the assets to be managed, it is about the systems and business processes used to manage those assets. As such, there is a need to regularly review processes, storage and usage of the data.

6.1 Asset Groups

Highway infrastructure is comprised of a wide range of different assets from dual carriageways to litter bins. Organising a management structure around each individual type of asset would be impractical and confusing so assets are grouped into categories. Asset Groups bring together assets in which form part of these larger systems which fit with management processes.

Table 6.1 gives an indication, but not an exhaustive list, of the assets included in each of Halton's asset groups.

Table 6.1 Halton's highway infrastructure asset groups

Carriageways, Footways, Footpaths, Cycleways and Rear Alleys	
	Carriageways
	Footways, Footpaths, Cycleways and Alleyways
	Public Rights of Way (PRoW)
	Kerbing/edging channels
	Covers, gratings, frames & boxes
	Safety fences and barriers
	Road markings & studs
Structures	
	Bridges
	Culverts
	Retaining walls
Electrical equipment	
	Street Lighting
	Illuminated Road Signs and Lit Bollards
	Traffic Signals
	Variable Message Signs
	Automatic Number Plate Recognition
	CCTV
	Speed Activated Signs

Street Furniture	
	Traffic signs
	Street name plates
	Safety fences and barriers
	Bollards
	Cycle racks
	Benches
	Litter bins
Horticultural Assets	
	Verges
	Trees & Hedges
	Fences and barriers

Figure 6.1 Different assets found on a typical stretch of rural highway

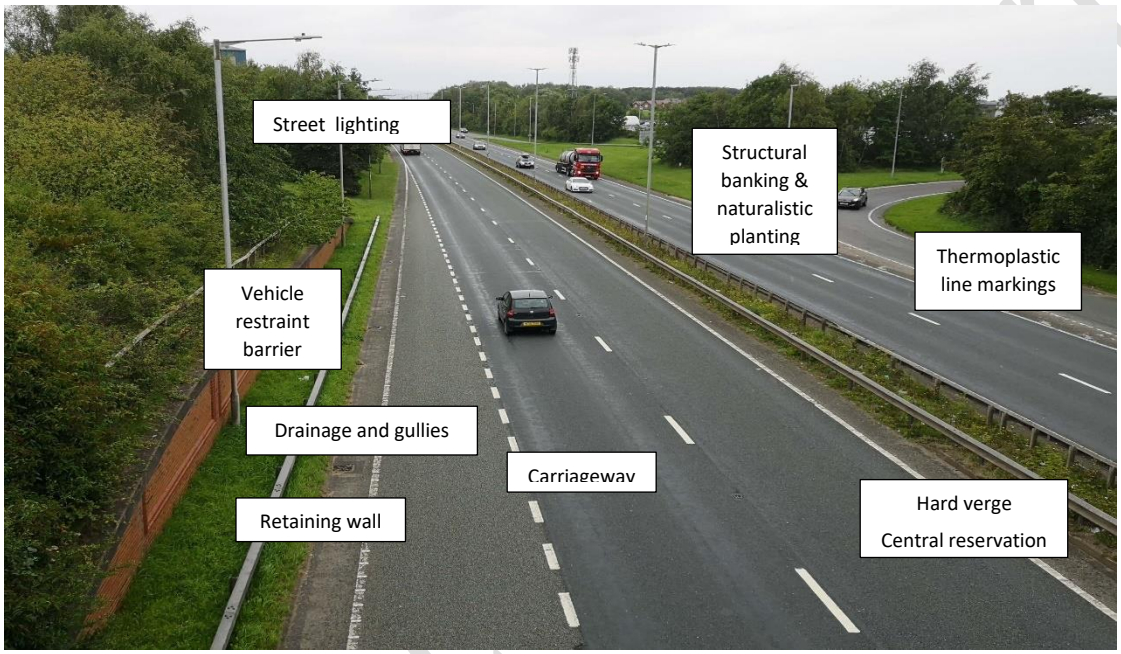
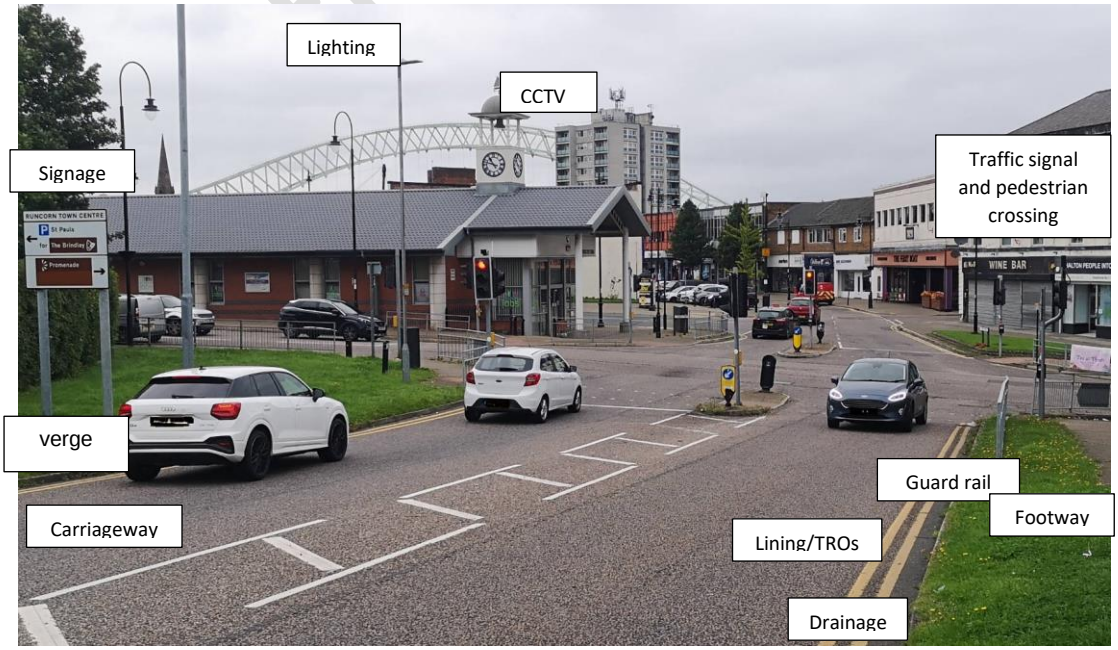


Figure 6.2 Different assets in a typical pedestrian zone



In the Pedestrian zone there is a range of street furniture to be maintained including map boards, litter bins, cycle parking, bollards and street trees.

A typical bus stop consists of raised kerbing, a shelter, real time information, timetable and a flag.

The term 'footway' is used in this document as a generic term and covers the following:

- Footways - paths adjacent to the carriageway
- Footpaths - paths which are located away from the carriageway and are separated from it by a verge or are completely independent of a carriageway
- Cycleways - in most cases, wide shared footways or footpaths that have been designated to allow for use by cyclists
- Alleyways - usually adjacent to terrace properties around town centres
- Public Rights of Way (PRoW) – this term includes footpaths, bridleways, byways open to all traffic (BOAT) and restricted byways. Many of these, especially in the urban areas, have metalled (tarmacked) surfaces and are included in the above categories.

6.2 Asset Hierarchies

The concept of a road maintenance hierarchy is the foundation of a coherent, consistent and auditable maintenance strategy. This hierarchy should reflect the needs, priorities and actual use of each road in the network and will be used as the main tool in determining policy priorities. Maintenance standards, targets and performance objectives link to the hierarchy.

Halton has developed a process for defining the hierarchy of Carriageways and Footways in accordance with Section A.4.3 of The Code. This has been based on traffic flows for roads and defined priorities for footways and cycleways. In addition, a further assessment has been undertaken to consider the type of road, the role of the route in a local context, and a consideration of functional factors that may influence how the road is maintained.

6.2.1 Carriageway Hierarchy

Table 6.2 below is based on Table 1 in Section 4.3.11 of The Code. Note that we have not adopted the last category, 'Minor Road' because the definition only applies to a very small number of roads and Motorways are the responsibility of National Highways.

Table 6.2 Road Hierarchy

Category	Hierarchy Description	Type of Road General Description	Description	Example
1	Motorway	Limited access motorway regulations apply	Routes for fast moving long distance traffic. Fully grade separated and restrictions on use.	M56 M62
2	Strategic Route	Trunk and some Principal 'A' 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.	Runcorn Expressway Watkinson Way
3a	Main Distributor	Major Urban Network and Inter-Primary Links. Short - medium distance traffic	Routes between Strategic Routes and linking urban centres to the strategic network with limited frontage access. In urban areas speed limits are usually 40 mph or less, parking is restricted at peak times and there are positive measures for pedestrian safety.	Kingsway

Category	Hierarchy Description	Type of Road General Description	Description	Example
3b	Secondary Distributor	B and C class roads and some unclassified urban routes carrying bus, HGV and local traffic with frontage access and frequent junctions	In residential and other built up areas these roads have 20 or 30 mph speed limits and very high levels of pedestrian activity with some crossing facilities including zebra crossings. On-street parking is generally unrestricted except for safety reasons. In rural areas these roads link the larger villages, bus routes and HGV generators to the Strategic and Main Distributor Network.	Liverpool Road Runcorn Road
4a	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.	Lowerhouse Lane Halton Road
4b	Local Access Road	Roads serving limited numbers of properties carrying only access traffic	In rural areas these roads serve small settlements and provide access to individual properties and land. They are often only single lane width and unsuitable for HGVs. In urban areas they are often residential loop roads or cul-de-sacs.	Terrace Road Lindfield Close
	Minor Road	Little used roads serving very limited numbers of properties.	Locally defined roads.	N/A

Source: UKRLG, 2016, "Well-managed Highway Infrastructure: A Code of Practice"

The carriageway hierarchy provides categorisation for the purposes of asset management because it considers key aspects of the network which make these roads homogenous in aspects such as traffic load, construction and risk to users. In addition, two additional network definitions exist, the Key Route Network and Resilient Network as detailed below. These networks exist because of their importance to specific aspects of the highway, namely transportation needs (movement around the network) and resilience in terms of access to the network. Because of the importance of these aspects, these two network definitions exist in addition to the hierarchy definition and are considered alongside the asset class as part of the overall strategy for managing the network.

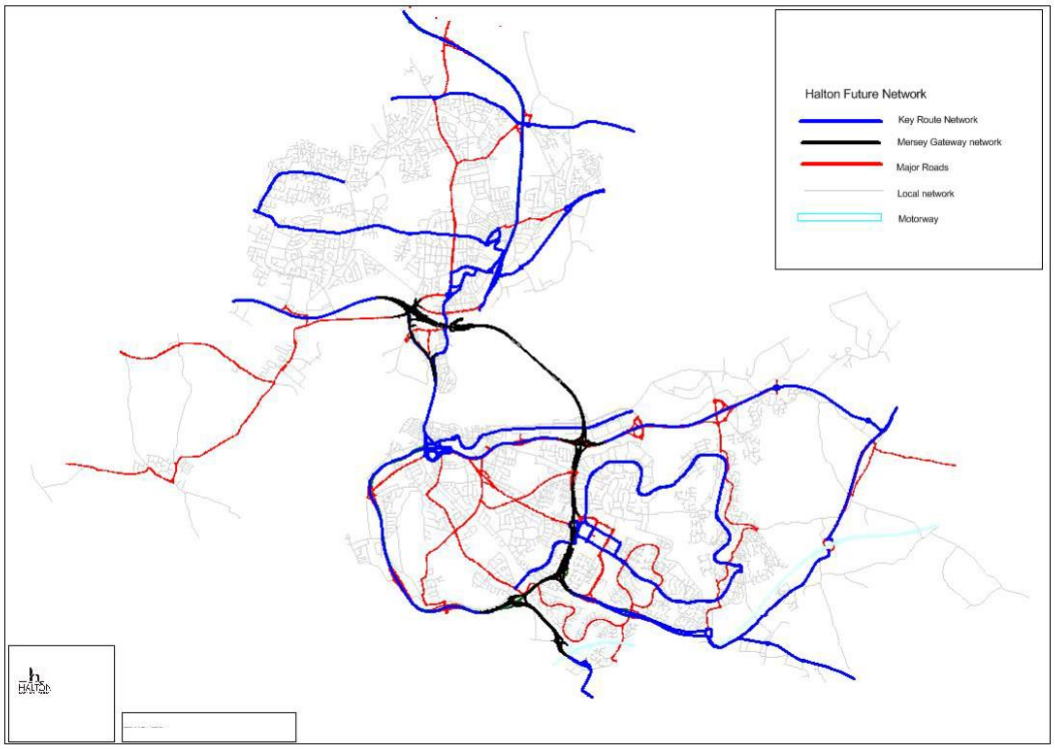
6.2.2 Key Route Network (KRN) for the LCRCA

The KRN is a network of strategically important highway routes within the city region, for which the LCRCA has a range of defined highway and traffic powers and responsibilities.

The KRN is based on the Primary Route Network (PRN) and the freight, public transport and key distributor networks defined in the statutory Merseyside and Halton Local Transport Plans from 2011.

Figure 6.3 below shows the major roads in Halton including the KRN and the Mersey Gateway Network and how they fit into the wider Halton Network.

Figure 6.3 Major roads in Halton including the KRN and Mersey Gateway Network



Note that the KRN does not include the Mersey Gateway, and its approach roads, (however these are shown on the above plan for completeness) which are excluded from the LCRCA's remit under the provisions of the establishing Order.

Figure 6.4 The Mersey Gateway Bridge

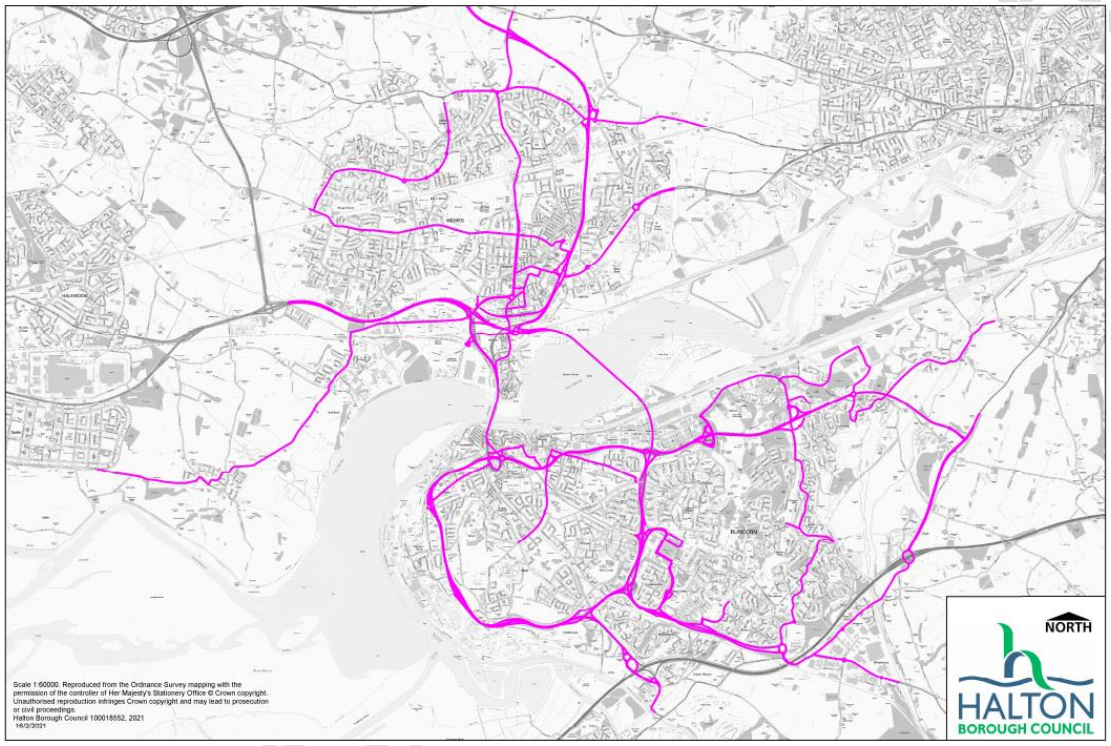
Source: Merseylink

6.2.3 The Resilient Network

Section A4.4 of The Code lays out the requirement to define a Resilient Network. In line with that guidance we have defined our resilient network. We identified areas susceptible to adverse climatic conditions, civil emergencies, structural or utilities failure or road traffic incidents. This network is identified as a key risk to service delivery and is given priority to maintain economic activity and access to key services during extreme weather and other disruptive events.

To ensure the resilient network is fully available and accessible it is important to minimise the disruption caused by closures. Where works are required, these are combined wherever possible so that planned, whole, edge to edge highway maintenance on that part of the network is undertaken.

Figure 6.5 The Resilient Network



6.2.4 Footway Hierarchy

Halton's footway hierarchy is based on Sections A.4.3.14, A.4.3.15 and A.4.3.16 of The Code as shown in Table 6.3 below. The 'Minor Footways' category has not been adopted due to the very limited number of footways which fall into this category. As explained above, categories for Cycleways, Alleys and PRoWs are included here as these assets are considered part of the same asset class as footways.

Table 6.3 Footway Hierarchy

Category	Category Name	Description
1(a)	Prestige Walking Zones	Very busy areas of towns and cities with high public space and streetscene contribution.
1	Primary Walking Routes	Busy urban shopping and business areas and main pedestrian routes.

Category	Category Name	Description
2	Secondary Walking Routes	Medium usage routes through local areas feeding into primary routes, local shopping centres etc.
3	Link Footways	Linking local access footways through urban areas and busy rural footways.
4	Local Access Footways	Footways associated with low usage, short estate roads to the main routes and cul-de-sacs.
	Cycleways	Cycleways are usually either provided as part of a shared footway or provided as a cycle lane within the carriageway.
	Alleys	These are usually between terrace houses, many of which are now gated.
	Public Rights of Way (PRoW)	There are many types and classifications of these. See Appendix 2 for more detail

6.3 Asset Inventory

The highway asset inventory is the register of the infrastructure assets that exist on the highway network. These assets form the starting point from which the asset management process is derived; only with this information can a consistent management approach be achieved.

6.3.1 Carriageway Inventory

The carriageway asset makes up the largest proportion of the highway asset overall based on value. It comprises all the elements that make up the "fabric" of the road from the foundation to the surface construction. The table below summarises the length of carriageways we are responsible for. The construction of carriageways varies considerably and relatively little is known about the original construction of many parts of the older network.

Table 6.4 Carriageway inventory table

Road classification	Total (Km)	Urban (Km)	Rural (Km)
A	117.7	33.3	84.4
B	19.9	17.8	2.1
C	61.1	47.3	13.8
Unclassified	406.8	385.2	21.6
Total	605.5	483.6	121.9

6.3.2 Footway Inventory

We hold detailed and accurate information about footways, footpaths and cycleways. However, data for alleyways is limited to location and length at present.

The table below summarises the length of these assets. The construction and surface type of footways and footpaths vary considerably. However, accurate details of the surface types are recorded, which in turn leads to reasonably accurate estimates of the likely type of construction. The width of this asset class is estimated to be on average 1.8 m, based on Footway Network Surveys (FNS) and measurements from Ordnance Survey Master Maps. However, cycleways are a minimum of 3m wide and prestige walking areas in the Town Centres are up to 12m wide.

Table 6.5 Footway inventory table

Asset Hierarchy	**Total Length in** km
1a – Prestige Walking Areas	2
1 – Primary Walking Routes	34
2 – Secondary Walking Routes	46
3 – Link Footway and Footpath	205
4 – Local Access Footway & Footpath	458
Alleys	19
PRoW	74*
Total	**838**

*This figure is reported in Halton's Rights of Way improvement Plan 2009-2019 and includes some PRoWs which are double counted as they appear in urban areas and are included under other categories.

6.4 Asset Condition

Maintaining the condition of the carriageway network is a continuous activity – the asset does not remain "new" for long once the road becomes subject to traffic, the weather and other factors. A clear understanding of the condition of highway assets (and so an understanding of the remaining life it has) can help to direct maintenance programmes, supporting investment strategies to ensure that best use is made of available resources.

6.4.1 Carriageway Condition

The condition of the principal and non-principal classified network is assessed through annual Surface Condition Assessment of the National Network of Roads (SCANNER) surveys, which are currently mandatory for all Highway Authorities in England. We have also trialled Annual Engineering Inspections (AEI) and surveys from GAIST and continues to investigate alternatives to provide the best available information on carriageway condition.

SCANNER surveys are carried out using independently accredited/calibrated vehicles, that measure a range of road condition parameters. These measurements are then processed in the Pavement Management System (PMS) which is a computer software programme that creates a Road Condition Index (RCI) score for every 10 metre sub-section of the network. These are displayed on a map as Red, Amber or Green:

- **Red**
  The worst condition. Failure of the asset in part or full, with little or no residual life. Major maintenance works are required at a high cost.

- **Amber**
  Average condition. The asset is in a transitional state, possibly showing signs of distress and degradation. Some form of maintenance works is required to avoid continuing deterioration to a red state.

- **Green**
  Near new status. The asset has a good residual life and is structurally sound with little or no signs of deterioration.

The whole classified network (A, B and C lass roads) is surveyed through a 2-year alternating direction cycle; with 100% coverage of one direction each year. As the survey is carried out nationally, the results can also be used to benchmark our performance against other authorities.

The condition of the unclassified network is assessed through annual Coarse Visual Inspections (CVI). These surveys are carried out by accredited inspectors from a slow-moving vehicle with the identified carriageway defects being recorded electronically on a Data Collection Device (DCD). The data is exported from the DCD into a UKPMS for processing. The entire unclassified network is covered through a 3-year rolling programme.

6.4.2 Footway Condition

Maintaining the condition of the footway, footpath, cycleway and rear alley network is a continuous activity. Their life generally tends to be longer than that of carriageways because these are not subject to the same traffic loading. Nevertheless, a clear understanding of the condition of the network (and the amount of residual life it has) helps to direct maintenance programmes and ensure that the best use is made of limited resources.

The condition of these assets is assessed through the FNS. These are walked inspections by independent accredited surveyors who record, as a minimum, location, defect type and extent. We have carried out a more detailed level of this survey; also capturing length, width and surface types. This data is loaded into the PMS for processing, allowing for network comparisons and maintenance strategies to be formulated.

To ensure the condition of all footways is accounted for, any gaps in the FNS data coverage is assessed using data from routine safety inspections. The continued use of FNS and other surveys is currently under review.

6.5 Asset Data Systems

All highway condition data and historical maintenance data is stored in several asset data systems, including:

- “Mayrise Highway Management Module”
- “Horizons GIS Platform & MARCHpms System”
- Computer drawings
- Geographic information system
- Mapping drawings

The XAIS XA Asset Management system is also currently being trialled as part of our aim for continuous improvement in the adoption of asset management processes.

Halton also has historical records held over several systems and formats. These can be interrogated to find dates of past maintenance interventions, including treatments, dates and costs (this data is available from approximately 2007). Access to this information adds significant value when identifying future works requirements by providing context in terms of how problems have been dealt with in the past, details of the asset’s components or construction and how successful previous interventions have been.

6.5.1 Action Plan

There is a significant amount of work to be done to improve the information about the type of construction of the highway network. In addition, the condition surveys carried out annually only provide information about the surface condition of the network and little about the structural condition. It is also equally important to bring all this information centrally and in consistent, future-proof formats.

7 Performance Framework

To assess how the implementation of this HIAMP progresses over time, mechanisms are needed to measure the performance against the asset management objectives. These measures can be used to assess past and current performance as well as providing a basis for setting targets for future performance over the life of this HIAMP.

7.1 Future Demand

Future demand for highway infrastructure needs to align with known influences and relate to Halton's vision. Changes in our ambitions must also consider stakeholder feedback and expectations. Because of this, the future demands that are likely to be placed on the highway network need to be accounted for when defining future levels of service. For example, increased use of heavily used routes will have the effect of accelerating deterioration, whereas the construction of new routes means that other routes will carry lower loads and so are likely to last longer.

The future demands on the network by all users, is identified by the Strategy as one of the highway networks key risks (Section 4.4.2.1).

The future usage and demands that could become influential include:

- Traffic growth
- Climate change
- Population growth in the area
- Legislation
- Changes in technology

To plan and develop the network for future growth, needs and demands necessitates consideration of many factors including the following:

- The network having sufficient capacity to minimise delay and congestion
- Providing a network that is safe and reliable for all vehicles, including public transport and goods vehicles
- Providing access to all users, including people with disabilities
- Providing a network that will support urban renewal and provide benefits to the community by attracting new business
- Providing a network that will enhance the community by providing routes for employment, education, shopping, leisure, recreation and emergency access requirements
- Providing a network with low environmental impact
- Providing a network designed and planned form climate change scenarios which may include mitigation scenarios
- Ensuring that network design and performance is suitable for usage and designed to provide an effective whole-life cost
- Providing both on and off-street parking suitable for user needs
- Provide a network which can cater for new technologies efficiently

7.2 Levels of Service

The International Infrastructure Management Manual describes levels of service as the key business driver that influences all asset management decisions, and therefore are linked to the Asset Management Objectives defined in section 4.8, copied below here for reference.

1. To provide a highway network that is safe for all users
2. To ensure the highway network is fit for purpose
3. To support stakeholder requirements and expectations
4. To support the decarbonising agenda
5. To support the objectives of the LCRCA

Information on the Levels of Service being provided is required over time to demonstrate how past investment has impacted the current service provided by Halton, and to allow future targets to be defined. By linking these measures to asset management objectives, the performance of investments can be shown in terms of how that investment is supporting wider business priorities and objectives.

7.3 Performance Measures

Performance measures are used to monitor our progress in meeting the target Level of service over time by measuring actual performance and linking those measures to the Asset Management Objectives. Listed below are various actions which we undertake to support the asset management objectives and the performance measures in place to monitor those actions. In some cases, the same action supports more than one objective.

7.3.1 Measures to provide a highway network that is safe for all users

The following actions are undertaken and monitored to support network safety:

- Routinely inspect highways at set frequencies
- Respond to any reported highway defects in line with the Highway Safety Inspection Policy
- Routinely inspect structures (bridges, culverts and retaining walls) at set frequencies
- Routinely inspect electrical equipment (street lighting, illuminated road signs and lit bollards, traffic signals, variable message signs, automatic number plate recognition, CCTV and speed activated signs)
- Routinely inspect for safety defects street furniture (traffic signs, street name plates, safety fences and barriers, bollards, cycle racks, benches, and litter bins)
- Routinely inspect horticultural assets (verges, trees & hedges and fences and barriers)
- Attend any occurrence or incident so serious as to render the highway unusable or pose an immediate risk that we are aware off.
- Follow the Winter Maintenance Plan

The following Policy, Planning and Transportation Local Indicators (PPT LI) are used to monitor this objective:

Table 7.1 Safe Network Performance Indicators

Reference	Indicator Name
PPT LI 06	Number of people killed or seriously injured (KSI) in road traffic collisions (5 Year average)
PPT LI 07	Number of children under the age of 16 killed or seriously injured (KSI) in road traffic collisions (5 Year average)
PPT LI 10	Damage to roads and pavements (% above intervention levels) repaired within 24 hours.

7.3.2 Measures to ensure the highway network is fit for purpose

The following actions are undertaken and monitored to support network fitness for purpose:

- Routinely inspect highways at set frequencies
- Respond to any reported highway defects in line with the Highway Safety Inspection Policy
- Routinely inspect structures (bridges, culverts and retaining walls) at set frequencies
- Routinely inspect electrical equipment (street lighting, illuminated road signs and lit bollards, traffic signals, variable message signs, automatic number plate recognition, CCTV and speed activated signs)
- Routinely inspect for safety defects street furniture (traffic signs, street name plates, safety fences and barriers, bollards, cycle racks, benches, and litter bins)
- Routinely inspect horticultural assets (verges, trees & hedges and fences and barriers)
- Effectively manage street works and abnormal loads across our network
- Plan street works to minimise disruption where possible, this is included within the permit scheme

The following performance measures are used to monitor this objective:

Table 7.2 Fit for Purpose Performance Indicators

Reference	Indicator Name
PPT LI 11	Percentage of network where structural maintenance should be considered:
	130-01 principal roads (Previously BVPI 223)
	130-01 non-principal roads (Previously BVPI 224a)
	130-02 unclassified roads (Previously BVPI 224b)
PPT LI 13	% of footpaths and Public Rights of Way (PROW) which are easy to use.

7.3.3 Measures to support stakeholder requirements and expectations

The following actions are undertaken and monitored to support stakeholder requirements and expectations.

- Continue to review our maintenance hierarchy to ensure that the standards of maintenance are fit for purpose with the usage and type of road
- Make the highway infrastructure asset management policy visible and accessible to all staff. Senior decision-makers and all relevant staff have been briefed on the asset management policy and strategy
- Utilise National postal survey of random Halton residents to capture customer service demands and reporting

The following NHT Key Benchmark Indicators (KBI) and Highway Maintenance Benchmark Indicators (HMBI) are used to monitor this objective.

Table 7.3 Stakeholder Expectations Performance Indicators

Reference	Indicator Name
NHT KBI 23	Condition of Highways
NHT KBI 24	Highway Maintenance
NHT KBI 25	Street Lighting
NHT HMBI 01	Condition of Road Surfaces

7.3.4 Measures to progress the decarbonising agenda

The following actions are undertaken and monitored in relation to the decarbonising agenda.

- Use preventative maintenance techniques, as part of life cycle planning techniques where possible. These have lower costs and therefore make the best use of funding by intervening early to avoid costly deterioration of the network and further build-up of backlogs
- Where cost effective, adopt practices that minimise the disposal of waste materials to landfill

The following NHT Theme (numbered) and Accessibility Quality Indicator (ACQI) performance measures are used to monitor this objective.

Table 7.4 Decarbonising Agenda Performance Indicators

Reference	Indicator Name
NHT 03	Public Transport Theme
NHT 04	Walking/Cycling Theme
NHT ACQI 25	Electric Vehicle Charging Points

While actions can be taken to support these indicators, delivery of highway infrastructure elements forms only part of the picture so while these indicators are included here, success in the delivery of targets can only be addressed by wider investment and maintenance of the active travel transportation system.

7.3.5 Measures to support the objectives of the Liverpool City Region Combined Authority

The following actions are undertaken and monitored to support the LCRCA's objectives.

- Support delivery of the Combined Authority Transport Plan (2019)
- Support delivery of the Local Journeys Strategy (2017)
- Support delivery of the Local Cycling and Walking Infrastructure Plan (2018)
- Support delivery of the Rights of Way Improvement plan (2018)

The following NHT KBI performance measures are used to monitor this objective.

Table 7.5: Regional Authority Support Performance Measures

Reference	Indicator Name
NHT KBI 11	Pavements and Footpaths (overall)
NHT KBI 13	Cycle routes and facilities (overall)
NHT KBI 15	Rights of Way (overall)

As with the performance measures supporting the decarbonising agenda, delivery of highway infrastructure elements forms only part of the picture so while these indicators are included here, success in the delivery of targets can only be addressed with the support of wider investment and maintenance of the active travel transportation system from the LCRCA.

7.4 Past, current and future target performance

The sections have been broken down into the performance measures identified against each of the Asset Management Objectives listed above, providing for each, these are shown in Appendix 3

7.5 Performance Monitoring

Performance monitoring demonstrates how we are continuously improving the way we exercise our functions having regard for economy, efficiency, and effectiveness. As shown in preceding sections, we use both nationally and locally defined indicators to record performance which are reported internally through the HTP.

The results of both the national and local indicators are reported in other survey responses that we respond to, these include:

- WGA
- DfT questionnaires
- Industry questionnaires including the ALARM survey

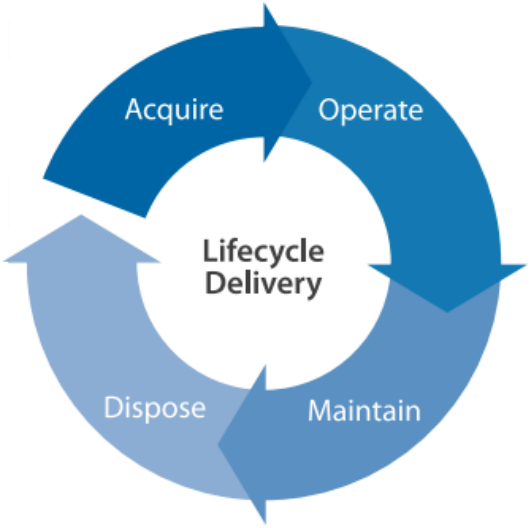
These reports, surveys and questionnaires contribute towards benchmarking us against previous years and against other authorities.

8 Lifecycle Planning

8.1 Principles

Lifecycle plans define how to manage an asset or asset group from cradle to grave. These plans provide a basis for how assets will be maintained across their lifetime by ensuring that each stage takes account of both the stages that precede it and follow it.

Figure 8.1 Lifecycle delivery



Source: Institute of Asset Management Anatomy of Asset Management 2014

Looking at each of these stages in a little more detail, each element includes the following processes or actions.:

- Acquire: planning, design, construction
- Operate: cyclical/routine and reactive maintenance
- Maintain: planned preventative, minor and major works, rehabilitation and reconstruction
- Dispose: decommissioning

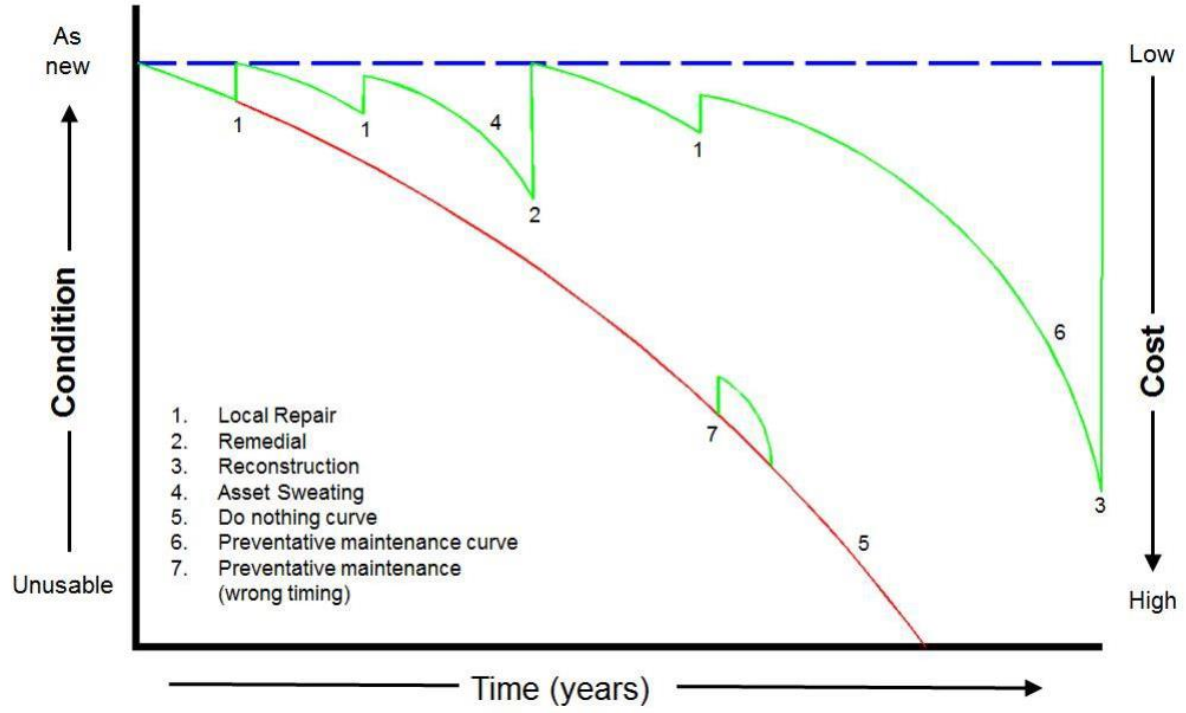
Consideration of an asset's lifecycle means that a lifecycle plan is a long term strategy, maximising the benefits that can be realised by considering all aspects of past present and future performance. A lifecycle plan provides the framework to ensure the best level of service is realised with the lowest risk and cost over the long term.

> "For every £1 spent on preventative maintenance, up to £4 could be saved on future re-surfacing works."
>
> ~
>
> *'Going the distance achieving better value for money in Road Maintenance', Audit Commission 2011*

The diagram below shows how, with the correctly timed interventions, the whole-life of the asset can be prolonged in the most cost-effective manner. This modelling can be applied to any asset, from structures to carriageways. A simple example would be to consider the maintenance of a

wooden fence. This would require regular painting to waterproof and minor repairs of slats, or concrete posts. Eventually all panels and / or posts will be replaced.

Figure 8.2 Intervention timing, type and how they affect costs (lifecycle planning)



Source: TBC

Lifecycle plans for each asset or asset group need to consider:

- The expected deterioration mechanisms and rates of deterioration for the material types concerned
- Component service lives
- The required levels of service
- Maintenance techniques
- Influence of maintenance on future deterioration rates
- Maintenance unit costs
- Associated risks (eg safety, financial, operational, loss of service)

This requires a sound understanding of asset behaviour.

The following are the core principles of lifecycle plan development:

- Audit Trail
  Document all assumptions, data sources, analytical techniques and engineering judgements to provide a clear audit trail.

- Knowledge Transfer
  Our engineers have a wealth of historical, expert and practitioner knowledge of the highway network that needs to be retained and passed on to other and future staff.

8.2 Carriageway and Footway Network Level Lifecycle Analysis

A significant prioritisation factor for the highway network is carriageway condition. However, the treatment that would be required for sections and when these are undertaken can also play a significant role in the management of the network. If priority is given to those sections identified by surveys as being in the poorest (red) state, most of the ensuing schemes are likely to involve full depth reconstruction. However, this type of treatment may not give the best value for money when considering the network over lifecycle periods. As full depth reconstruction is expensive, only relatively short lengths of the network can be treated in any given year. In the meantime, the rest of the network can deteriorate further resulting in a greater proportion of the network in good (green) and average (amber) condition moving to the red state each year.

The alternative method is for sections that require resurfacing to be treated before they deteriorate to the point where they would require full reconstruction. This method allows much longer lengths to be treated with more cost-effective resurfacing treatments and enables further deterioration of the network to be contained by carrying out works on amber lengths with less expensive treatments so prolonging the life and delaying the need for structural maintenance. The red sections that already exist would still require reconstruction. Through this approach, roads with a high proportion of red sections should be kept in a safe condition with reactive maintenance budgets whilst an appropriate long-term scheme is devised.

The tables in Figure 8.3 below give an illustrative example of how the use of correctly timed interventions can reduce the whole-life costs for carriageways. This does not include costs for footways, structures and other highway elements, which will have their own lifecycle costs and plans. It also does not consider inflation or increases in material and labour costs. The tables show that, with optimally timed interventions and treatments, £520,000 per km of carriageway would be required over a 100-year period to maintain the carriageway in a 'steady state' condition. This compares with a cost of £1,000,000 per km if interventions were to be carried out on a worst case-based approach of only carrying out reconstructions when required. The use of a partial asset management approach would result in a cost of £800,000 per km over 100 years. For our carriageway network of approximately 600km, a full optimum asset management approach would nearly halve the lifecycle costs requiring £312m over a 100yr period or £3.12m per year for carriageway surfacing, as opposed to £600m over 100yrs or £6m per year if only reconstructions were carried out when required.

Figure 8.3 Impact of different lifecycle plans on whole-life costs per km of carriageway

Treatment Year	Worst First Only Strategy	Cost per km
20	RC	£200,000
40	RC	£200,000
60	RC	£200,000
80	RC	£200,000
100	RC	£200,000

£1,000,000 per km
With 600km of network Halton would need:
£600m over 100 years
£6m per annum

Treatment Year	Partial Asset Management Strategy	Cost per km
14	RS	£80,000
28	RS	£80,000
42	RC	£200,000
56	RS	£80,000
70	RS	£80,000
84	RC	£200,000
98	RS	£80,000

£800,000 per km
With 600km of network Halton would need:
£480m over 100 years
£4.8m per annum

Treatment Year	Optimum Asset Management Strategy	Cost per km
7	SD	£20,000
17	SD	£20,000
27	RS	£80,000
34	SD	£20,000
44	SD	£20,000
54	RS	£80,000
6	SD	£20,000
71	SD	£20,000
81	RC	£200,000
88	SD	£20,000
98	SD	£20,000

£520,000 per km
With 600km of network Halton would need:
£312m over 100 years
£3.12m per annum

SD - Surface Dressing

RS - Resurface

RC - Reconstruction

However, it is worth noting that the above example is an ideal scenario which assumes that the strategy is adopted at the beginning of an asset's life. In reality, existing assets have been exposed to various interventions at differing times within their lifecycle, including reactive treatments and damage through excavations from utilities (statutory undertakers' plant). It is therefore unlikely that these savings can be fully achieved in real life.

It is known that a large percentage of the highway network was constructed at the same time as part of the New Town programme of the 1960/70s and could therefore potentially start to show signs of deterioration and failure at the same time. It has therefore been necessary to carry out a preventative works programme of surface dressings over several years, with sites being prioritised based on engineering judgement of wear and traffic volumes. This has been done to avoid the need for a large-scale expensive intervention programme of reconstruction being delivered over a short period in confined geographical areas.

9 Works Programming

This section documents, in summary form, the works programming for each type of asset / maintenance category we have adopted to achieve the highways asset management objectives set out in Section 4.

The maintenance of all asset groups can be categorised as follows:

- **Reactive Maintenance**
  Reactive Maintenance is unplanned repair work carried out in response to service requests, inspections and management/supervisory directions.
- **Routine Maintenance**
  Routine Maintenance is work undertaken to a regular consistent schedule, for example patching.
- **Cyclic Maintenance**
  Cyclic Maintenance is the replacement and maintenance of components/sub-components of assets that is undertaken on a regular cycle eg gully cleansing.
- **Programmed Maintenance**
  Programmed Maintenance is repair work, identified through a maintenance management system, undertaken to rectify defects identified during visual condition assessments and is primarily resurfacing and reconditioning.
- **Structural Maintenance**
  Structural Maintenance is the work required to reconstruct an asset to an 'as new' state.
- **Resilience Planning**
  In cases of severe weather, a detailed resilience plan is in operation. This includes emergency maintenance strategies, for flooding and cold/severe weather.

The following sections detail the maintenance processes in place for each of the Asset Categories defined in Section 6.

9.1 Carriageways, Footways, Footpaths, Cycleways and Public Rights of Way (ProW)

Carriageways form the main part of the highway network within Halton. They have been surfaced over the years using macadam, asphalt or concrete materials to provide an even, paved finished surface for vehicular traffic. Most roads have a footway on one or both sides of the carriageway. In addition to these footways, we have a substantial network of independent footpaths and cycleways. These footways, footpaths and cycleways have been surfaced using a variety of modular, asphalt and concrete type materials, to provide a paved finished surface for pedestrians and cyclists to use. Halton also has a ProW network, which can be constructed using a variety of materials or they may simply be unsurfaced rights of way paths across fields.

9.1.1 Reactive Maintenance

Carriageway defects identified through inspections or reports on roads are rectified through "reactive maintenance". The works are carried out based on the category/priority given and linked with available resources and budget.

Reactive maintenance activities include:

- Patching (permanent fixing or making safe) isolated carriageway areas which meet or exceed defined intervention levels
- Making safe (through fixing or isolating from the public using Traffic Management) carriageway areas which meet or exceed defined intervention levels

- Patching isolated footway and footpath areas which meet or exceed intervention levels
- Making safe footway and footpath areas which meet or exceed intervention levels
- Street Furniture repairs

All reactive maintenance works are carried out in accordance with 'Highway Maintenance – A Strategy for Halton'.

9.1.2 Routine / Cyclical Maintenance

Routine/cyclical maintenance relates to activities undertaken regularly to ensure the serviceability and efficient operation of the highway. Activities such as gully emptying, street cleaning, weed spraying and grass cutting have a preventative effect on the carriageways and footways. Even though these activities are not designed to directly improve the condition of the asset, they ensure that damage to that asset via vegetation and water is prevented, so protecting its lifespan. These activities also have a significant impact on stakeholder opinion regarding the level of service we provide.

9.1.3 Programmed Major Maintenance

Programmed/planned maintenance schemes are work schemes identified through reports of several significant defects, the nature or number of which cannot be rectified by routine or reactive maintenance works. This "needs led" approach is based on engineering judgement and is a fundamental step towards complete asset management and ensures that limited resources are targeted towards restoring the life of the sections of the network with the greatest requirement.

In general, every major maintenance scheme will aim to provide:

- A residual life of at least 15 years
- A surface free from visible defects
- A skidding resistance appropriate to the road and traffic at the site in question
- An appropriate transverse and longitudinal profile
- A surface free of standing water
- Appropriate lining and signing

Due to the considerable differences in planned maintenance between carriageway and footway works, each is considered individually below

9.1.3.1 Carriageways

Annual programmes of surfacing schemes are prepared for structural maintenance and patching of carriageways.

The list of schemes for any one year is based on the following:

- The results of various highway condition surveys carried out on the network
- Feedback from safety inspections, especially in relation to programmed patching works
- The priority given to each scheme which is based on factors such as economic value, future housing and business developments
- Our focus on minimising the whole-life costs for each individual scheme
- Identified traffic safety improvement works or other highway schemes to be undertaken in the same area. This could affect the priority rating given to a scheme, improve efficiency of the construction works and deliver construction cost savings

9.1.3.2 Footways

Annual programmes of resurfacing / reconstruction schemes are also prepared for structural maintenance of all footways and footpaths.

The list of schemes for any one year is based on the following:

- The latest results of FNS carried out on the network
- Visual condition established through “Safety Inspections”
- Treatment surveys updated by the in-house highways’ inspection team
- Our focus on minimising the whole-life costs for each individual scheme
- Accident claim data
- Classification hierarchy of the footway and footpath

Structural footway maintenance which requires more extensive and, therefore, expensive treatments to restore the condition and value of the asset is planned and programmed separately and individually.

Figure 9.1 Carriageway resurfacing

9.1.4 Winter Maintenance

Winter maintenance operations are undertaken on a ‘Planned Reactive’ basis. We are committed to providing a winter and emergency service which plans for precautionary salting, snow clearance and reasonable response times for other emergencies. It keeps an updated and extensive “Winter Services Operational Plan” (WSOP) which explains in full the delivery of the Winter Service including salting routes, decision making charts, snow clearance policy, maintenance of salt bins and response times. We also have a footway winter maintenance programme that targets key areas such as town centres.

9.2 Structures

The maintenance process for highway structures is identified under the three maintenance headings of Routine, Programmed and Reactive in line with Section C.6.2 of The Code.

Figure 9.2 Maintenance of Structures

Our approach is based on the following three implementation milestones taken from the previous Code “Management of Highway Structures” (which has now been superseded by The Code):

- That structures should be safe for use, inspected and maintained
- That structures should be fit for purpose
- That structures should be managed against specific service levels and whole-life costing principles

9.2.1 Reactive Maintenance

The following are regarded as reactive maintenance activities:

- Emergency (immediate) works which deal with high-risk situations to the public, for example resulting from accidental bridge strikes
- Essential works involving structural repair works which must be carried out because a structure is considered to be, or about to be, structurally inadequate or unsafe or if its deterioration cannot be predicted

Figure 9.3 Structure Inspection

Structure and bridge defects that are identified through safety inspections or reports/complaints are treated as “reactive maintenance”. The works are undertaken based on the category/priority given to the defect identified in accordance with The Code, linked with available resources and budget.

9.2.2 Routine/Cyclical Maintenance

Common structure and bridge defects that are likely to require treatment annually are treated as “routine maintenance”. The works are carried out based on the category/priority given to the defect identified in accordance with The Code and linked with available resources and budget. These routine maintenance activities include the removal of vegetation, cleaning of expansion joints, cleaning of structural drainage systems and other similar minor works.

9.2.3 Programmed Major Maintenance

This is an annual programme of structural maintenance schemes which are planned to either repair or arrest deterioration. It may also include upgrading or improvement works of bridges and structures.

The list of schemes for any one year will be based on the following:

- The results of various structural surveys carried out including general, principal and special inspections. General inspections are carried out every 2 years at road level by eye, without the need for intrusion on to the structure. Principal inspections are carried out at time intervals between 6 and 12 years dependent on the structure; these are more involved and require the inspector to be within touching distance of all parts sometimes involving specialist equipment. Special inspections are carried out as a result of issues raised during the other inspections i.e. as and when required and generally concentrate on specific parts of the structure
- National deterioration models
- The priority given to each scheme based on engineering judgement and expertise
- Our focus on minimising the whole-life costs for each individual structure by adopting a whole life cycle approach to structural maintenance

The works are carried out based on the category/priority given to the defect identified in accordance with The Code and linked with available resources and budget. Wherever possible, all materials removed / excavated are sent for re-cycling and re-used in Halton’s area.

9.3 Electrical Equipment

Highway electrical equipment must remain available (because its presence is there to mitigate and minimise risks) and of itself must not pose any unacceptable risk to public safety. We maintain electrical equipment in accordance with the Halton Street Lighting –Strategy and Policy.

9.3.1 Reactive Maintenance

The following are regarded as reactive maintenance activities:

- Replacement of lamps that have prematurely failed
- Repair/replacement of lanterns that have failed
- Replacement of photo-electric cells that have failed
- Replacement of damaged/faulty supply cables
- Replacement of damaged/worn out signs
- Repair of Traffic Signal Controller/detector faults
- Repair of damaged equipment (cables, poles, signal heads, etc.)
- Re-cutting loop detectors
- Repair of faults on street equipment (eg loss of communications, loss of display, etc.)
- Repairs to communications systems
- Repairs of all Intelligent Transport System (ITS) related equipment identified during annual inspection – these works form part of the programmed maintenance work for inclusion in future upgrades unless they are deemed critical in terms of safety

Street lighting and traffic signal faults identified through night-time inspections, the traffic signal Remote Monitoring System (RMS), or reports from the public, are treated as 'reactive maintenance' with works being carried out to rectify the fault identified. The works are carried out based on the category/priority given to the type of defect. Signals with all lights out, for example, have a higher priority than signals with a single lamp out. Replacing loop detectors will be dependent on the likely impact and availability of traffic management, and available time periods at certain junctions.

9.3.2 Routine/Cyclical Maintenance

The following are regarded as routine maintenance activities:

- Replacement of streetlamps (on a cyclical basis)
- Inspection and testing of the safety of electrical equipment on a cyclical basis (max 6 years)
- Structural testing of columns and signposts at a frequency determined by the latest test
- Replacement of traffic signal lamps (red & green lamps every 6 months; amber lamps every 12 months) for sites with tungsten halogen lamps
- Cleaning of signal head aspects
- For sites with LED aspects, annual cleaning and replacement when necessary
- Checking and cleaning of equipment twice a year

Any works identified from the inspections, form part of the future programmed maintenance work unless it is identified as urgent, in which case it will be considered reactive maintenance.

Any works identified from the annual inspection (sites not on remote monitoring) are subject to an additional interim inspection covering specific safety related items, such as lamps out, detection issues and visibility of signal heads.

9.3.3 Programmed Maintenance

The following items are regarded as programmed maintenance which are prioritised based on risk (safety implications):

- Replacement of lamps with LEDs
- Replacement of life expired columns, signposts and lanterns
- Upgrade of equipment to Extra Low Voltage (ELV)
- Replacement of life expired equipment (including cameras and communications equipment

The following items are regarded as programmed major maintenance work:

- Conversion of traffic signal heads (tungsten halogen to LED)
- Replacement of controllers
- Upgrade to include Microprocessor Optimised Vehicle Actuation (MOVA) control at junctions to maximise capacity

Figure 9.4 Maintenance of high mast lighting

Programmed major maintenance work is funded through the capital programme, when available, to improve highway electrical assets and reduce further maintenance costs in the long term. For example, capital was allocated to replace a large selection of traditional street lighting with more cost effective and energy efficient LED systems.

9.4 Street Furniture

The maintenance process for street furniture is identified under the maintenance heading of 'Reactive' in line with Section A.1.6.2 of The Code.

9.4.1 Reactive Maintenance

The following are regarded as reactive maintenance activities:

- Repairs and replacement of damaged bollards
- Repairs and replacement of damaged sign plates
- Cleaning of street name plates
- Repairs to posts and lengths of barrier following accidents/damage
- Re-tensioning of lengths of tensioned guard rail following damage repairs

Non-illuminated traffic sign problems that are identified through inspections or reports are treated as 'reactive maintenance' with works being carried out to rectify the defect. The works are carried out based on the category/priority given to the defect identified in accordance with 'Highway Maintenance – A Strategy for Halton' and linked with available resources and budget. Both sides of traffic signs are power washed as and when required to maintain legibility and to reduce corrosion, supporting the achievement of design life and reducing whole-life cost.

9.4.2 Routine/Cyclical Maintenance

The following are regarded as routine maintenance activities:

- Check and reset to the correct torque of the tensioning bolts of tensioned safety fences
- Inspection and testing of safety barriers regarding mounting height and integrity/condition every 5 years
- Replacement of litter bins and benches that are on the highway network as and when required, such as when they are no longer functional or are hit during a road traffic collision

9.4.3 Programmed Maintenance

When a "significant problem" is identified during safety inspections or routine inspections but does not require immediate resolution through reactive maintenance, the associated work required is included within the listings of maintenance works. The inclusion of the work within the agreed annual programme is based on its priority which is linked to the risks of asset failure and/or danger to the public.

9.5 Road Markings

The maintenance process for road markings is identified under the maintenance heading of 'Reactive' in line with Section A.1.6.2 of The Code.

9.5.1 Reactive Maintenance

The following are regarded as reactive maintenance activities:

- Renewal of existing white thermoplastic road markings
- Renewal of existing yellow thermoplastic road markings
- Renewal of paint applied existing road markings on the face of kerbs

We consider renewing road markings when large sections become ineffective, due to wear and / or loss of reflectivity at night-time or during adverse weather conditions. The sections to be treated are identified through inspection and reports which vary based on the risk associated with the marking's location, identified either by the carriageway hierarchy (listed in Table 6.2) or for high priority sites at known collision hotspots.

9.6 Horticultural Maintenance

The 'soft' landscaping of the highway network provides a habitat for flora and fauna in addition to being attractive. It also creates areas for drainage. These areas are managed by Halton's Open Space Services Division.

9.6.1 Reactive Maintenance

The following are regarded as reactive maintenance activities:

- Reinstatement of damaged/sunken verge areas to maintain the verge profile for grass cutting

- Additional cutting of overhanging hedges along footways, carriageways and bridleways which could potential cause an obstruction
- Pruning or removal of damaged, diseased, dead, or fallen highway trees

Problems are identified through inspection, reports or complaints. Works to rectify the defect/problem are carried out based on the category/priority given to the defect/problem by the Open Space Services Division in consultation with Highways officers and linked with available resources and budget.

9.6.2 Routine/Cyclical Maintenance

The following are regarded as routine maintenance activities:

- Grass cutting in urban (residential) areas
  Highway grass verges in urban (residential) areas are cut on a routine, cyclical basis between March and October (including areas under planted with a range of naturalised flowering bulbs). The grass is cut as per the Halton grass cutting specification based on optimised efficiency.

- Grass cutting in rural areas
  Grass in these areas is cut to maintain visibility sightlines. A variety of cutting regimes are applied depending on the area. As a minimum, grass is cut once a year by side arm flail but in some areas the cutting matches that in urban areas. On major roads/expressways, grass is cut on a cyclical basis between March and October based on optimised efficiency.

- Maintenance of hedges and planted areas
  Pruning of hedges, shrub beds and planted areas form part of a continual maintenance cycle, based on the application of a range of coppice and renewal techniques, appropriate to species and the environment. From time to time, issues occur that require urgent attention and these are remedied as reactive maintenance.

- Street cleansing
  Litter picking and street sweeping are undertaken on a routine cyclical basis, according to the carriageway hierarchy and in compliance with the Environmental Protection Act 1990. Litter or other detritus that may be a danger to highway users, clog drainage or be unsightly are removed as soon as practically possible as reactive maintenance.

9.6.3 Programmed Maintenance

The programmed maintenance activities for landscaping and open spaces are managed through the following processes:

- Tree and Woodland Strategy
  A Tree and Woodland Policy underpins the inspection and works required to provide a healthy and aesthetical mix of trees and woodlands.

- Specialist Hedge Maintenance
  Works related to long term maintenance of hedging are carried out on a planned basis when opportunities arise and resources are available.

- Landscaping and planting of Roundabouts and Highway Verges

Works to enhance roundabouts and verges are carried out on a planned basis as required when opportunities arise and resources are available.

- Weed Control
  Control of vegetation within non landscaped areas will be undertaken on a programmed basis at the optimised time.

Appendix 1 Abbreviations and Acronyms

ACQI	Accessibility Quality Indicator
AEI	Annual Engineering Inspections
ALARM	Annual Local Authority Road Maintenance (Survey)
AM	Asset Management
BVPI	Best Value Performance Indicators
BOAT	Byway Open to All Traffic
CVI	Coarse Visual Inspection
DBFO	Design, Build, Finance and Operate
DCD	Data Collection Device
DfT	Department for Transport
DNO	Distributor Network Operator
ELV	Extra Low Voltage
FNS	Footway Network Surveys
GIS	Geographical Information System
GRC	Gross Replacement Cost
HGV	Heavy Good Vehicle
HIAMP	Highway Infrastructure Asset Management Plan
HMBI	Highway Maintenance Benchmark Indicator
HMEP	Highways Maintenance Efficiency Programme
HMT	The Highways and Transportation management team is planned but not yet formed, with its meeting schedule to be confirmed.
IFRS	International Financial Reporting Standards
ITS	Intelligent Transport System
KBI	Key Benchmark Indicator
KRN	Key Route Network
LCR	Liverpool City Region
LCRCA	Liverpool City Region Combined Authority
LED	Light-Emitting Diode
LEP	Local Enterprise Partnership

LoS	Level of Service
LSP	Local Strategic Partnership
LTP	Local Transport Plan
MOVA	Microprocessor Optimised Vehicle Actuation
NHT	National Highways & Transportation (Survey)
PMS	Pavement Management System
PPT LI	Policy, Planning and Transportation Local Indicator
PRN	Primary Route Network
RCI	Road Condition Index
RMS	Remote Monitoring System
SCANNER	Surface Condition Assessment for the National Network of Roads
UKPMS	United Kingdom Pavement Management System
UKRLG	UK Roads Leadership Group
WGA	Whole of Government Accounts
WSOP	Winter Services Operational Plan

Appendix 2 Glossary of Terms

Abnormal load: is a vehicle which either has a weight greater than 44 metric tons, an axle load greater than 10 metric tons in the case of a single non-driving axle or 11.5 metric tons in the case of a single driving axle, a width greater than 2.9m, or a rigid length greater than 18.65m.

ALARM Survey: Annual Local Authority Road Maintenance Survey. This is an independent survey of local authority highway departments in England and Wales commissioned every year by the Asphalt Industry Alliance. It provides information about the funding and conditions of the local road network based on data provided by the local authority highway departments which are responsible for maintaining these roads. The survey reports dating back to 2012 can be found at this link: http://www.asphaltuk.org/alarm-survey-page/

Backlog: A maintenance backlog is defined here as the total value of accumulated remedial works to assets that are determined to be in an unacceptable condition and beyond the tolerance levels identified in individual asset lifecycle models.

Coarse Visual Inspection (CVI): This is a road condition survey undertaken from a slow moving vehicle to detect defects such as cracks and depressions. This was previously required to produce national indicators for local unclassified roads but is now used by Halton as a local indicator.

Depreciated Replacement Cost (DRC): This is simply taken as the difference between the current Gross Replacement Cost (see below) and total value of works that would be required to bring the infrastructure in its current state back to 'as new' condition. The DRC method is accepted internationally as the most appropriate for the purposes of valuation of public infrastructure assets that have no equivalent or comparable market value.

Footway: This is the formal term to describe pedestrian routes at the side of roads (instead of the familiar term 'pavement'). See definition of pavement below.

Gross Replacement Cost (GRC): This represents a total value of the asset in a theoretical 'as new' condition. As most transport assets do not have specific market value through acquisition and disposal, it is assumed that their value is embodied in the cost of replacing the full asset (such as reconstruction of a stretch of road), hence the term 'Replacement Cost' is used.

Intelligent Transport System (ITS): It is the application of technologies such as information, sensing, analysis, control and communication technologies used on the highway network to improve mobility, safety, efficiency and sustainability. Examples of ITS are on-board vehicle navigation systems (providing real time travel information), electrical vehicle charging, Pelican crossings, variable message signs which provides drivers with information about congestions and delays, CCTV cameras monitoring traffic.

Level of service (LoS): It is the success in delivering on the transport objectives. This is measured through the Performance Framework (see Section 7) which links performance measures and indicators to each of these objectives to show what the current level of service is, how this has changed over time and what the future targets are to improve on these priority areas.

Lifecycle plan: A forecast of the maintenance requirements of an asset throughout its entire lifecycle. For some assets the total period of the lifecycle may be the time that elapses before an asset is reconstructed or replaced. For many assets such as road pavements this is defined as the time that elapses between major maintenance interventions (such as resurfacing or reconstruction).

The lifecycle plan details the maintenance requirements including the nature, timing and cost of interventions within that period. These interventions must not include temporary emergency repairs but must maintain the service potential or extend the life of the asset (such as through preventative maintenance).

Loop detectors: are sensors which are placed into the surface of the road to detect and identify the different types of vehicles that pass.

Microprocessor Optimised Vehicle Actuation (MOVA): is a dynamic traffic signal technology used at isolated junctions to modify green times depending on the traffic flows to improve the capacity and efficiency of the junction. It is used where heavy traffic flows occur but at unpredictable times, as well as at pedestrian crossings such as Puffin and Pelican crossings.

National Highways & Transport (NHT) public satisfaction survey: A survey of public views on and satisfaction with highway and transport services within individual participating local authorities. It assists in measuring the performance of these services and their prioritisation as well as it enables benchmarking across highway authorities. The sharing of knowledge and good practice among local authorities helps improve efficiencies. In 2021, a total of 111 authorities took part.

Net zero: This refers to the target of completely negating the amount of greenhouse gases produced by human activity, to be achieved by reducing emissions and implementing methods of absorbing carbon dioxide from the atmosphere.

Pavement: in this document it is used to mean the engineering term to describe the physical structure of the road or footway (including lower layers) and not the familiar term to denote the pedestrian routes along the side of the roads, which are referred to as footways.

Preventative maintenance: Maintenance operations undertaken before the onset of significant deterioration in the condition of an asset to extend the useful life before more expensive structural maintenance is required. As such, it is a critical part of a sustainable investment strategy for highways.

Public Rights of Way (PRoW): PRoW infrastructure includes footpaths, bridleways, byways open to all traffic and restricted byways. In most cases PRoWs have not been constructed or maintained to any defined standard although Halton as the Highway Authority has a legal duty to maintain them to a standard appropriate for their use. Most footpaths are 'naturally' surfaced; grass or earth but some are 'metalled' in urban areas. Bridleways and byways exist mainly on metalled / unmetalled farm tracks or green lanes with a variety of surfacing materials.

Surface Condition Assessment for the National Network of Roads (SCANNER) surveys: Automated road condition measurement surveys which measure a range of road condition parameters including ride quality, rut depth, intensity of cracking, texture depth and edge condition. These were previously required for use in the production of the National Indicators for road condition.

Structural maintenance This refers to major maintenance of a road or footway involving renewal of one or more layers of the road pavement structure.

The Code: Refers to the national code of practice "Well Maintained Highway Infrastructure: A code of Practice".

The Definitive Map: The Definitive Map and Statement is a document produced and maintained by a Highway Authority which gives details of all Public Rights of Way and can include footpaths, footways, cycleways, bridgeways, byways open to all traffic and restricted byways.

The Guidance: UKRLG/HMEP Highway Infrastructure Asset Management Guidance Document (May 2013).

The transport network: The physical infrastructure that transportation uses, (roads, footways, railways, rivers and canals. For the HIAMP this specifically relates to the highway network.

The transport system: The combination of Infrastructure on the transport network which together provides the structure for all modes of transportation (for example for road vehicles this is the combination of all the supporting infrastructure, including carriageway, traffic signs and road markings, traffic signals and street lighting. The transport system is multi-modal, fulfilling the needs of all means of transportation.

Traffic management: It is the activity of directing traffic (vehicles as well as pedestrians) around an obstacle such as works, accidents or other incidents.

Transportation: How people move around the region by any mode; so, it includes cars, freight, trains, buses, ferries, cycling and walking both locally, regionally and nationally.

UK Pavement Management System (UKPMS): This is a standard for pavement management systems used by local authorities to report on the condition of roads and footways. It is also used as an accreditation system to provide assurance that the standard is being maintained and consistent results are generated. It includes accreditation for SCANNER machine surveys and Course and Detailed Visual Inspections and the associated software to process the data. A key function previously was to produce national road and footway condition indicators although it is no longer a requirement to use UKPMS for this purpose.

Whole-Life cost: This is the total cost associated with an asset over the entire period of the lifecycle plan including quantifiable risks associated with the asset and subsequent reactive and emergency maintenance requirements. The average annual spend requirements derived from this total cost is used as a proxy measure of annual depreciation (reduction in asset value).

Appendix 3 Performance Measures

- A graph showing past, present and future target performance values covering an 11 year period (or for all years for which data is available)
- A table of the values displayed in the graphs
- A summary of performance over the past five years and the current position
- A summary of the basis for performance targets for the next five years

9.6.4 Performance measures to provide a highway network that is safe for all users

9.6.4.1 PPT LI 06 Number of people killed or seriously injured (KSI) in road traffic collisions (5 year average)

Figure 0.1 Number of people KSI in road traffic collisions (5 year Average)

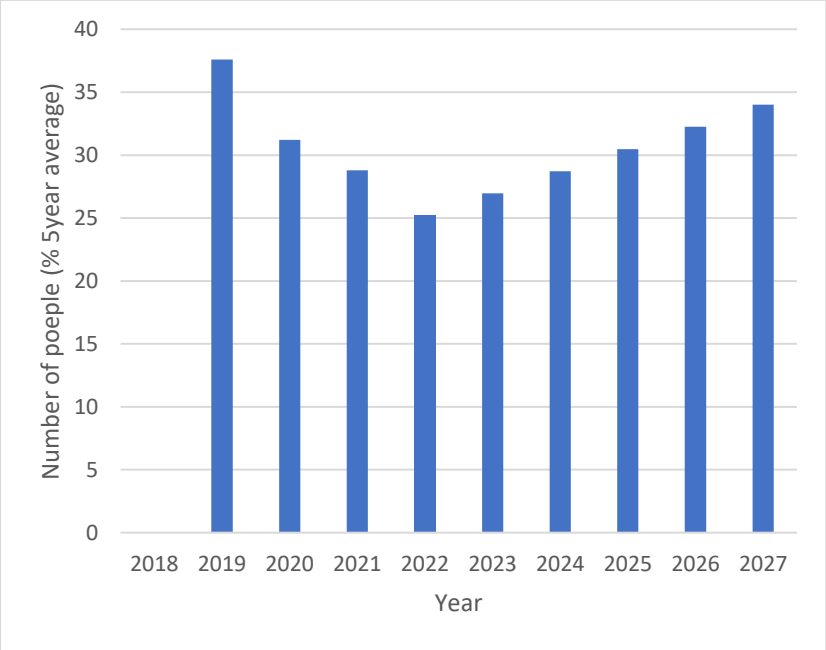


Table 0.1 Number of people KSI in road traffic collisions (5 year Average)

Year	PPT LI 06
2018	-
2019	37.6
2020	31.2
2021	28.8
2022	42
2023	41
2024	39
2025	30.5
2026	32.2
2027	34.0

9.6.4.1.1 Past 5 years and current performance

The available data shows a significant reduction from 2019 to 2022, but these figures have been influenced by the Covid pandemic and so are likely to be unrepresentative of actual figures due to the much lower number of users on the network during that time. The current 5 year average value of 25.2 is likely to be the lowest reading before the effect of more normal levels of network usage begin to affect these figures and as such should be treated with caution.

9.6.4.1.2 Target performance for the next 5 years

As the impact of normal travelling habits impacts on the average values over the next 5 years it is likely that the reported figures will rise toward pre-pandemic levels. However the target is that once that influence has passed in 2027 the figures will be lower than pre-pandemic levels.

9.6.4.2 PPT LI 07 Number of children under the age of 16 killed or seriously injured (KSI) in road traffic collisions (5 year average)

Figure 0.2 Number of children under the age of 16 KSI in road traffic collisions (5 year average)

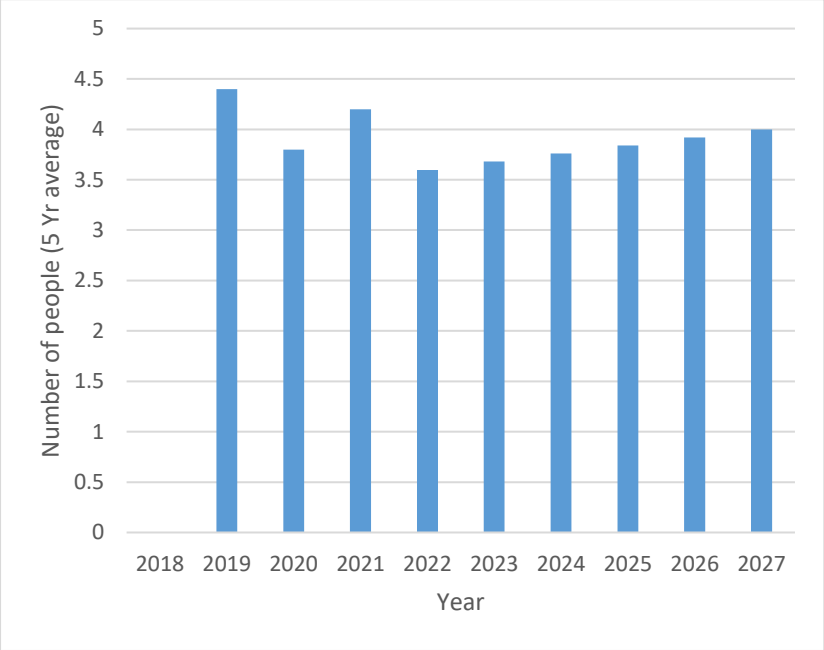


Table 0.2 Number of children under the age of 16 KSI in road traffic collisions (5 year average)

Year	PPT LI 07
2018	-
2019	4.4
2020	3.8
2021	4.2
2022	3
2023	6
2024	3
2025	3.8
2026	3.9
2027	4.0

9.6.4.2.1 Past 5 years and current performance

As with PPT LI 06 above, the figures have been significantly affected by the Covid pandemic which have reduced the figures in an unrepresentative way and so should be treated with caution. Similarly the current average value of 3.6 is likely to prove unrepresentative of normal network conditions.

9.6.4.2.2 Target performance for the next 5 years

As the impact of normal travelling habits impacts on the average values over the next 5 years it is likely that the reported figures will rise toward pre-pandemic levels. However the aim is that once that influence has passed in 2027 the figures will be lower than pre-pandemic levels.

9.6.4.3 PPT LI 10 Damage to roads and pavements (% above intervention levels) repaired within 24 hours

Figure 0.3 Damage to roads and pavements (% above intervention levels) repaired within 24 hours

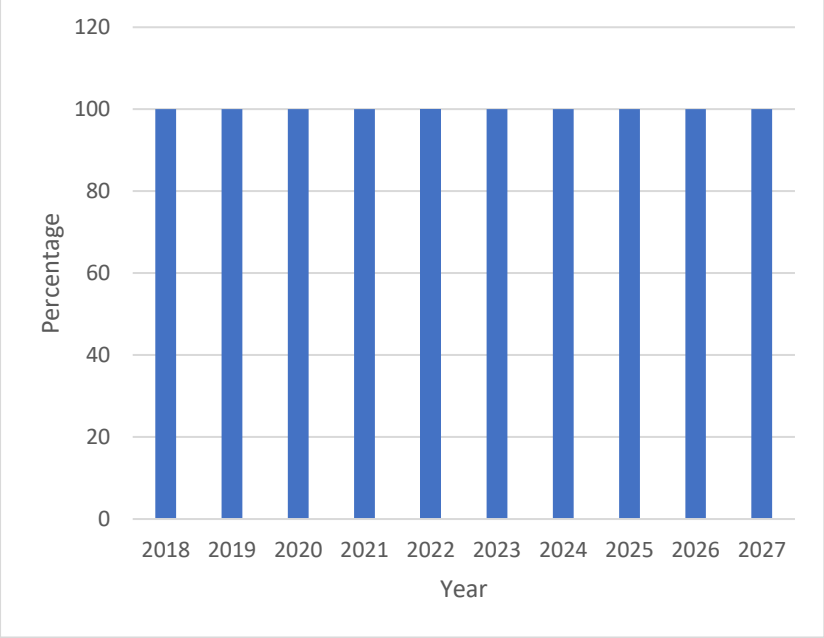


Table 0.3 Damage to roads and pavements (% above intervention levels) repaired within 24 hours

Year	PPT LI 10
2018	100%
2019	100%
2020	100%
2021	100%
2022	100%
2023	100%
2024	100%
2025	100%
2026	100%
2027	100%

9.6.4.3.1 Past 5 years and current performance

Halton have performed consistently well in repairing damage to roads but it is important to ensure this level of service is maintained because it is easy to become complacent when a goal is being

achieved. The current figure of 100% is consistent with past performance and shows continuation of the high level of service.

9.6.4.3.2 Target performance for the next 5 years

It is important to maintain the high standards currently achieved so Halton aim to ensure this by setting a continued target to achieve the same 100% record.

9.6.5 Performance measures to ensure the highway network is fit for purpose

9.6.5.1 PPT LI 11 Percentage of principal roads where structural maintenance should be considered

Figure 0.4 Percentage of principal roads where structural maintenance should be considered

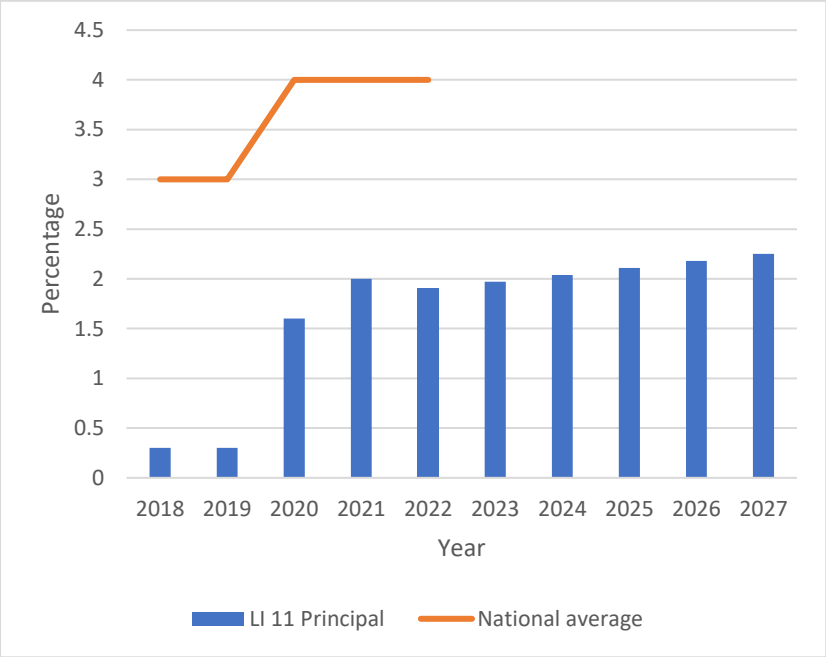


Table 0.4 Percentage of Principal Roads where structural maintenance should be considered

Year	PPT LI 11 – Principal	National Average
2018	0.3%	3.0%
2019	0.3%	3.0%
2020	1.6%	4.0%
2021	2.0%	4.0%
2022	1.9%	4.0%
2023	2.0%	
2024	2.0%	
2025	2.1%	
2026	2.2%	
2027	2.3%	

9.6.5.1.1 Past 5 years and current performance

Figures have remained consistently low and considerably below the national average although the effects of lower available budgets has significantly increased these values over the past 2 years. The current value of 1.9% is around half the national average value.

9.6.5.1.2 Target performance for the next 5 years

It is anticipated that the effect of very limited budget will continue to impact negatively on the condition of the network and an increase in the level of network requiring works is expected to rise but the impact will be minimised though targeting of works on preventative treatments.

9.6.5.2 PPT LI 11 Percentage of classified roads where structural maintenance should be considered

Figure 0.5 Percentage of classified roads where structural maintenance should be considered

Table 0.5 Percentage of classified roads where structural maintenance should be considered

Year	PPT LI 11 – Classified	National average
2018	1.0%	6.0%
2019	1.0%	6.0%
2020	2.0%	6.0%
2021	2.7%	6.0%
2022	2.0%	6.0%
2023	2.1%	
2024	2.1%	
2025	2.2%	
2026	2.2%	
2027	2.3%	

9.6.5.2.1 Past 5 years and current performance

Similarly to principal roads, figures have remained consistently low and considerably below the national average although the effects of lower available budgets has significantly increased values over the past 2 years. The current value of 2% is well below the national average of 6%.

9.6.5.2.2 Target performance for the next 5 years

It is anticipated that the effect of very limited budgets will continue to impact negatively on the condition of the network and an increase in the level of network requiring works is expected to rise but the impact will be minimised though targeting of works on preventative treatments.

9.6.5.3 *PPT LI 11 Percentage of unclassified roads where structural maintenance should be considered*

Figure 0.6 Percentage of unclassified roads where structural maintenance should be considered

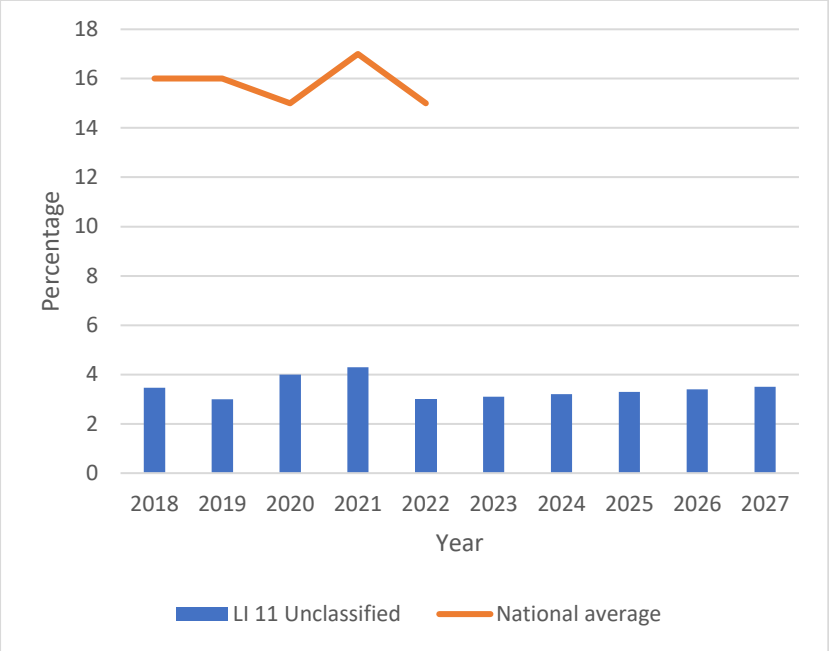


Table 0.6 Percentage of unclassified roads where structural maintenance should be considered

Year	PPT LI 11 – Unclassified	National average
2018	3.5%	16%
2019	3.0%	16%
2020	4.0%	15%
2021	4.3%	17%
2022	3.0%	15%
2023	3.1%	
2024	3.2%	
2025	3.3%	
2026	3.4%	
2027	3.5%	

9.6.5.3.1 Past 5 years and current performance

Halton have performed consistently well in repairing damage to roads but it is important to ensure this level of service is maintained because it is easy to become complacent when a goal is being achieved. The current value of 3% is well below the national average of 15%.

9.6.5.3.2 Target performance for the next 5 years

It is anticipated that the effect of very limited budgets will continue to impact negatively on the condition of the network and an increase in the level of network requiring works is expected to rise but the impact will be minimised though targeting of works on preventative treatments.

9.6.5.4 PPT LI 13 Percentage of footpaths and Public Rights of Way (PROW) which are easy to use

Figure 0.7 Percentage of footpaths and Public Rights of Way (PROW) which are easy to use

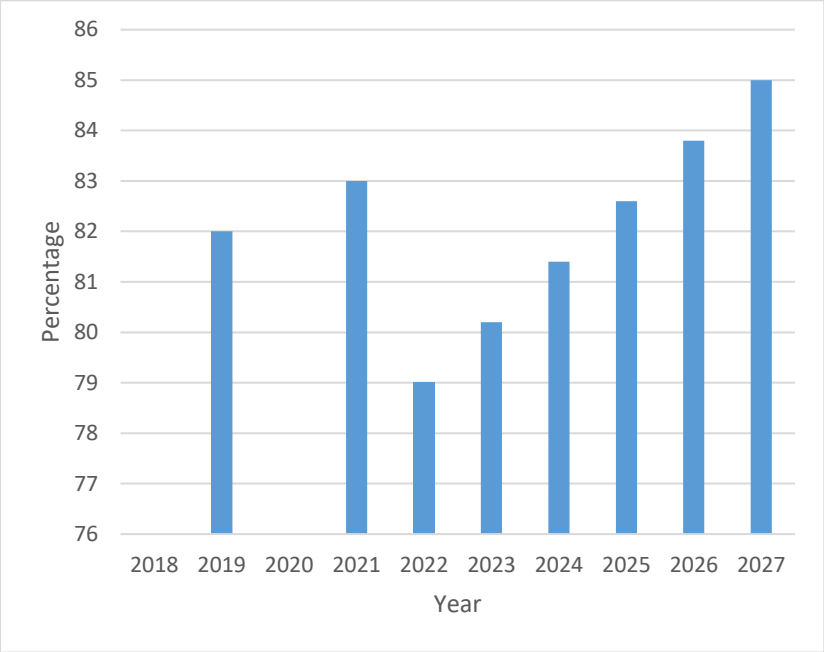


Table 0.7 Percentage of footpaths and Public Rights of Way (PROW) which are easy to use

Year	PPT LI 13
2018	
2019	82.0%
2020	
2021	83.0%
2022	**79.0%**
2023	80.2%
2024	81.4%
2025	82.6%
2026	83.8%
2027	85.0%

9.6.5.4.1 Past 5 years and current performance

The impact of the Covid pandemic impacted on the condition of the ProW partly due to lower numbers of users although the overall drop was relatively low. The current value of 79% is slightly lower than recent years and while still relatively high needs to be improved upon, particularly in consideration of the importance of active travel to the current transportation agenda.

9.6.5.4.2 Target performance for the next 5 years

The aim is to restore the levels of easily used ProWs over the next 5 years to above the average value of the past 5 years.

9.6.6 Performance measures to support stakeholder requirements and expectations

9.6.6.1 NHT KBI 23 Condition of Highways

Figure 0.8 NHT KBI 23 Condition of highways

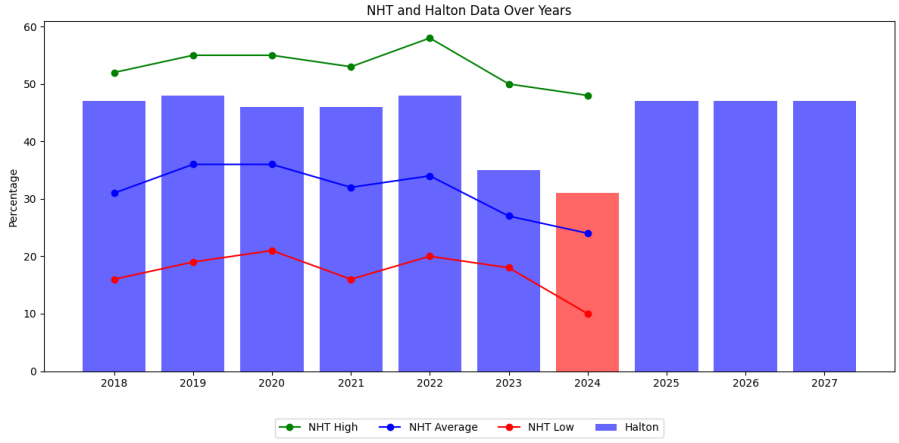


Table 0.8 NHT KBI 23 Condition of highways

Year	NHT High	NHT Average	NHT Low	Halton
2018	52%	31%	16%	47%
2019	55%	36%	19%	48%
2020	55%	36%	21%	46%
2021	53%	32%	16%	46%
2022	58%	34%	20%	48%
2023	50%	27%	18%	35%
2024	48%	24%	10%	31%
2025				47%
2026				47%
2027				47%

Note: The NHT High/Medium/Low lines are national figures

9.6.6.1.1 Past 5 years performance

Levels of satisfaction over the last 5 years have remained consistently high. Halton currently scores in the top quartile for Condition of Highways and was ranked 3rd nationally in the 2022 NHT survey (out of 111).

9.6.6.1.2 Target performance for the next 5 years

With continuing pressures on budgets the aim is to maintain the average levels of satisfaction from the last 5 years over the coming 5 years. It is not anticipated that funding will be available to improve on the current position but we also would not want to see any reduction in public satisfaction.

9.6.6.2 NHT KBI 24 Highway Maintenance

Figure 0.9 NHT KBI 24 Highway maintenance

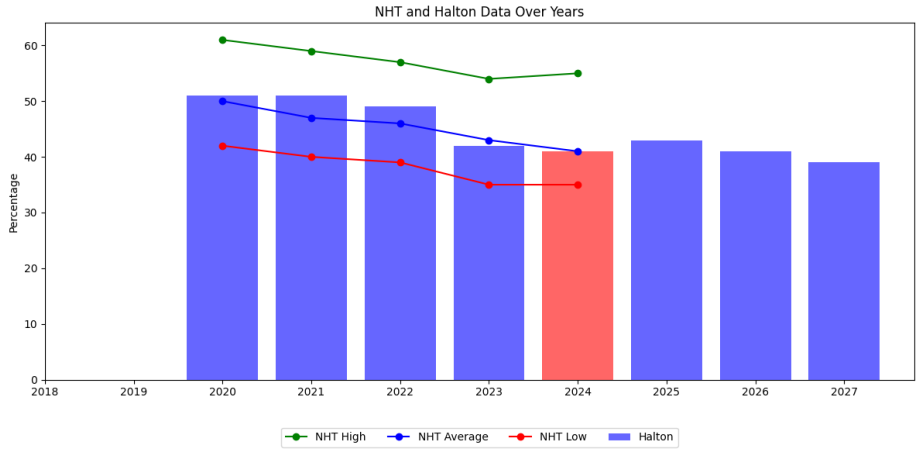


Table 0.9 NHT KBI 24 Highway maintenance

Year	NHT High	NHT Average	NHT Low	Halton
2018				
2019				
2020	61%	50%	42%	51%
2021	59%	47%	40%	51%
2022	57%	46%	39%	49%
2023	54%	43%	35%	42%
2024	55%	41%	35%	41%
2025				43%
2026				41%
2027				39%

Note: The NHT High/Medium/Low lines are national figures

9.6.6.2.1 Past and Present Performance

Levels of satisfaction over the last 5 years have consistently declined, but at a rate which is consistent with the national picture. Halton scores in the top quartile for Highway Maintenance and was ranked 19th nationally in the 2022 NHT survey (out of 111).

9.6.6.2.2 Future Performance Targets

It is anticipated that the decline in satisfaction is likely to continue over the coming 5 years based on funding levels remaining as they are. As with other targets, we aim to manage any decline to ensure satisfaction remains well above the national average.

9.6.6.3 NHT KBI 25 Street Lighting

Figure 0.10 NHT KBI 25 – Street lighting

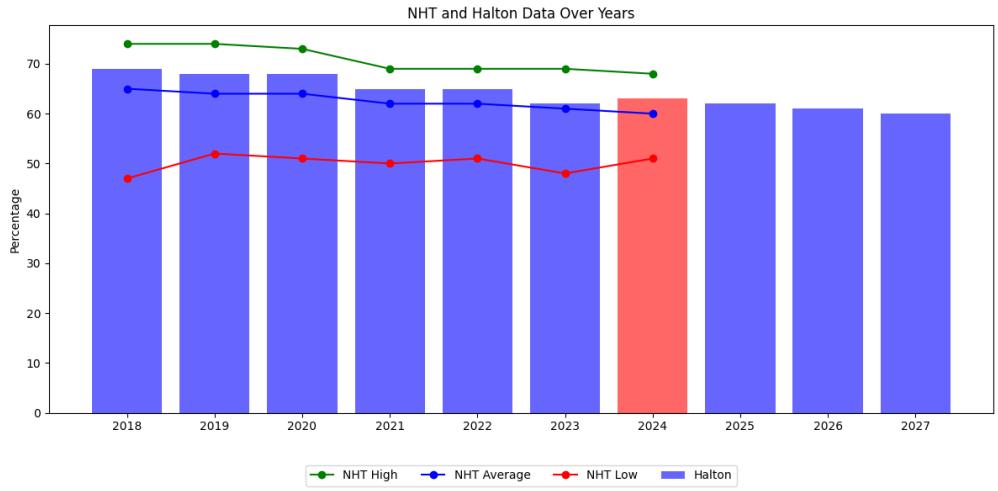


Table 0.10 NHT KBI 25 – Street lighting

Year	NHT High	NHT Average	NHT Low	Halton
2018	74%	65%	47%	69%
2019	74%	64%	52%	68%
2020	73%	64%	51%	68%
2021	69%	62%	50%	65%
2022	69%	62%	51%	65%
2023	695	61%	48%	62%
2024	68%	60%	51%	63%
2025				62%
2026				61%
2027				60%

Note: The NHT High/Medium/Low lines are national figures

9.6.6.3.1 Past and Present Performance

Levels of satisfaction over the last 5 years have declined in line with the picture nationally, but at around half the rate of the decline seen highways maintenance in general. Halton scores in the top quartile for street lighting and was ranked 24th nationally in the 2022 NHT survey (out of 111).

9.6.6.3.2 Future Performance Targets

It is anticipated that the decline in satisfaction is likely to continue over the coming 5 years based on funding levels remaining as they are. As with other targets, we aim to manage any decline to ensure satisfaction remains well above the national average.

9.6.6.4 NHT HMBI 01 Condition of Road Surfaces

Figure 0.11 NHT HMBI01 – Condition of road surfaces

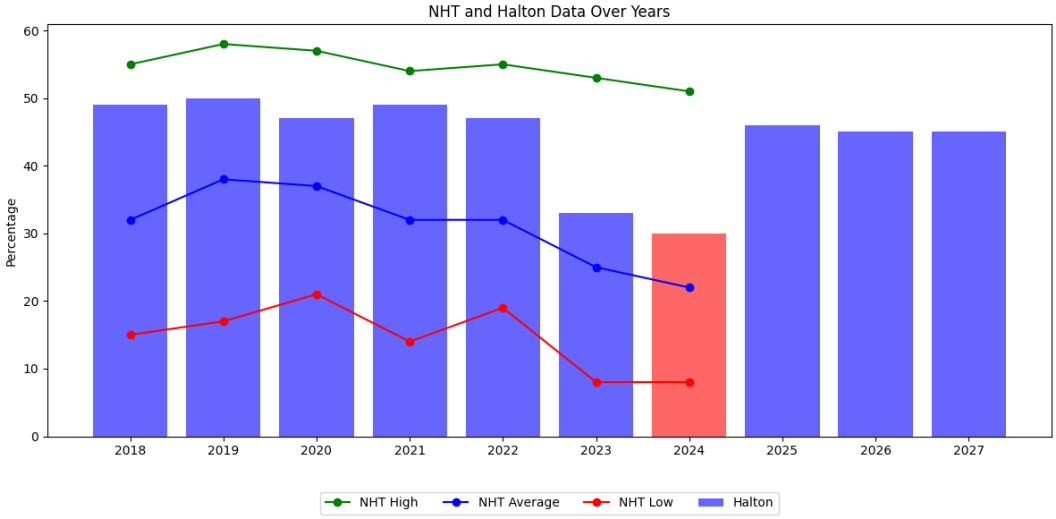


Table 0.11 NHT HMBI01 – Condition of road surfaces

Year	NHT High	NHT Average	NHT Low	Halton
2018	55%	32%	15%	49%
2019	58%	38%	17%	50%
2020	57%	37%	21%	47%
2021	54%	32%	14%	49%
2022	55%	32%	19%	47%
2023	53%	25%	8%	33%
2024	51%	22%	8%	30%
2025				46%
2026				45%
2027				45%

Note: The NHT High/Medium/Low lines are national figures

9.6.6.4.1 Past and Present Performance

Levels of satisfaction over the last 5 years have declined in line with the picture nationally but Halton currently scores in the top quartile for Condition of Road Surfaces and was ranked 3rd nationally in the 2022 NHT survey (out of 111).

9.6.6.4.2 Future Performance Targets

It is anticipated that the decline in satisfaction is likely to continue over the coming 5 years based on funding levels remaining as they are. As with other targets, we aim to manage any decline to ensure satisfaction remains well above the national average.

9.6.6.5 NHT HMBI 13 Dealing with Potholes and Damaged Roads

Figure 0.12 NHT HMBI 13 dealing with potholes and damaged roads

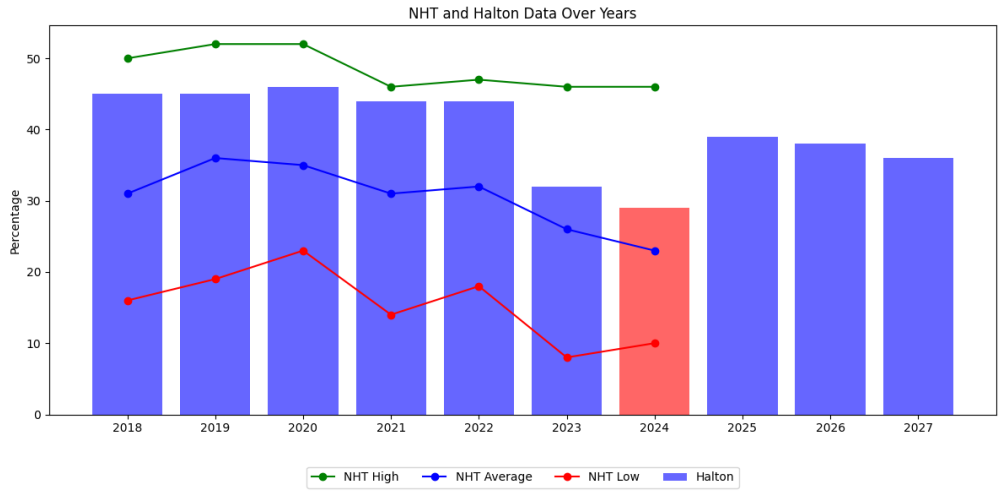


Table 0.12 NHT HMBI 13 Dealing with potholes and damaged roads

Year	NHT High	NHT Average	NHT Low	Halton
2018	50%	31%	16%	45%
2019	52%	36%	19%	45%
2020	52%	35%	23%	46%
2021	46%	31%	14%	44%
2022	47%	32%	18%	44%
2023	46%	26%	8%	32%
2024	46%	23%	10%	29%
2025				39%
2026				38%
2027				36%

Note: The NHT High/Medium/Low lines are national figures

9.6.6.5.1 Past and Present Performance

Levels of satisfaction over the last 5 years have declined in line with the picture nationally. Halton scores in the top quartile for Dealing with Potholes and Damaged Roads and was ranked 3rd nationally in the 2022 NHT survey (out of 111).

9.6.6.5.2 Future Performance Targets

It is anticipated that the decline in satisfaction is likely to continue over the coming 5 years based on funding levels remaining as they are. As with other targets, we aim to manage any decline to ensure satisfaction remains well above the national average.

9.6.7 Performance measures to progress the transportation decarbonising agenda

9.6.7.1 NHT Active Travel theme

Figure 0.13 NHT Active Travel theme

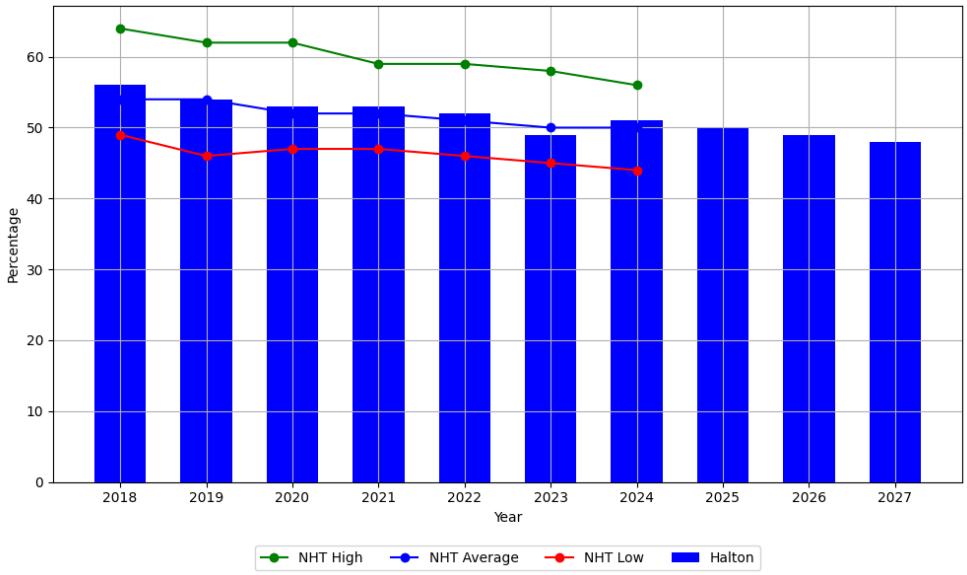


Table 0.13 NHT Active Travel theme

Year	NHT High	NHT Average	NHT Low	Halton
2018	64%	54%	49%	56%
2019	62%	54%	46%	54%
2020	62%	52%	47%	53%
2021	59%	52%	47%	53%
2022	59%	51%	46%	52%
2023	58%	50%	45%	49%
2024	56%	50%	44%	51%
2025				50%
2026				49%
2027				48%

Note: The NHT High/Medium/Low lines are national figures

9.6.7.1.1 Past and Present Performance

Levels of satisfaction over the last 5 years have declined in line with the picture nationally. Halton scores in the top quartile for the Active Travel theme, which is a combination of several questions from the NHT which all relate to active travel and was ranked 22nd nationally in the 2022 NHT survey (out of 111).

9.6.7.1.2 Future Performance Targets

It is anticipated that the decline in satisfaction is likely to continue over the coming 5 years based on funding levels remaining as they are. As with other targets, we aim to manage any decline to ensure satisfaction remains well above the national average.

9.6.7.2 NHT Tackling Congestion Theme

Figure 0.14 NHT Tackling Congestion theme

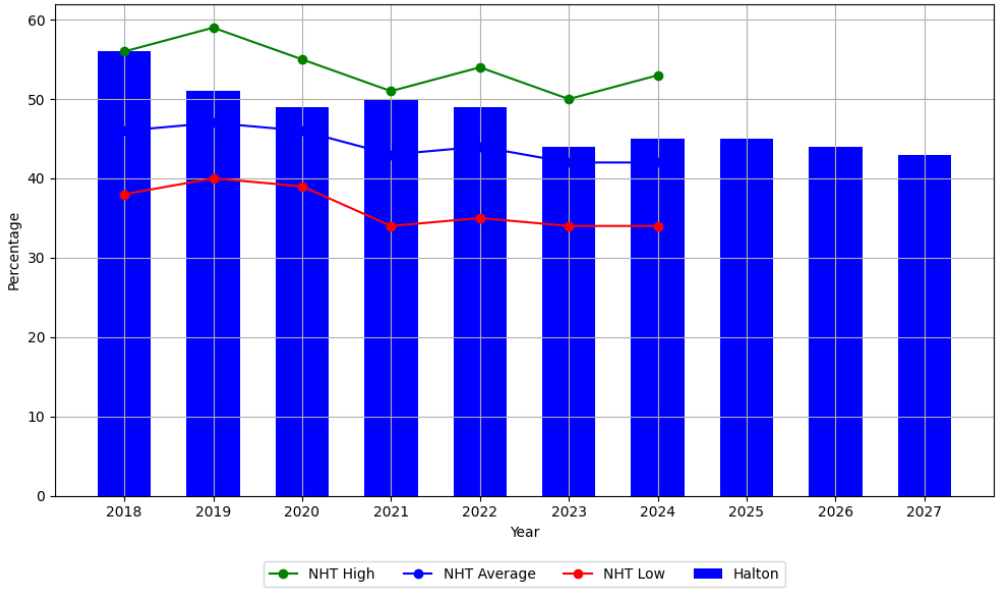


Table 0.14 NHT Tackling Congestion theme

Year	NHT High	NHT Average	NHT Low	Halton
2018	56%	46%	38%	56%
2019	59%	47%	40%	51%
2020	55%	46%	39%	49%
2021	51%	43%	34%	50%
2022	54%	44%	35%	49%
2023	50%	42%	34%	44%
2024	53%	42%	34%	45%
2025				44%
2026				44%
2027				43%

Note: The NHT High/Medium/Low lines are national figures

9.6.7.2.1 Past and Present Performance

Levels of satisfaction over the last 5 years have declined in line with the picture nationally. Halton scores in the top quartile for the Tackling Congestion theme, which is a combination of several questions from the NHT survey which relate to congestion and was ranked 6th nationally in the 2022 NHT survey (out of 111).

9.6.7.2.2 Future Performance Targets

It is anticipated that the decline in satisfaction is likely to continue over the coming 5 years based on funding levels remaining as they are. As with other targets, we aim to manage any decline to ensure satisfaction remains well above the national average.

9.6.7.3 NHT ACQI 25 Electric Vehicle Charging Points

Figure 0.15 NHT ACQI 25 Electric vehicle charging points

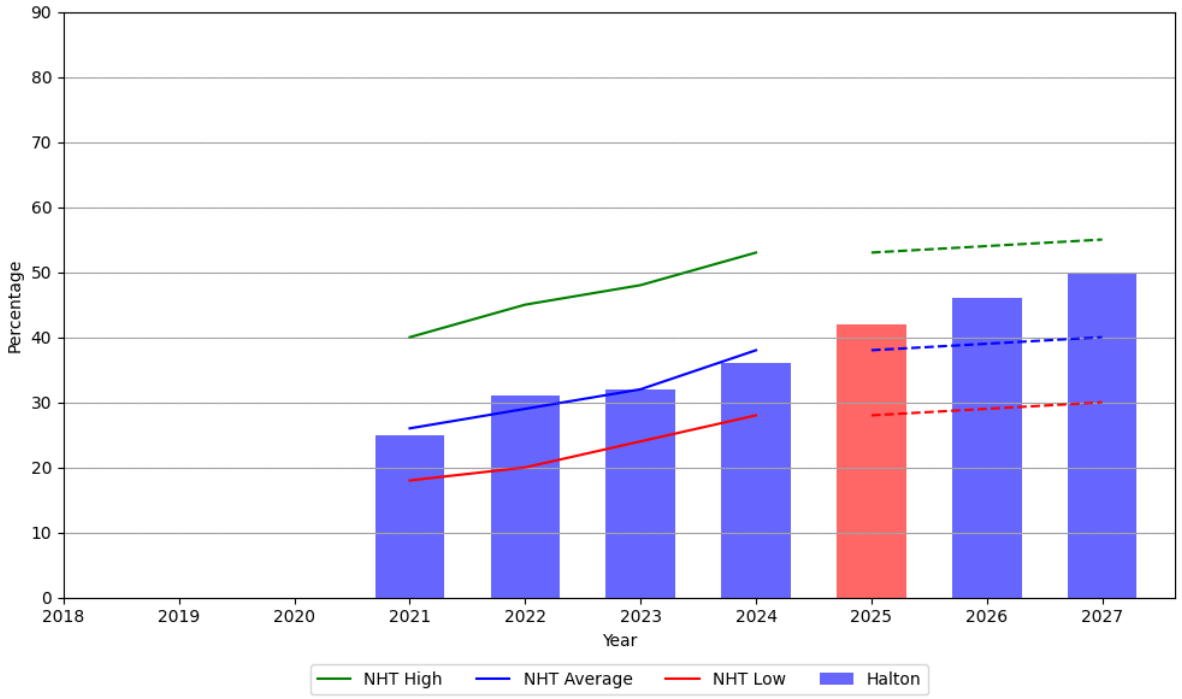


Table 0.15 NHT ACQI 25 Electric vehicle charging points

Year	NHT High	NHT Average	NHT Low	Halton
2018				
2019				
2020				
2021	40%	26%	18%	25%
2022	45%	29%	20%	31%
2023	48%	32%	24%	32%
2024	53%	38%	28%	36%
2025				42%
2026				46%
2027				50%

Note: The NHT High/Medium/Low lines are national figures

9.6.7.3.1 Past and Present Performance

This indicator was only added to the NHT Survey in 2021 but gives an important indication on a key infrastructure requirement in relation to decarbonisation of transport. Although data is limited, Halton scores around the national average for the two years of data available, but notably were the biggest improver in the North West in the 2022 survey and ranked 27th nationally in the 2022 survey (out of 111).

9.6.7.3.2 Future Performance Targets

It is anticipated that the level of satisfaction will increase over the next five years due to targeted investment in electric vehicle infrastructure. We hope to continue to improve satisfaction levels to rise to above average by the end of the next 5 years.

9.6.8 Performance measures to support the objectives of the Liverpool City Region Combined Authority

9.6.8.1 NHT KBI 11 Pavements and Footways (overall)

Figure 0.16 NHT KBI 11 – Pavements and footpaths (overall)

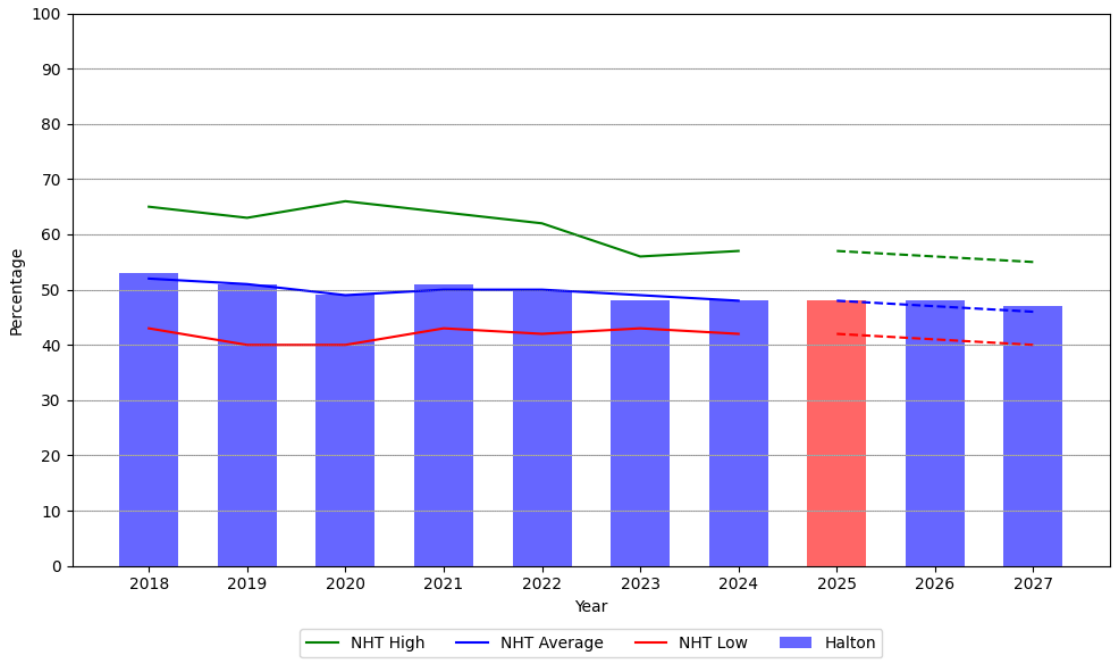


Table 0.16 NHT KBI 11 – Pavements and footpaths (overall)

Year	NHT High	NHT Average	NHT Low	Halton
2018	67%	54%	44%	59%
2019	67%	55%	44%	58%
2020	67%	55%	43%	58%
2021	65%	52%	39%	58%
2022	62%	52%	40%	57%
2023	60%	50%	38%	53%
2024	60%	49%	35%	50%
2025				55%
2026				54%
2027				53%

Note: The NHT High/Medium/Low lines are national figures

9.6.8.1.1 Past and Present Performance

Levels of satisfaction over the last 5 years have declined in line with the picture nationally. Halton scores in the top quartile for the Pavements and Footways key benchmark indicator and was ranked 20th nationally in the 2022 NHT survey (out of 111).

9.6.8.1.2 Future Performance Targets

It is anticipated that the decline in satisfaction is likely to continue over the coming 5 years based on funding levels remaining as they are. As with other targets, we aim to manage any decline to ensure satisfaction remains well above the national average.

9.6.8.2 NHT KBI 13 Cycle routes and facilities (overall)

Figure 0.17 NHT KBI 13 – Cycle routes and facilities (overall)

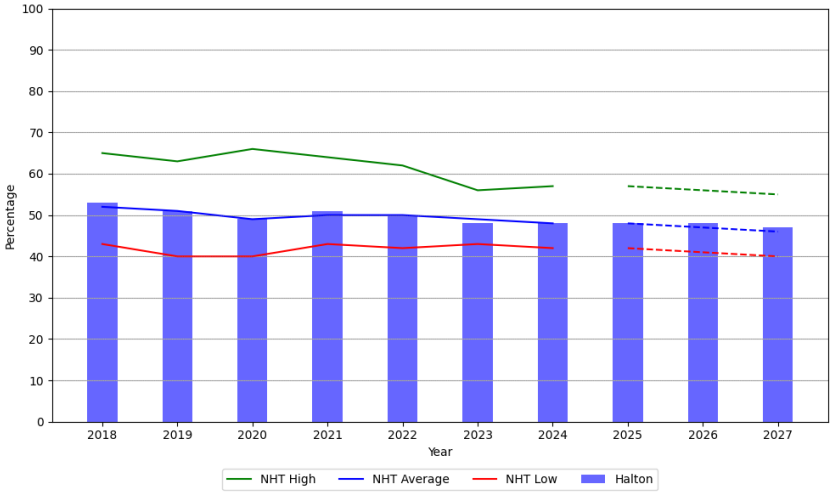


Table 0.17 NHT KBI 13 – Cycle routes and facilities (overall)

Year	NHT High	NHT Average	NHT Low	Halton
2018	65%	52%	43%	53%
2019	63%	51%	40%	51%
2020	66%	49%	40%	49%
2021	64%	50%	43%	51%
2022	62%	50%	42%	50%
2023	56%	49%	43%	48%
2024				49%
2025				48%
2026				48%
2027				47%

Note: The NHT High/Medium/Low lines are national figures

9.6.8.2.1 Past and Present Performance

Levels of satisfaction over the last 5 years have declined in line with the picture nationally. Halton scores in the second quartile for the cycle routes and facilities key benchmark indicator and was ranked 47th nationally in the 2022 NHT survey (out of 111).

9.6.8.2.2 Future Performance Targets

It is anticipated that the decline in satisfaction is likely to continue over the coming 5 years based on funding levels remaining as they are. As with other targets, we aim to manage any decline to ensure satisfaction remains at the national average.

9.6.8.3 NHT KBI 15 Rights of Way (overall)

Figure 0.18 NHT KBI 15 Rights of Way (overall)

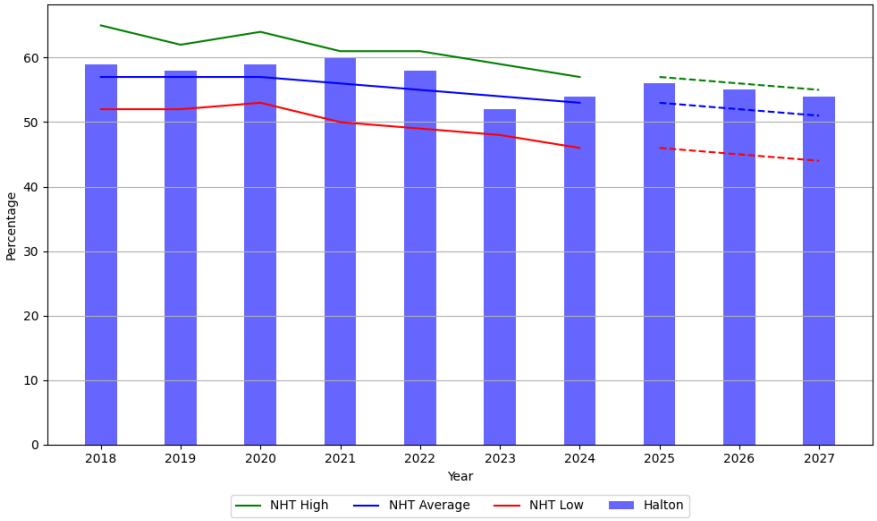


Table 0.18 NHT KBI 15 Rights of Way (overall)

Year	NHT High	NHT Average	NHT Low	Halton
2018	65%	57%	52%	59%
2019	62%	57%	52%	58%
2020	64%	57%	53%	59%
2021	61%	56%	50%	60%
2022	61%	55%	49%	58%
2023	59%	54%	48%	52%
2024	57%	53%	46%	54%
2025				56%
2026				55%
2027				54%

Note: The NHT High/Medium/Low lines are national figures

9.6.8.3.1 Past and Present Performance

Levels of satisfaction over the last 5 years have declined in line with the picture nationally. Halton scores in the top quartile for the rights of way key benchmark indicator and was ranked 14th nationally in the 2022 NHT survey (out of 111).

9.6.8.3.2 Future Performance Targets

It is anticipated that the decline in satisfaction is likely to continue over the coming 5 years based on funding levels remaining as they are. As with other targets, we aim to manage any decline to ensure satisfaction remains well above the national average.