Highways Infrastructure Asset Management Strategy

2026-2029

Lincolnshire
COUNTY COUNCIL
Working for a better future

Contents

Registry of Amendments

Amendment Number	Date	Brief Description of Amendments made	Name and Job Title
1	April 2025 – February 2026	Full review and update of the 2022 Highways Infrastructure Asset Management Strategy document	Clair Dixon, Policy and Asset Manager
2	April 2025 – February 2026	Two new sections (1) Artificial Intelligence, Technology and Data Insight and (2) Asset Maintenance and Planning have been included	Clair Dixon, Policy and Asset Manager
3	April 2025 – February 2026	All charts, graphs and budget calculations have been updated with the latest information and forecasts	Clair Dixon, Policy and Asset Manager

Foreword

I am pleased to introduce our Highways Infrastructure Asset Management Strategy for 2026-2029. Our highway network is the largest publicly owned asset in Lincolnshire, central to the daily lives of our residents, communities and businesses. It supports growth, connects people to essential services, and enables our county to thrive.

In developing this strategy, we have listened carefully to the views of the public, local businesses and councillors. A clear message has emerged: we must prioritise maintaining and improving what we already have, ensuring that Lincolnshire's roads, footways, bridges and drainage systems remain safe, reliable and fit for the future.

Our focus must be to prioritise maintenance above building new roads, recognising that the day-to-day condition of the network is what matters most to Lincolnshire's residents. We will complete the major projects already underway, but we will do so without diverting attention or resources away from maintaining and improving the existing network. This strategy therefore places maintenance first, ensuring the core network receives sustained investment while still enabling the responsible completion of committed schemes.

Our commitment is to maintain the existing network and, where possible, improve it, guided at all times by robust evidence, local intelligence and the needs of our communities. We will take a disciplined, customer-focused approach, ensuring that our decisions are transparent, data-driven and deliver real value for Lincolnshire.

At a time of ongoing financial pressure, we must do well at what we do rather than attempt to do more with less. This means concentrating on high-quality delivery, strengthening resilience, and ensuring that every pound spent contributes to a safer, smoother and more dependable network for everyone.

Through this strategy, we set out a clear direction for responsible stewardship of our highways, embracing innovation, investing wisely, and securing the long-term health of the network for current and future generations.

Councillor David East, Executive Councillor: Highways and Transport

1. Introduction

1.1 Overview

We manage one of the county's most valuable public assets; the highway network that supports our economy, keeps communities connected, and enhances the wellbeing of our residents. As we look ahead to 2026 and beyond, our Asset Management Strategy sets out a clear, data-driven framework for maintaining and enhancing this infrastructure in a way that is sustainable, resilient, and responsive to the needs of our residents, businesses, and visitors.

This strategy builds on the foundations laid in previous years, evolving to meet new challenges such as a changing climate, increasing traffic volumes, and differing patterns of asset use. It reflects our commitment to delivering value for money, improving safety and accessibility, and supporting Lincolnshire's growth ambitions through a well-maintained and future-ready highway network.

By integrating lifecycle planning, robust condition data, and stakeholder engagement, we aim to optimise investment decisions and ensure that our approach remains transparent, accountable, and aligned with national guidance. A sound asset management strategy also recognises the importance of innovation and digital transformation in asset management, including the use of smart technologies and predictive analytics to improve service delivery.

Ultimately, this document serves as a strategic guide for how we will manage our highway assets over the coming years, ensuring that our infrastructure continues to support a thriving, connected, and resilient county.

This Highways Infrastructure Asset Management Strategy replaces the previous Highways Infrastructure Asset Management Strategy 2022-2025 and has been updated to reflect:

- current financial constraints
- local and political aspirations for Lincolnshire
- the changing road network and associated conditions in Lincolnshire
- changing climate and the increasing frequency of adverse weather events
- recent national and regional developments in asset management
- changes in local practice since the previous Highways Asset Management Strategy was published

This strategy will be for a three-year period to align with our electoral cycle which will hold the elections for the next administration in 2029. Our strategy will be amended as a live document and comprehensively reviewed when necessary, or in 2029 for a further four-year period. This will allow us to maximise long term planning and allow our strategy to match the aspirations of the political administration.

1.2 Purpose

In conjunction with the Highways Infrastructure Asset Management Policy, this strategy informs the Highways Infrastructure Asset Management Plan (HIAMP), which sets out how we will apply and operate our asset management principles to ensure that our highway network remains safe, serviceable and sustainable for the benefit of our stakeholders, taking account of available resources.

The key aims of this strategy are to ensure we:

- regularly collect and maintain good quality asset condition survey data
- take a long-term view using a systematic, risk-based approach based on defined levels of service for each asset
- consider the whole life costs of maintaining an asset; we will look at what will provide the best return on the money we spend in the long term, rather than 'worst-first' short term maintenance treatment
- understand the lifecycle of each asset and use this knowledge to plan when the best time is to do maintenance to keep the asset in a safe and serviceable condition and when it is time to replace it with new
- define the funding approach for the service and the expectation of asset condition;
- measure and review the highways performance to promote continuous improvement and influence spending on different assets
- develop maintenance programmes using asset condition data as the starting point and utilising local intelligence where appropriate.

2. Asset Management Framework

2.1 Our Strategy – The framework for asset management

National guidance on Highways Infrastructure Asset Management sets out a framework which describes all asset management activities and processes that are necessary to develop, document, implement and continually improve asset management practices.

Our Asset Management Framework demonstrates how asset management links to our broad organisational context and strategic direction of travel, all the way through to the frontline delivery of services.

We present the framework in four parts:

- **Context** – The context includes a variety of factors that need to be taken into consideration when determining our expectations for our highway service. The factors include national transport policy, local vision and local transport policies, expectations of stakeholders and legal and financial constraints;

- **Asset Management Planning** – Outlines the key principles to be adopted, and the scope of assets covered by this Framework. The Highways Infrastructure Asset Management Strategy sets out strategic planning of the policy and the strategy but is also where the aspirations for the highway assets and the levels of service are defined.

  Aligned to the strategy and objectives, keeping with the principles as set out in the Asset Management Policy, this phase sets out the tactical and operational planning activities and where decisions are made which determine whether the strategic objectives are met. The typical outputs delivered through this phase include major asset type lifecycle plans and capital works programmes.

- **Asset Management Enablers** – Are the activities which are required to support good asset management practice. Aspects such as Leadership and People, Asset Management Systems, Resources and Supply Chain, Risk and Customer Communication are essential in successful delivery of a professional asset management service.

- **Delivery** – The delivery component of the framework sets out how our highway service will be delivered via the highway maintenance contract for which a series of service delivery and contract delivery outcomes have been established respectively.

We illustrate how the various documents interact with the different levels of the framework in figure 1 below.

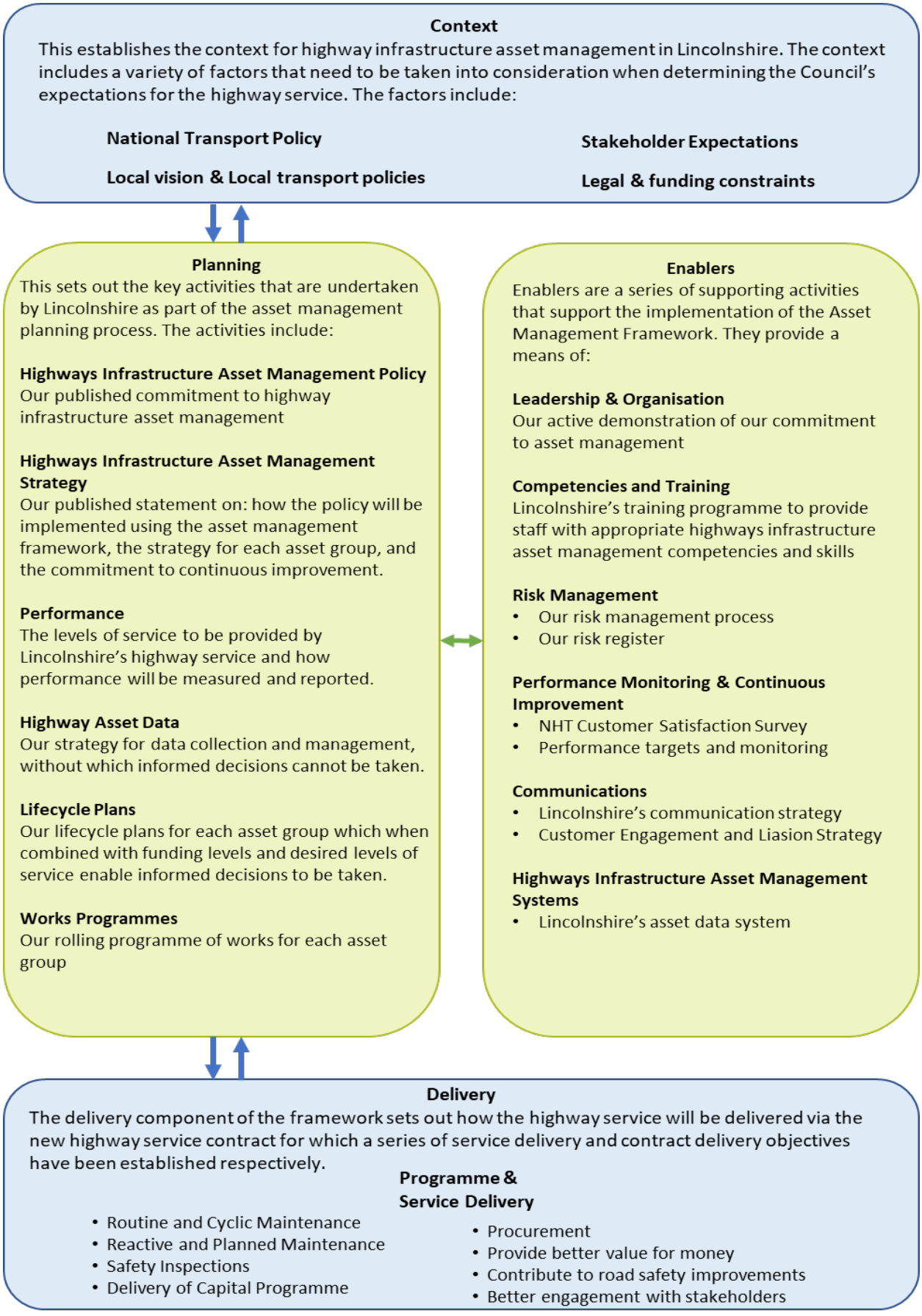

Figure 1: Interrelationships between documents

2.2 Asset Management Planning Practice

This section defines the asset management planning practices that we use. The application of these practices is essential to the achievement of this strategy.

Highways Infrastructure Asset Management Policy

Sets out the policy and principles that will be adopted for the management of the highway assets and how these align to our long-term vision and purpose.

Highways Infrastructure Asset Management Strategy

Contains asset data information, future demands on the assets, investment strategies, finance and budget detail. It has been developed by Senior Management and managers with specific responsibilities for key assets and reviewed by Council members at our Highways and Transport Scrutiny Committee meetings.

Performance Reporting

A performance report will be compiled annually summarising the condition of each asset group. The report will describe the result of the previous year's investment in terms of meeting the target service standards and key outcomes.

The report will also include long term predictions of levels of defects and condition, which will be used to enable us to best allocate the following years budgets and to decide whether any of the asset condition outcomes, funding levels or service standards contained within the asset management plan, need to be revised.

Highway Asset Data

Asset data comprises information on what physical highway infrastructure assets an authority has responsibility for and includes number, location, performance, financial value and public opinion. Effective asset management planning and decision-making relies on this data being available, appropriate, reliable and accurate.

Lifecycle Plans

Lifecycle planning comprises the approach to the maintenance of an asset from construction to disposal. It is the prediction of future performance of an asset, or a group of assets, based on investment scenarios and maintenance strategies. The lifecycle plan is the documented output from this process.

Works Programme

The delivery of the works programme is the tangible outcome of the asset management planning process. The programming and delivery of works should align with the asset management strategy and meet the performance targets.

Links to Other Plans

We have aligned our strategy to key documentation within the organisation to ensure that not only are we aligned to the corporate vision and strategic goals, but that the planning and enablers required are in place and operating effectively. Figure 2 below identifies these key elements and how they are aligned with one another.

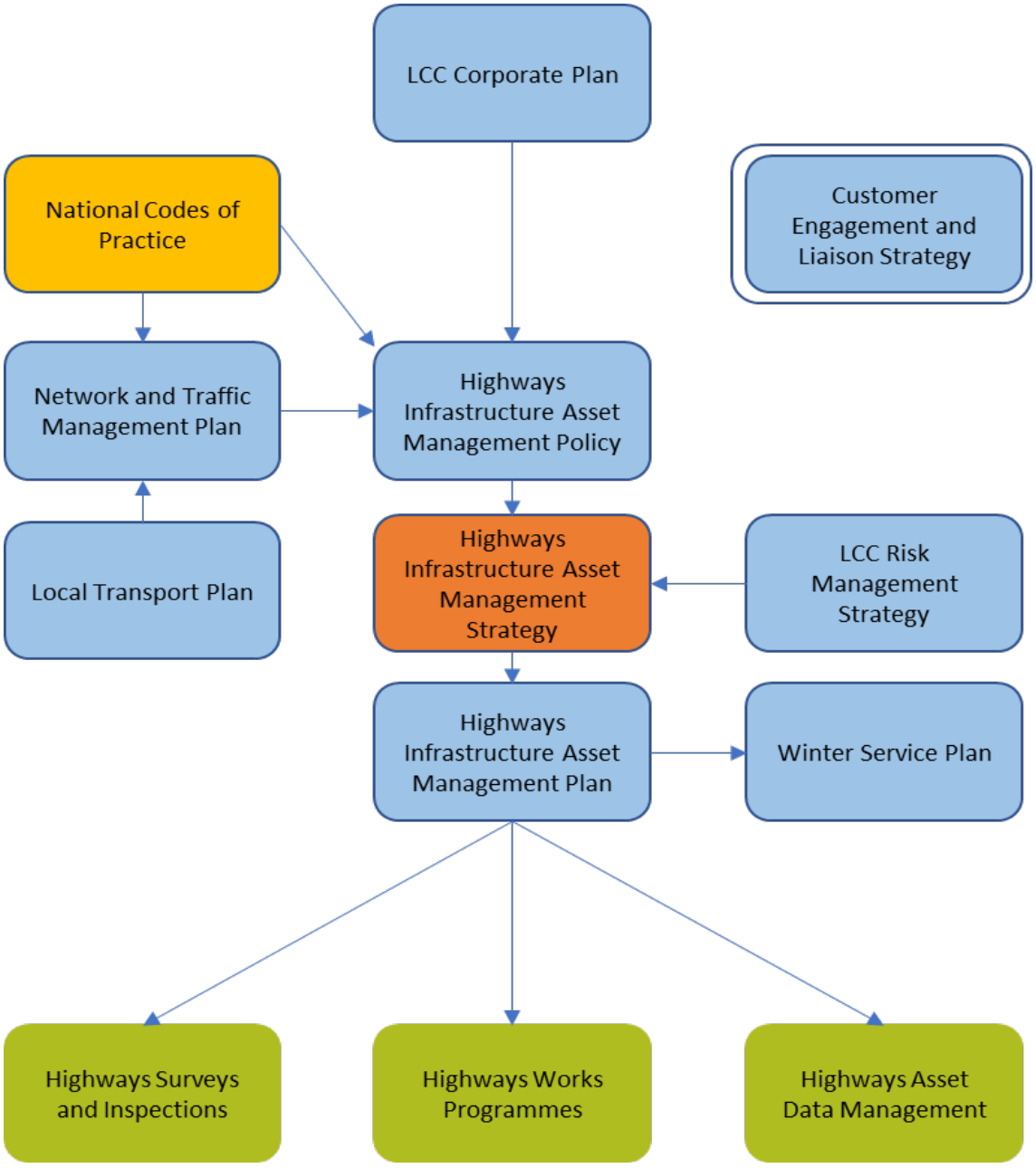

Figure 2: Hierarchical relationship between the LCC corporate framework, highways asset management documents, and operational delivery plans.

3. Stakeholder Engagement and Communication

The principal purpose of asset management is to ensure that our network meets the needs and expectations of our stakeholders. To ensure we keep our stakeholders at the heart of all we do we communicate with them on a regular basis and seek feedback at many opportunities.

Our Highways Engagement and Liaison Strategy 2025 - 2029 aims to ensure we provide timely, transparent and accessible information about our highway service, and create opportunities for proactive stakeholder engagement. The strategy underpins our asset management approach by ensuring customers can easily access information about service priorities, planned works and opportunities to provide feedback.

We aim to strengthen public trust, improve satisfaction, and embed meaningful engagement into decision-making through digital platforms such as FixMyStreet and one.network, alongside targeted engagement activities. Aligning engagement with asset management ensures that technical and financial efficiency is delivered while reflecting the needs and expectations of the communities we serve.

3.1 Stakeholder Engagement

To determine future levels of service and to enable informed decision-making based around priorities, it is essential that robust customer engagement be undertaken. Only by engaging with stakeholders will we fully understand their needs and expectations properly. Once undertaken effectively, informed choices and decisions will be made to enable the right forms of highway service to be provided.

To find out how our stakeholders view the highway service, we engage and gather feedback from a variety of sources including:

- NHT Survey
- County Views Survey
- close review of any complaints and compliments received
- engagement with Councillors
- Lincolnshire Association of Local Council (LALC) events
- highways specific presence at the Lincolnshire Show
- Customer Service Centre
- direct contact with customers
- FixMyStreet
- social Media
- statutory consultations
- specific survey work for Travel Plans or other specific purposes

This approach allows the stakeholder to feedback in a variety of ways, both formal and informal. We will use their feedback to understand how satisfied they are with the service and establish how we will further develop the service to meet their needs and expectations.

During the period of this strategy, we propose to widen the range of opportunities for our stakeholders to feedback and engage with us by adding feedback surveys at key stages of our

fault reporting process and when highway work has been completed. This will enable us to establish how satisfied stakeholders are with the service as it is being delivered and where it affects them the most.

We actively listen to customer feedback and engagement and learn from it to improve the service for our stakeholders.

3.2 Customer Consultation

To obtain information on the customer view of the highway service we participate in the National Highway and Transport (NHT) Public Satisfaction Survey which covers all aspects of Highways and Transport service delivery. Details of the results of the surveys are available on the NHT Website.

The survey, undertaken by Ipsos MORI, is based on a sample of residents and is designed to represent a spread of customers' views of the service across the county, geographically by gender and by age and allows us to understand the views and preferences and compare these against other similar councils.

As shown in figure 3, the results from the 2025 survey indicate that customer satisfaction with key elements of the highway service has generally declined over the past five years, although there has been a slight improvement in the most recent year. Condition of highways remains the lowest-rated aspect, despite a modest recovery. Highway maintenance and enforcement have also seen minor improvements following previous declines, while street lighting continues to perform best overall.

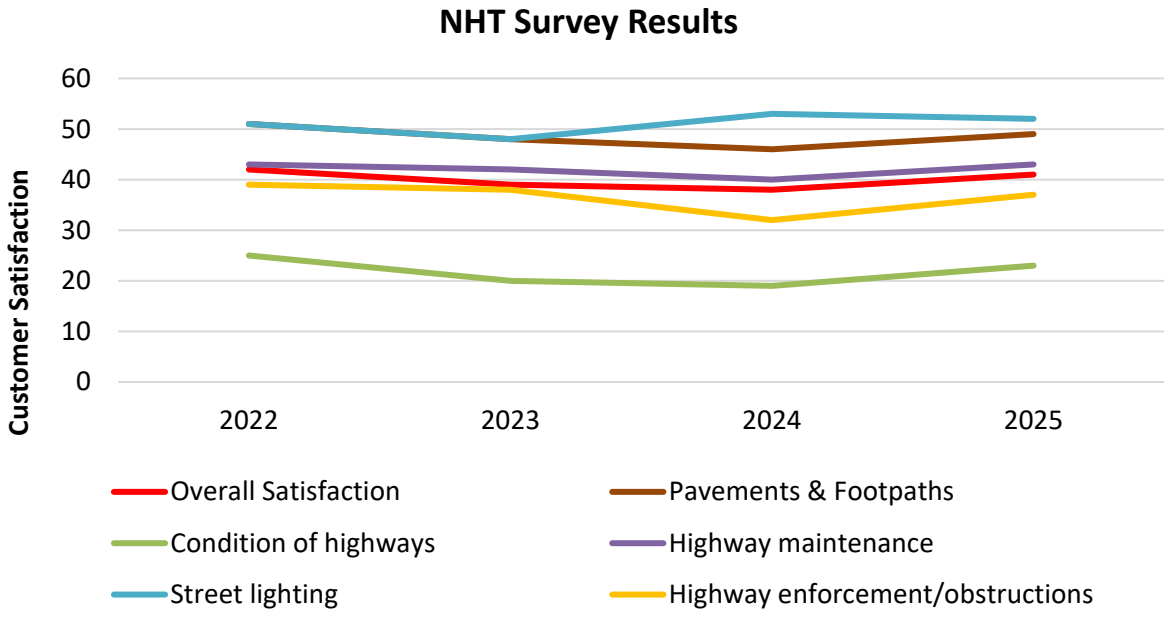

Figure 3: NHT survey results (2022–2025) showing trends in customer satisfaction across key highway service areas.

Figure 4 looks at how residents rate the importance of highway issues. There has been little change in the public's top issues over the last year. Road condition and safety of roads were highlighted as the two most important aspects of our highways service by 98% of responders.

The third-place issue is pavements and footpaths – this means that the top three priorities identified by residents remain firmly focused on the condition of the network and the safety of those using it. This continued emphasis reflects a clear expectation from stakeholders that well maintained roads, safe walking environments, and reliable infrastructure should form the foundation of the service.

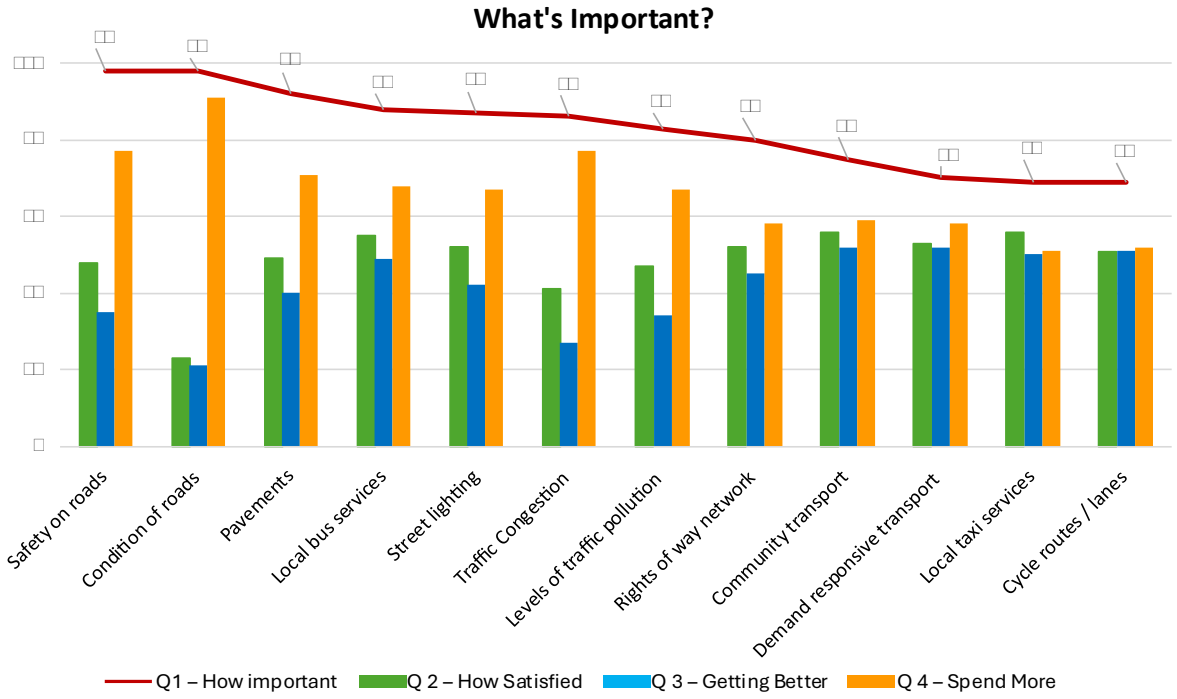

Figure 4: Comparison of importance, satisfaction, perceived improvement, and areas where more investment is desired across highways and transport

3.3 Engagement Principles

Our engagement approach is guided by the following principles:

- **Transparency**: We will provide clear, accurate and accessible information and honest rationale for our decisions.
- **Timeliness**: We will strive to share information in a timely manner and engage early where possible.
- **Inclusion**: We will make engagement and communication activities accessible to all, being mindful of digitally excluded communities across our rural county, as well as how the demographic of our stakeholders might influence interaction.
- **Efficiency**: We will use digital tools and self-service platforms to provide information and to facilitate efficient engagement with stakeholders.

- **Continuous Improvement**: We will strive to achieve continuous improvement and will consider how emerging technologies such as predictive analysis and Artificial Intelligence (AI) can be used to adapt to our approach.

3.4 Communication

We recognise the importance of consistent two-way communication with staff, elected members, senior officers and stakeholders to ensure that our asset management strategy is properly informed and that stakeholders understand our intentions and priorities.

We will make our policies, plans and programmes available for everyone to see so that our customers know what we are doing. We will ensure that these are easy to find and understand on our website or, upon request, be able to provide these to customers.

We will utilise, where appropriate, local media forums such as press releases, radio, television and print media to provide briefings and information in relation to our highway service. Where possible, we will use multiple channels to engage with the widest range of stakeholders. Increasingly, the use of digital media, principally through use of our website and social media forums such as X and Facebook, to relay information regarding our highway service.

This strategy also commits to keeping our website accurate and up to date by auditing all public facing highways information, implementing improvements, and carrying out quarterly reviews, alongside regularly updating service delivery information so stakeholders remain informed. It also recognises the website as a key communication and self-service channel, meaning ongoing updates are an integral part of how we provide accessible, transparent information to the public.

Our communications will cover:

- **Highway Works**: Road closures, diversions, maintenance schedules, strategic infrastructure schemes, progress on reported faults
- **Service Priorities and Decisions**: Rationale for scheme prioritisation, funding allocation and asset management approaches
- **Opportunities for Involvement**: How stakeholders can get involved with engagement activity and other opportunities for them to provide feedback
- **Performance and Outcomes:** Information on completed works and schemes, evidence of our performance and how feedback has informed planning and service improvements

During this strategy period, we will strengthen our communication approach by:

- undertaking quarterly audits of all public-facing highways content on our website
- publishing updates on planned works and network impacts at the earliest opportunity
- seeking stakeholder feedback following completed works and key service interactions
- reporting annually on how stakeholder feedback has informed service improvements

These commitments will ensure that communication supports effective decision-making, enhances transparency, and improves customer satisfaction across the highways service.

4. Service and Contract Delivery

To meet the objectives of our strategy, we employ a range of contract models tailored to deliver efficient, high-quality services. The majority of our highway services are delivered through long-term strategic maintenance contracts with trusted supply chain partners. These are complemented by framework agreements and alternative delivery mechanisms to ensure flexibility, operational resilience, and value for money.

We maintain a strong client role, supported by a specialist operating model. This model is built around dedicated teams responsible for specific service areas, ensuring alignment with asset management principles and enabling effective service delivery.

Our current highway maintenance contract, initiated in 2020, is overseen by the Client Management Team. This team provides expertise in contract management, commercial oversight, performance monitoring, and service development. A set of asset management outcomes, directly linked to broader service goals, has been established to support the delivery of our Council Plan.

Most of our highway service is delivered through a highway maintenance and infrastructure contract for which a series of service delivery and contract outcomes have been established. We establish work programmes on a data driven asset management basis for delivery through our highway's contracts. This will ensure the works remain aligned to this asset management strategy and our priority outcomes. It will also support advance planning of key investment decisions for LCC.

4.1 Service Delivery Outcomes

Improve and manage asset condition

- measured through carriageway and footway condition indicators, drainage performance, street lighting and traffic signal inspection, structures condition indicators, safety barrier maintenance and inspections

Improve customer satisfaction

- measured using the annual NHT survey and regular monitoring of the level of complaints

Reduce third party claims

- using evidence of the level of claims by value and volume

Provide value for money

- demonstrated through external reviews and benchmarking, close review of costs per kilometre of network or work type and ensuring schemes are delivered within budget

Local engagement and quality service delivery

- measured in a number of ways including: number of local employees working on the contract, number of local Subject Matter Expert's, apprenticeships and work placements, social value returned to local communities and ensuring works meet Council priorities

Promote economic growth

- Demonstrated through the measure of network availability and value of network improvements

4.2 Contract Delivery Outcomes

Safety

- Ensuring a safe network is provided, safely maintained and that safety incidents on the network are reduced

Sustainability

- Managed to ensure resources are used most efficiently and effectively, carbon emissions are reduced where appropriate, and ensure the maximum promotion and utilisation of the local economy

Customer

- To listen and respond to the needs of all stakeholders, disruption to road users is minimised and that those stakeholders are satisfied

Operational Delivery

- To ensure the right people, business processes and systems are in place, the contract is compliant, managed effectively and the service/schemes are delivered to meet required time, cost and quality outcomes

Asset

- Delivering all asset information in a timely manner to support effective decision making and provide information to stakeholders.

5. Data Management

We apply a risk-based approach to highway asset management, underpinned by a robust understanding of our infrastructure. This understanding is driven by effective data governance, which ensures that asset knowledge is accurate, accessible, and actionable. Our approach includes:

- Maintaining and routinely updating comprehensive asset records
- Validating data to ensure reliability and consistency
- Promoting transparency to support informed decision-making across service areas

We provide a framework for identifying, owning, collecting, and using data to support service delivery and strategic planning through our Data Management Strategy. Key elements of this strategy include:

Business need identification - Data is collected based on clearly defined service requirements, with emphasis on its validity, relevance, and potential for reuse across the Directorate.

Data ownership and accessibility - Each service area has data owners who are responsible for their own data. These data owners are responsible for ensuring that the data information is collated and reviewed annually and ensure that any statutory requirements are adhered to

Data collection - We prioritise accuracy, appropriateness, and repeatability in our data collection processes, enabling consistent and high-quality inputs for analysis and reporting.

Compliance with Statutory Requirements - All data is managed in accordance with the General Data Protection Regulations (GDPR) 2018, The Freedom of Information Act (FOI) 2000, the Data Protection Act 2018 and other relevant legislation, ensuring legal and ethical stewardship.

Inventory Register - Our infrastructure data is held in Confirm, a live, integrated system that supports asset tracking, maintenance management, and service planning.

Data Retention – The Council's Data Retention Schedule outlines the duration of time for which a record should be maintained or "retained" before disposal or archiving.

The strategy also supports the development of a centralised data repository via SharePoint, enabling cross-service visibility and reducing duplication. This shared access model enhances our ability to plan, report, and bid for funding, particularly from the Department for Transport, using consistent and validated datasets.

By embedding these principles into our asset management practices, we ensure that data is not only fit for purpose but also a strategic enabler of smarter working, better investment decisions, and improved service outcomes.

6. Artificial Intelligence, Technology and Data Insight

Innovation and digital transformation will be central to delivering a modern, efficient, and resilient highway network during this strategy period. We will continue to harness emerging technologies, advanced analytics, and sustainable practices to improve decision-making, optimise investment, and enhance service delivery across all asset groups.

6.1 Materials testing and technology

With ever changing specifications and advances in materials technology there are significant opportunities for the use of innovative materials and for the recycling and reuse of what would have previously been waste materials from the existing infrastructure.

We will actively make use of appropriate new and improved materials and techniques where this allows us to continuously improve the performance of our highway assets and highway network.

Unknown materials, technologies and solutions are to be investigated and, if required, trialled prior to adopting.

The results of trials and tests are to be recorded, reviewed, and, if deemed beneficial the material, solution or technology put into use.

All current materials, technologies and solutions are to be regularly reviewed against advancements in the marketplace and developments to ensure our choices, systems and design specifications remain current and efficient.

Materials, technologies and solutions are to be selected to give the most benefit and best long-term performance and value for money.

6.2 Future Direction

AI-Driven Asset Management

Develop and implement predictive models to forecast deterioration rates for carriageways, footways, structures, and drainage systems. These models will enable proactive maintenance planning and reduce reliance on reactive interventions.

Climate Resilience and Risk Mapping

Integrate AI tools with real-time weather data and climate projections to predict flood risk and surface deterioration. This will inform targeted drainage upgrades and resilience measures across the network.

Digital Surveying and Remote Sensing

Increase the use of drones, LiDAR, and automated imaging for condition surveys, reducing costs and improving accuracy for carriageways, structures, and tree assets.

Geospatial and Dashboard Insights

Deliver interactive dashboards and GIS-based mapping to support lifecycle planning, performance monitoring, and public transparency.

6.3 Expected Outcomes

- predictive modelling integrated into lifecycle planning for all major asset groups
- wider adoption of smart technologies to enable real-time monitoring and data-driven decision-making
- greater use of recycled materials and low-carbon solutions in highway construction and maintenance where they improve value for money.

7. Our Highway Assets

7.1 Data Collection

We maintain a prioritised programme of inventory and condition data collection, aligned to risk and available budgets. Data is only collected and maintained where there is a clear business benefit that justifies the cost of acquisition and upkeep. Increasingly, we use digital tools, remote sensing, and automated survey technologies to improve efficiency and accuracy.

7.2 Asset Table

A corner stone of asset management is knowing what you have, where it is and what condition it is in. The following tables outline the major highway assets that we manage.

Carriageway

Element	Quantity	Data Confidence
A Roads	1,091 km	**High**
B Roads	782 km	**High**
C Roads	2,915 km	**High**
Unclassified Roads	4,143 km	**High**
Unclassified Roads – (green lanes)	772 km	**High**
White and Yellow Lines	No Data	**Low**

Footways and Cycleways

Element	Quantity	Data Confidence
Footways (including combined Cycleways)	4,544 km	**High**
Dedicated Cycleways	8 km	**Low**

Verges

Element	Quantity	Data Confidence
Highway Verge	7,452m²	**High**

Public Rights of Way (PRoW)

Element	Quantity	Data Confidence
Remote from the carriageway – total length of PRoW	4,203 km	**High**

Structures

Element	Quantity	Data Confidence
Bridges	1,513 No.	**High**

Element	Quantity	Data Confidence
Footbridges	137 No.	**High**
Culverts >0.6m diameter	2,229 No.	**High**
Retaining walls	167 No.	**High**
Subways (including submersible pumps)	14 No.	**High**
Gantries	10 No.	**High**

Street Lighting

Element	Quantity	Data Confidence
Lighting columns	70,077 No.	**High**
Illuminated signs and posts	7,160 No.	**High**
Illuminated bollards	1,919 No.	**High**
Feeder pillars	883 No.	**High**
Vehicle activated signs	198 No.	**High**
Zebra crossings	271 No.	**High**
Underground Cables	210 km	**Low**

Traffic Management Systems

Element	Quantity	Data Confidence
Signals at junctions	153 No.	**High**
Signals at pedestrian crossings	137 No.	**High**
Signals at pedestrian and cycle crossings	40 No	**High**
Signals at pedestrian and cycle / horse crossings	1 No.	**High**
CCTV cameras (traffic control)	103 No.	**High**
Traffic Signal UTMC in-station system equipment (SCOOT/UTC, remote monitoring and strategy manager)	1 No.	**High**
Tidal flow system (Canwick Road Lincoln)	1 No.	**High**
Traffic signal CCTV matrix	1 No.	**High**

Drainage

Element	Quantity	Data Confidence
Gullies	152,304 No.	**High**
Offlets	28,920 No.	**High**
Chambers	15,467 No.	**Medium**
Rodding Eyes	152 No.	**Medium**

Element	Quantity	Data Confidence
Pipes (exc. Gully laterals)	1,165 km	**Low**

Street Furniture

Element	Quantity	Data Confidence
Vehicle safety fences	190,746 m	**High**
Pedestrian Guard rails	27,160m	**Medium**
Non-illuminated signs (warning, regulatory and local direction / info signs)	97,942 No.	**Medium**
Non-Illuminated bollards	568 No.	**High**
Trees – Highway owned over 30cm diameter	69,382 No.	**Medium**
Automatic Traffic Counters (carriageway)	40 No.	**High**
Weather stations (ice prediction equipment managed by Vaisala Ltd.)	20 No.	**High**
Bus Stops	2,143 No.	**Medium**
Safety Cameras	38 No.	**High**
Average Speed Safety Cameras	8 No.	**High**

7.3 Assets Not Covered by This Strategy

Certain highway-related assets fall outside our responsibility and are not included in this strategy. These include:

- car parks (multi-storey and street level, managed by either private operators or District Councils)
- street name plates (owned and managed by District Councils)
- picnic Sites
- street lighting managed by District and Parish Councils.

7.4 Potential Future Asset Responsibilities under Devolution

We anticipate assuming responsibility for a broader range of highway-related assets currently managed by District and Parish Councils as part of the Lincolnshire Devolution Deal. At this stage, the extent, condition, and inventory of these assets remain unknown; consequently, they are excluded from the scope of this strategy.

Should a transfer of ownership occur, we will undertake a structured due diligence process to establish a comprehensive asset register, assess condition, and determine lifecycle requirements. This will inform the development of appropriate management practices, funding strategies, and performance standards to ensure these assets are integrated effectively within the overarching highways asset management framework.

8. Asset Maintenance and Planning

8.1 Condition Surveys

Condition surveys provide essential insight into the state of the highway network and inform both short-term and long-term maintenance planning. Regular surveys enable trend analysis, helping us understand asset performance over time and assess whether strategic objectives are being met and budgets are being used effectively.

Condition data supports statutory and performance reporting, including indicators required by national frameworks and benchmarking initiatives. It is also a key input for risk-based asset management, ensuring decisions are evidence-led and proportionate. Monitoring the condition of our assets is a fundamental component of asset management.

It enables us to:

- demonstrate the levels of service being delivered
- identify trends in improvement or deterioration
- prioritise resources based on need and risk
- assess the impact of treatment strategies
- provide base data for lifecycle modelling and calculation of Depreciated Replacement Costs (DRC), the estimated cost of replacing an asset with its modern equivalent, adjusted for physical deterioration.

8.2 Lifecycle Planning

Lifecycle Planning underpins effective asset management. It considers, for each asset type:

- rate of deterioration
- desired level of service
- available maintenance options
- cost and expected life of each maintenance option.

Using this information, we develop lifecycle plans and optimal treatment strategy that illustrates an asset's life from construction to end-of-life, including anticipated maintenance interventions.

Modern lifecycle planning tools allow us to:

- predict outcomes from different investment scenarios
- develop strategies that deliver agreed performance levels
- forecast service levels achievable under varying funding conditions

By combining current condition data with lifecycle modelling, we create work programmes that maximise value from available funding, meet long-term objectives and mitigate risk of failure.

This approach informs future maintenance needs for each asset and highlights future funding requirements.

8.3 Scheme Selection

When identifying and prioritising schemes for future highway maintenance programmes, we apply a robust, data-led approach to ensure that investment decisions are transparent, consistent, and based on objective evidence. This methodology helps us direct resources where they will deliver the most value and supports a planned and programmed approach to maintaining the network over the long term.

To understand the current health and performance of the highway network, we draw on a comprehensive suite of condition surveys and technical assessments. These include:

- SCANNER surveys, which provide detailed machine-based measurements of surface condition, texture, cracking, rutting, and overall ride quality.
- SCRIM deficiency data, which helps identify locations where skid resistance may be below expected levels and could benefit from targeted improvement.
- Deflectograph testing, which measures the structural residual life of the carriageway, allowing us to understand where deeper, structural maintenance may be required.
- Coarse Visual Inspections (CVI) and other inspector-led assessments, which complement automated surveys by capturing visible defects, deterioration trends, and localised issues.

Alongside these technical datasets, we also incorporate operational intelligence to ensure that our selection process reflects the real-world performance of the network. This includes:

- public enquiries and customer reports, which help highlight areas of concern or locations that are experiencing accelerated deterioration.
- recorded defects, such as potholes and associated repair activity, which act as indicators of asset condition and help validate survey data.
- claims and incident information, which may identify areas that require further investigation or maintenance intervention.

Bringing these data sources together gives us a comprehensive view of carriageway condition. It allows us to compare potential schemes objectively, assess need and risk, and ensure that our maintenance programmes provide maximum benefit and value for money. This evidence-based approach underpins our commitment to delivering a safe, resilient, and well-maintained highway network for all users.

9. Future Demands

The estimated population of Lincolnshire in 2024 was 789,502, an increase of 2.6% since mid-2021. Whilst Lincolnshire will continue to encourage active travel, this steady population growth, coupled with the expansion of businesses and housing developments, inevitably leads to a significant rise in the number of highway assets. Each new development introduces additional infrastructure that must be inspected, maintained, and eventually renewed. Although budgets are forecast to increase over the strategy period, the scale of housing growth, population increase and continued expansion of the highway network is expected to place additional pressure on available resources. This widening gap between service pressures and funding capacity may impact service levels, asset longevity, and the ability to respond proactively to emerging needs.

This section outlines the anticipated demands that will be placed on the asset over the duration of the strategy. These have been considered when formulating the strategy and presenting the risks associated with it.

9.1 Asset Growth

New assets are continuing to be added to the network thereby creating an additional need for maintenance and management. This growth in the asset is due to the adoption of additional roads into the network and through improvement activities such as traffic safety schemes and construction of new road links.

Since the previous strategy our key assets have grown as follows:

Asset Type	**Growth 2022-2025**
Carriageway	92 km
Footway	174 km
Street Lighting Columns	1954
Structures	8
Signal Installations	15

There has also been a corresponding growth in associated assets such as street furniture, signs and drainage systems which will all require inspection and maintenance.

9.2 Traffic Growth

In 2024, Lincolnshire recorded 4.39 billion vehicle miles travelled across its road network. This marks a continued recovery and growth following the pandemic-related decline, with traffic volumes now surpassing pre-pandemic levels.

Cars and taxis remain the dominant mode, accounting for 76% of all motor vehicle traffic nationally. Van traffic has seen notable growth, now representing 18%, driven by increased delivery and logistics activity.

The Greater Lincoln Transport Model (GLTM) continues to be used to forecast and assess traffic impacts across Lincolnshire. It incorporates updated traffic growth factors and is being used to inform the Lincoln Transport Strategy, including planning for the North Hykeham Relief Road.

Figure 5 illustrates the percentage growth in traffic in Lincolnshire in comparison with the East Midlands and National trends:

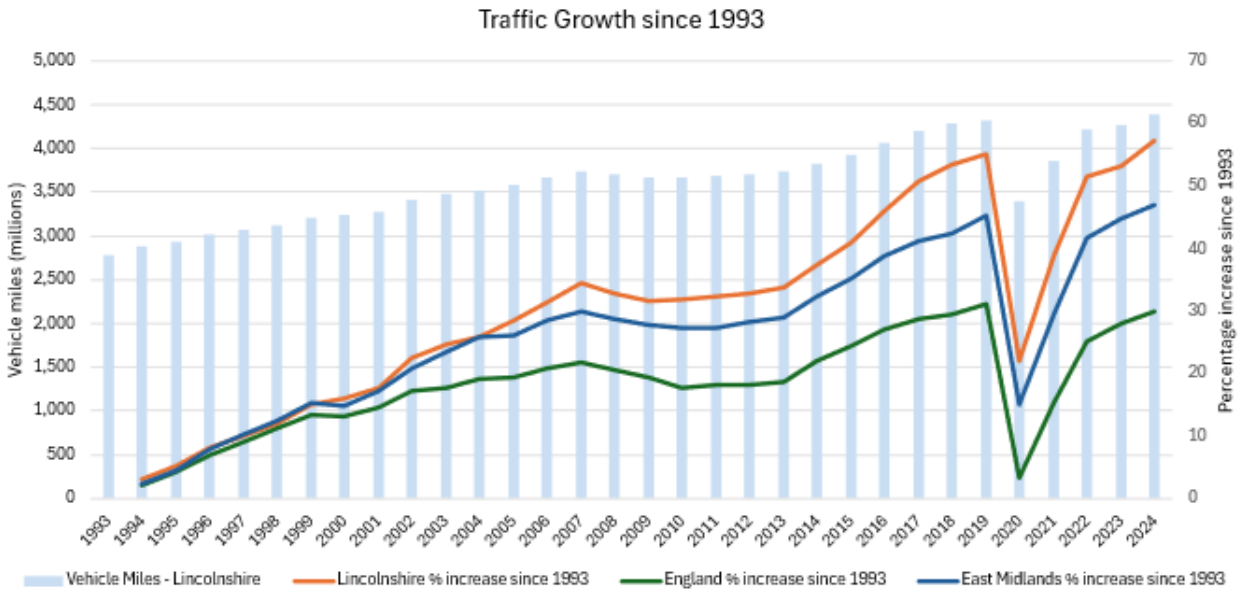

Figure 5: Traffic growth in Lincolnshire compared with the East Midlands and England from 1993 to 2024.

9.3 Key Insights

Lincolnshire shows consistently higher growth than both the East Midlands and England, reflecting its unique transport demands and rural connectivity. Traffic composition remains a key factor influencing the rate of deterioration of Lincolnshire's highway infrastructure. In particular, the increasing presence of heavy goods vehicles (HGVs), especially on roads not originally designed for such loadings, continues to accelerate the wear and degradation of carriageway pavements.

Recent traffic monitoring data shows that overall traffic volumes in Lincolnshire have grown significantly, with vehicle miles reaching 4.39 billion in 2024, and growth continuing into 2025. This sustained increase in traffic, combined with a high proportion of freight vehicles, places additional pressure on the network and intensifies maintenance demands.

Understanding traffic composition in the context of overall growth is essential for effective asset management. It informs our lifecycle planning, investment prioritisation, and design standards, ensuring that our infrastructure remains resilient and capable of supporting Lincolnshire's evolving transport needs.

10. Environmental Conditions and Future Resilience

10.1 Environmental Conditions

Lincolnshire's highway network is shaped by a diverse range of environmental conditions, which influence asset performance, deterioration rates, and maintenance priorities. The county's geography includes coastal zones, fenland, and low lying - flood prone areas, each presenting unique challenges for infrastructure resilience.

Environmental pressures such as freeze–thaw cycles, prolonged dry spells, and intense rainfall events continue to affect the structural integrity of highway assets. In particular:

- fenland roads are vulnerable to subsidence and longitudinal cracking during extended dry periods due to shrinkage of moisture-sensitive soils
- winter conditions accelerate surface deterioration and increase reactive maintenance demands
- heavy rainfall and surface water flooding place strain on older drainage systems, especially in urban and low-lying areas

These conditions are monitored through a network of weather stations and asset inspections, enabling timely interventions and informing lifecycle planning.

The changing climate is increasing rainfall and river levels, exposing the limitations of older drainage systems. Extreme storm events now occur more frequently, raising the risk of drainage failures despite emergency interventions.

New developments and major highway upgrades incorporate Sustainable Drainage Systems (SuDS), as outlined in the Development Roads and Sustainable Drainage Design Approach. These measures reduce flood risk while supporting biodiversity, amenity, and water quality improvements.

10.2 Environmental Changes

Increasing extremes in temperature and rainfall pose ongoing challenges for service delivery. While the strategy does not prescribe specific actions for these short-term events, the highways service contributes to national efforts to understand their impacts and identify potential solutions. Severe weather incidents are anticipated during the strategy period, and contingency measures are detailed in the highways service risk register to maintain network resilience. However, this strategy focuses on long-term adaptation rather than immediate responses.

Environmental changes are increasingly challenging the resilience and sustainability of our highway network. Between 2023 and 2025, severe storms such as Storm Babet and Storm Henk caused significant disruption, underscoring the growing vulnerability of infrastructure to climate-related events.

Figure 6 illustrates the increasing impact of rainfall intensity and localised flooding on Lincolnshire's highway network. These trends highlight the growing strain on older drainage systems and vulnerable road infrastructure, reinforcing the need for targeted resilience measures and improved maintenance planning to manage future weather-related risks.

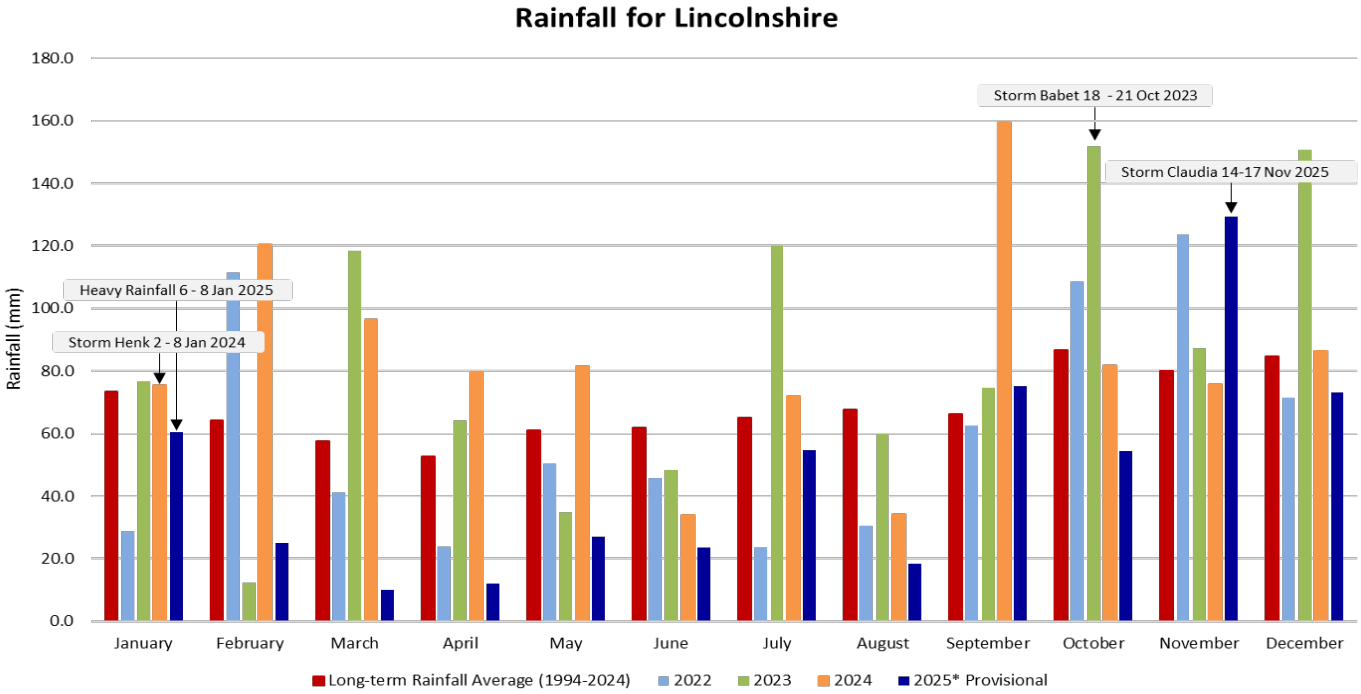

Figure 6: Monthly rainfall in Lincolnshire compared with long-term averages (1994–2024) and recent yearly totals, including notable storm events.

Figure 7 shows a steady rise in average temperatures across Lincolnshire, contributing to soil shrinkage, thermal stress on road surfaces, and faster material deterioration. These trends highlight the need for long-term planning to ensure the highway network remains resilient under changing climate conditions.

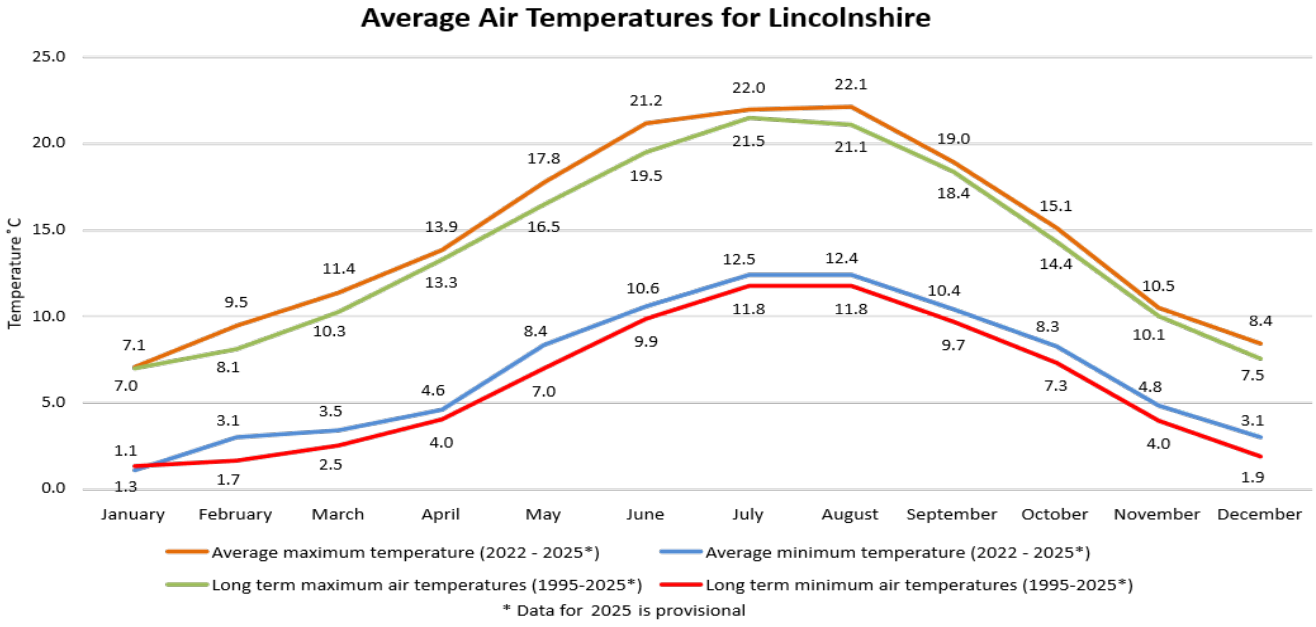

Figure 7: Monthly average maximum and minimum air temperatures for Lincolnshire (2022–2025 provisional) compared with long-term temperature averages.

10.3 Sustainable Asset Management and Mitigation Practices

Alongside adaptation, the highways service will incorporate sustainable and resource-efficient practices where they deliver better long-term value and improved asset resilience. These approaches support cost-effective lifecycle planning, reduce maintenance liabilities, and help ensure the network remains reliable under changing environmental conditions. Key principles include:

- using whole-life carbon and whole-life cost assessments to inform investment decisions where they improve value for money
- selecting recycled, low-carbon, or locally sourced materials where these provide durable, efficient and economically beneficial solutions
- protecting and enhancing biodiversity, particularly within rural and fenland areas, where this supports wider environmental responsibilities and asset performance
- embedding risk-based planning for extreme weather to strengthen resilience and reduce long-term maintenance pressures

Maintenance operations also address:

- carbon emissions and energy efficiency
- noise and air quality
- waste reduction and recycling
- responsible material use

These principles extend through partnerships with contractors and stakeholders, ensuring sustainability across the supply chain.

10.4 Adaptation and Resilience in Highways

Our highway network faces increasing risks from changing climate and weather patterns, including more frequent and severe flooding, prolonged heatwaves, subsidence, and storm damage. These hazards threaten the safety, reliability, and longevity of our transport infrastructure. To maintain a resilient network, climate adaptation must be embedded into all aspects of highways planning, design, maintenance, and emergency response.

The Climate Change Adaptation Plan for Lincolnshire outlines a series of measures designed to help the highways service prepare for and respond to the impacts of a changing climate. These actions focus on strengthening resilience across the network, ensuring that roads and associated infrastructure remain safe, reliable, and fit for purpose under future conditions.

Figure 8 below summarises the key priorities identified for the highways service.

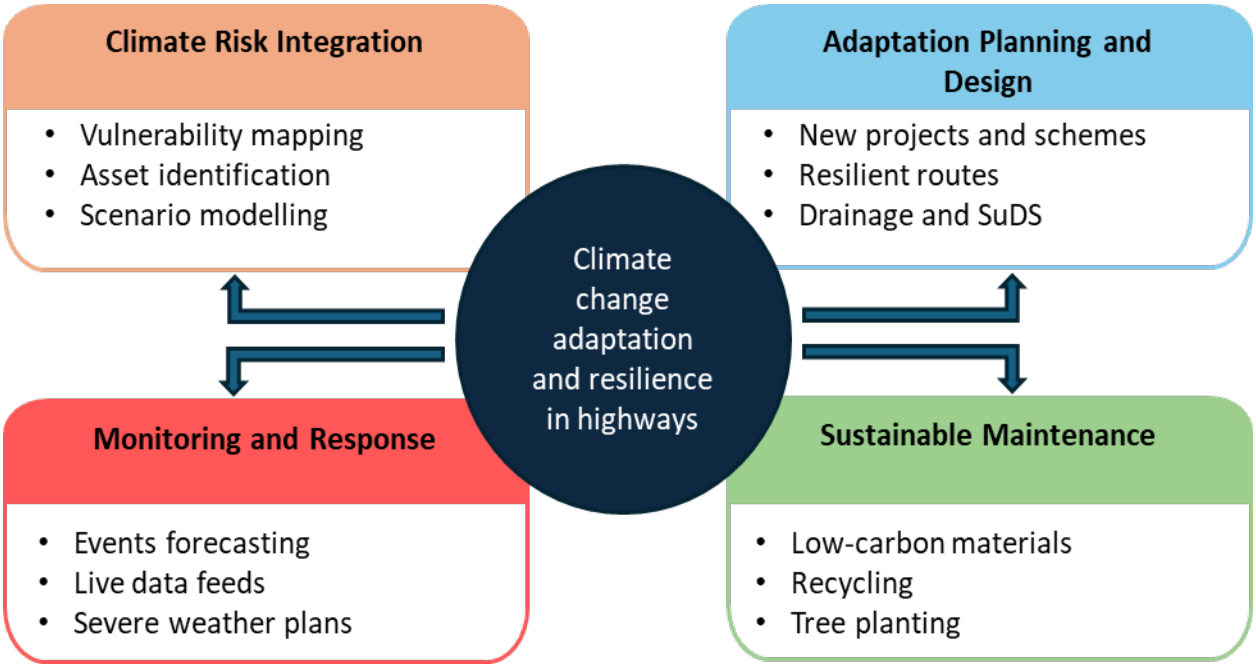

Figure 8: Key components of climate risk adaptation and resilience within highway management, covering risk integration, adaptation planning, sustainable maintenance, and monitoring and response.

11. Financial Summary

The majority of Highway Maintenance funding comes from two sources, Lincolnshire County Council and the Department for Transport (DfT). The funding from LCC funds (as Revenue) generally covers the service delivery such as Winter, Grass Cutting, reactive service (potholes) whereas the DfT funds (As Capital) the renewal of highway assets such as programmed surfacing schemes and replacement projects. As the DfT makes up a significant proportion of our funding, it is essential to understand the national direction of travel when shaping the strategy.

Recent DfT announcements confirm a significant shift towards long term, higher funding levels. For 2025 - 26, the Government has allocated £1.6 billion in capital funding, including an additional £500 million uplift compared with 2024–25, with 25% of this uplift now contingent on authorities demonstrating strong asset management practice and meeting new transparency requirements. Beyond 2026, the DfT has also confirmed a £7.3 billion funding package for 2026–2030, aimed at giving local authorities greater certainty to plan preventative, whole life maintenance rather than short term reactive repairs.

Despite these increased allocations, the latest evidence shows that the long term condition of local roads continues to deteriorate nationally. Similarly, the latest ALARM 2025 survey reports that the backlog of local road repairs in England and Wales has reached almost £17 billion, the highest in 30 years.

Nationally, the scale of the maintenance challenge therefore remains substantial. The ALARM survey estimates that a one off investment of £16.81 billion would be required to restore local roads to an acceptable standard, and that this work would take around twelve years to complete. While recent funding uplifts and the introduction of performance linked incentives signal a stronger long term commitment from central government, these measures have not yet been sufficient to reverse the decline in local road conditions or reduce the growing maintenance backlog.

Despite the national picture, Lincolnshire's road network hasn't declined in recent years as it has in the national picture. The Highway Service has delivered on the last strategy objectives of holding all asset groups in a static position whilst implementing an accelerated improvement of the Unclassified Road network.

11.1 Funding

Funding for our Highway Service is either a capital or a revenue budget.

Capital

- reflects investment in an asset and is defined in the Accounting Code of Practice as "expenditure which adds to, and not merely maintains, the value of a fixed asset"
- capital funding is provided by central government

Revenue

- covers day to day expenditure and income, including works which maintain, rather than increase, the value of a fixed asset
- LCC provide the revenue funding

In addition, specific grants (revenue and capital) may be made available by both LCC and Central Government for certain items, for example, excessive deterioration and damage caused by severe winters, drought and flooding throughout the year.

Highway assets generally deteriorate slowly and the effect of a change in the level of funding is not always immediately evident. The strategies in this document have been compiled using long term predictions of condition for all the key highway assets. The periods chosen (typically 20 years plus) are designed to cover a reasonable number of replacement cycles and enable strategies to be developed which consider the whole life cost of maintaining the asset. Using long term predictions means that decisions about funding levels can also be taken with due consideration of the future maintenance funding liabilities that are being created.

11.2 Investment Scenarios

To better inform our position over the lifecycle of this strategy, several investment scenarios have been modelled drawing on the approach originally established in the UK Roads Leadership Group (UKRLG) *Case for Investing in Highways Maintenance* (2021) and supported by more recent national evidence, including the Department for Transport's 2024 economic appraisal of local highway maintenance.

The five investment scenarios considered for this strategy were Decline, Managed Decline, Maintain (Steady State), Gradual Improvement and Accelerated Improvement. For each scenario, the expected impact on asset condition and the associated backlog has been outlined below to enable a clearer understanding of long-term outcomes and the return on different investment levels.

Investment Scenario	**Funding Need Estimate (1st January 2026)**	**Description**
Accelerated improvement: Accelerate backlog reduction and condition improvement	£124.57m	**Backlog** – reduce by circa £22.5m per annum, backlog removed in 10 year Evident improvement to all asset condition and network performance
Gradual improvement: Start to address backlog and gradually improve network	£113.68m	**Backlog** – reduce by circa £11.6m per annum, backlog removed in 20 year Address risks and start to move to a planned/proactive management strategy
Maintain (steady state): Investment required to maintain a basic highway service	£102.07m	**Backlog** – holding at current level and prevents increase Condition generally remains as is (Unclassified roads in poor condition) and substandard drainage

Investment Scenario	Funding Need Estimate (1st January 2026)	Description
Managed decline: Investment below required level to maintain the current levels of service	£92.25m	**Backlog** – unsustainable and growing by circa £9.83m per annum Network condition will slowly decline leading to a reactive management strategy
Decline: Investment levels significantly below required level	£81.13m	**Backlog** – unsustainable and growing by circa £20.94m per annum Network condition will decline, will be evident through bridge restrictions, flooding, more footway and carriageway defects; and a reactive management strategy

11.3 Historical and Projected Expenditure

Figure 9 details the historic total roads maintenance budget (LCC and DfT funding combined), the DfT Grant allocations and Investment Scenario modelling forecasts for the remainder of this Strategy cycle taking into account of future inflation at a consistent 2.5%. The modelling suggests that the combined Highway Maintenance budget forecasts will enable the Service to implement a Gradual Improvement Scenario on all assets if it wishes to do so.

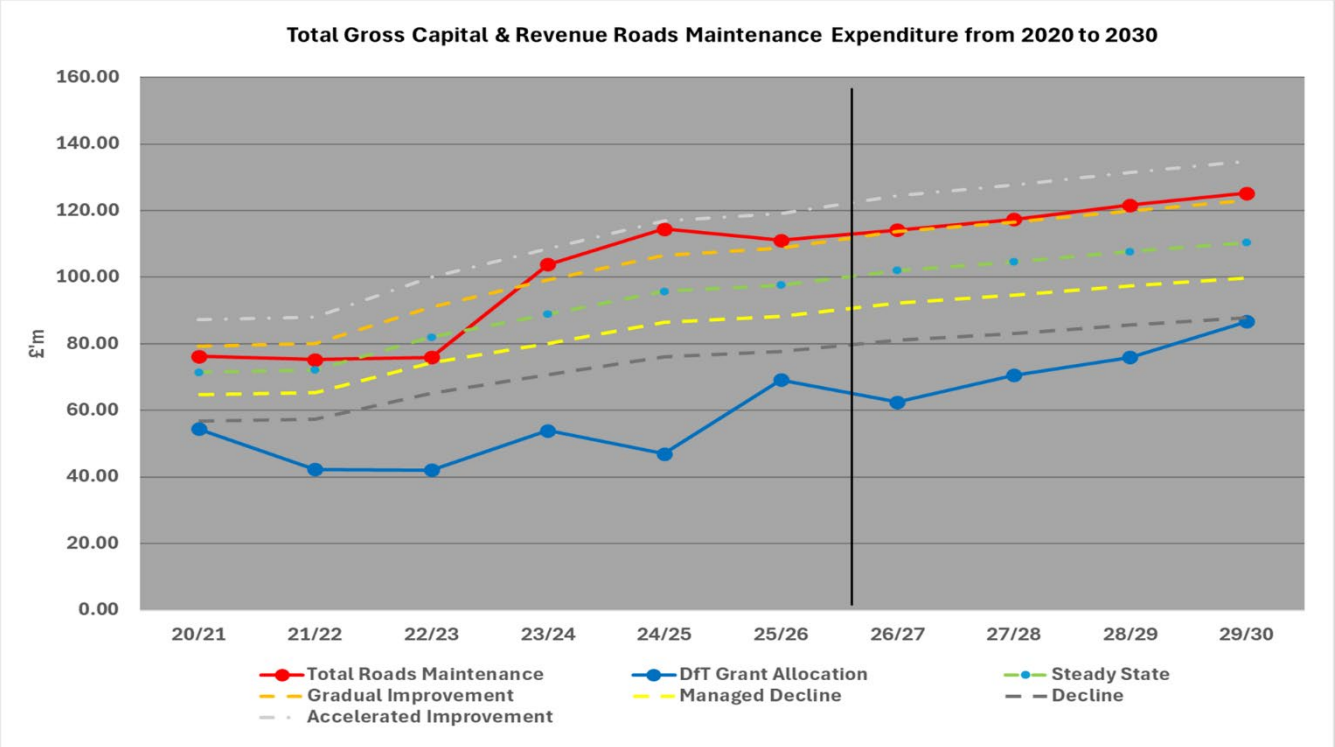

Figure 9: Projected gross capital and revenue roads maintenance expenditure from 2020/21 to 2029/30, showing grant allocations and different investment scenarios.

11.4 Asset Valuation

The following table outlines the value of our highway assets at 31 March 2025:

Asset Type	Gross Replacement Cost (GRC)	Depreciated Replacement Cost (DRC)
Carriageways	£10,195m	£9,598m
Structures	£778m	£524m
Footways & Cycleways	£712m	£645m
Street Lighting	£126m	£39m
Traffic Signals	£26.6m	£14.9m
Drainage	Unknown	Unknown
Street Furniture	£133.6m	£52m
Trees	£300m	Not Applicable
Total	**£12,271m**	**£10,872m**

The Gross Replacement Cost (GRC) represents the cost of replacing the existing asset with a new modern equivalent asset. The Depreciated Replacement Cost (DRC) represents the GRC less the value of the deductions for physical deterioration and obsolescence.

11.5 Investment Scenario for this Strategy Cycle

Based on the future funding position and increased certainty, we will continue to invest across all highway asset groups to maintain, as far as practicable, a steady-state condition, while implementing an accelerated improvement of the unclassified road network, an improvement to the Drainage asset and a Gradual improvement to our Traffic Signals assets.

Lincolnshire's carriageway condition performance varies across road classes, with A, B and C roads performing above the national average in terms of condition. However, the unclassified road network represents the largest proportion of local roads and in Lincolnshire remains an asset group that is below the national average in terms of condition. This variation in performance provides a clear rationale for prioritising investment where it is most needed. Strengthening our approach here will help improve journey quality, reduce reactive repairs and support wider community connectivity.

Alongside this, we will continue to prioritise our resilience, including targeted improvements to our drainage assets. Effective drainage remains essential for slowing deterioration rates, reducing pothole formation and minimising disruption caused by heavy rainfall, which national evidence identifies as a growing challenge for local authorities. By directing investment towards the most vulnerable drainage systems, we can better protect the wider network and support more efficient, preventative maintenance over the long term.

Finally, increasing the traffic signals budget year on year will enable a greater number of refurbishment schemes to be delivered, allowing us to address ageing assets more proactively and reduce reliance on reactive interventions. This uplift in investment will support a gradual improvement in overall asset condition and drive down the average age of the stock, many of which are now 25-years old at the time of replacement. By increasing the volume of sites we can upgrade each year, we will be able to phase out obsolete equipment, improve reliability, reduce fault-related disruption, and ensure that more junctions and crossings benefit from modern technology that maximises flow at congested parts of the network. This investment will ensure that the average age of the traffic signal stock falls below 25 years by the end of this strategy period.

11.6 Projected Highway Budgets

The table below outlines the funding that will need to be available between 2026 and 2029 in order to achieve the investment scenario for this Strategy cycle. The actual funding levels allocated to the key assets will be reviewed on an annual basis taking into account any specific funding pressures identified.

These figures exclude the repair and maintenance of specific major structures.

Asset Type	**2026/27***	**2027/28***	**2028/29***
Carriageways	£66.9m	£70.9m	£75.4m
Footways	£4.3m	£5.3m	£6.3m
Structures	£3.6m	£3.7m	£3.7m
Street Lighting	£3.8m	£4.0m	£4.3m
Traffic Signals	£2.6m	£2.9m	£3.2m
Drainage	£9.3m	£7.5m	£7.5m
Trees	£1.3m	£1.33m	£1.33m
Other (non-asset service delivery)	£22.4m	£21.7m	£20.0m
Total	**£114.2m**	**£117.33m**	**£121.73m**

*Energy costs have been deducted from these figures as it does not result in an improvement to the asset

A consistent and predictable funding profile enables us to plan ahead with confidence and optimise the way we deliver maintenance across the network. Figure 10 outlines the relationship between our forecast budget and the proposed strategy outlined within this document for the 2026–2029 period.

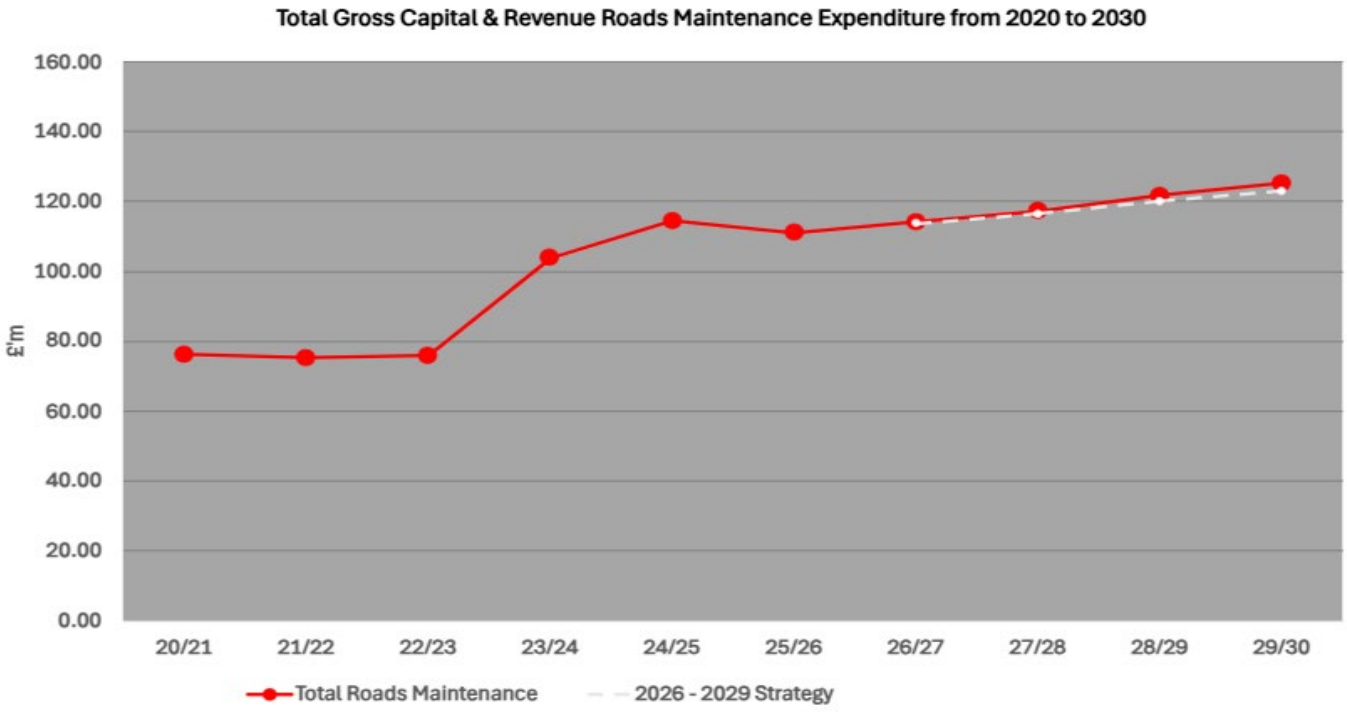

Figure 10: Total gross capital and revenue roads maintenance expenditure from 2020/21 to 2029/30, compared with projected investment levels for the 2026–2029 strategy period.

This investment scenario demonstrates that, based on the combined Highways Maintenance Block allocations and the County Council's continued financial contribution, our strategy is both fully aligned with long-term funding expectations and deliverable within the resources available. The certainty provided by longer term funding commitments enable us to plan responsibly, communicate confidently with the public, and maintain transparency around how and where investment will be directed. Working collaboratively with our supply chain and long-standing partners will deliver further efficiency gains through improved programming, reduced mobilisation costs, and greater stability across the delivery model. This stability also strengthens early design development and long-term scheme planning, ensuring that future works are prepared, sequenced and delivered in a way that maximises value for money while maintaining a safe, resilient and well-operated network.

12. Risk Management

Managing risks is a critical part of the strategic management of our highway assets. This section describes how the service's risks are managed and monitored. It identifies some of the key risks to the successful delivery of this strategy.

12.1 Risk Management in Highways

This Highways Infrastructure Asset Management Strategy aligns with the Council's Risk Management Strategy which sets out how we manage, monitor and escalate risks across the Council. This has been applied to managing our highway assets. The highest rated risks that were identified when compiling this strategy are:

- increasing inflation across the highway service with associated impact on works delivery and buying power
- reduction in funding for capital maintenance works
- the condition of unclassified roads is relatively poor and remains a key focus for the service
- collection of long-term trend data is underway to estimate deterioration in the condition of footways but confidence in the data remains low
- failure of a critical element of a large structure or embankment
- adverse weather events or extreme weather conditions
- reductions in revenue funding impact on the long-term condition of key assets

12.2 The Risk Management Cycle

This strategy follows the risk management cycle as set out within the Council's risk management framework. The Council's risk management framework aligns with national best practice, such as "The Orange Book Management of Risk", and ALARM's "A Risk Management Guide"

The cycle follows five key stages of managing risks as figure 11 below shows:

Figure 11: Overview of the risk management process, from establishing context through to analysis, evaluation, response planning, and ongoing review.

The Council's risk management framework provides a set of tools applicable at each stage to support identification, assessment, mitigation and review / monitoring of risks, guided by the Council's risk appetite.

More information on how the Council manages its risks can be found in the Council's Risk Management Strategy.

12.3 Risks Associated with Future Asset Transfers

The potential transfer of highway-related assets under the proposed Lincolnshire Devolution Deal introduces several strategic and operational risks that must be considered and evaluated:

i. **Financial Uncertainty**
The condition and quantity of these assets are currently unknown, creating uncertainty around future maintenance liabilities and capital investment requirements. Without accurate data, there is a risk of underestimating lifecycle costs, which could lead to budgetary pressures and impact the delivery of existing service commitments.

ii. **Service Continuity and Performance**
Assuming responsibility for assets without a clear understanding of their condition may result in service disruptions or failure to meet statutory obligations. There is a risk that inherited assets could require immediate remedial works, diverting resources from planned programmes and affecting network performance.

iii. **Resource and Capacity Constraints**
The integration of additional assets will require specialist expertise, systems updates, and operational capacity. Failure to plan for these requirements could lead to inefficiencies, delays in asset registration, and gaps in compliance with asset management standards.

iv. **Governance and Accountability**
Uncertainty regarding ownership transfer timelines and responsibilities may create governance risks, including unclear accountability for asset performance and safety. This could expose the Council to reputational and legal risks if liabilities are not clearly defined during the transition.

Mitigations for these risks will be determined as Devolution moves forward.

13. Carriageways

13.1 Introduction

Carriageways are the most valuable highway asset in Lincolnshire and receive the greatest levels of maintenance expenditure. They were the first asset for which lifecycle plans were developed using current condition data to optimise investment. This approach has enabled a greater understanding of where to target investment to achieve the desired levels of service.

The condition of the carriageway asset is measured through surveys and inspections. In 2025/26, 21.4% of the unclassified road network was identified as requiring maintenance, compared to just 2.7% of the principal road network and 5.2% of B and C classified roads. During this strategy period, our aim is to maintain the principal and non-principal road networks in a steady state condition while continuing to improve the condition of the unclassified network.

13.2 The Asset

Asset Type	Length (km)	Data Confidence
A Roads	1,091	**High**
B Roads	782	**High**
C Roads	2,915	**High**
Unclassified Roads	4,143	**High**
Unmetalled “green” lanes	772	**High**
White and yellow lines	No data	**Low**

13.3 Asset Valuation

The asset has been valued as follows:

Valuation	2025
Gross Replacement Cost (GRC)	£10,195m
Depreciated Replacement Cost (DRC)	£9,598m

13.4 Condition

Our condition surveys conform to national standards and are processed using accredited systems. These surveys establish key characteristics of the network, including ride quality, rutting, surface texture, and skid resistance. Additionally, our team of highway inspectors carry out visual checks to ensure our highway assets are in a safe condition. This includes checking for defects in the road surface that present a safety concern. We also carry out reactive inspections in response to enquiries and raise orders for ad-hoc and emergency works, such as repairing potholes and other surface failures.

In some cases, the structure and use of the carriageway have evolved rather than been designed. Consequently, the structure is inconsistent and is not always fit for purpose. The unclassified network is at the greatest risk of rapid deterioration.

Figure 12 below shows long-term trends in our carriageway condition across principal, B & C classified roads, and unclassified roads, measured through national indicator surveys. It highlights how the proportion of the network requiring maintenance has changed over time, with principal and B & C Classified roads remaining relatively stable over the past 10 years whilst the unclassified network has seen in an improvement over this period. These trends help illustrate where deterioration pressures are greatest and support the case for targeted investment to maintain a steady-state condition and improve the performance of the most vulnerable parts of the network.

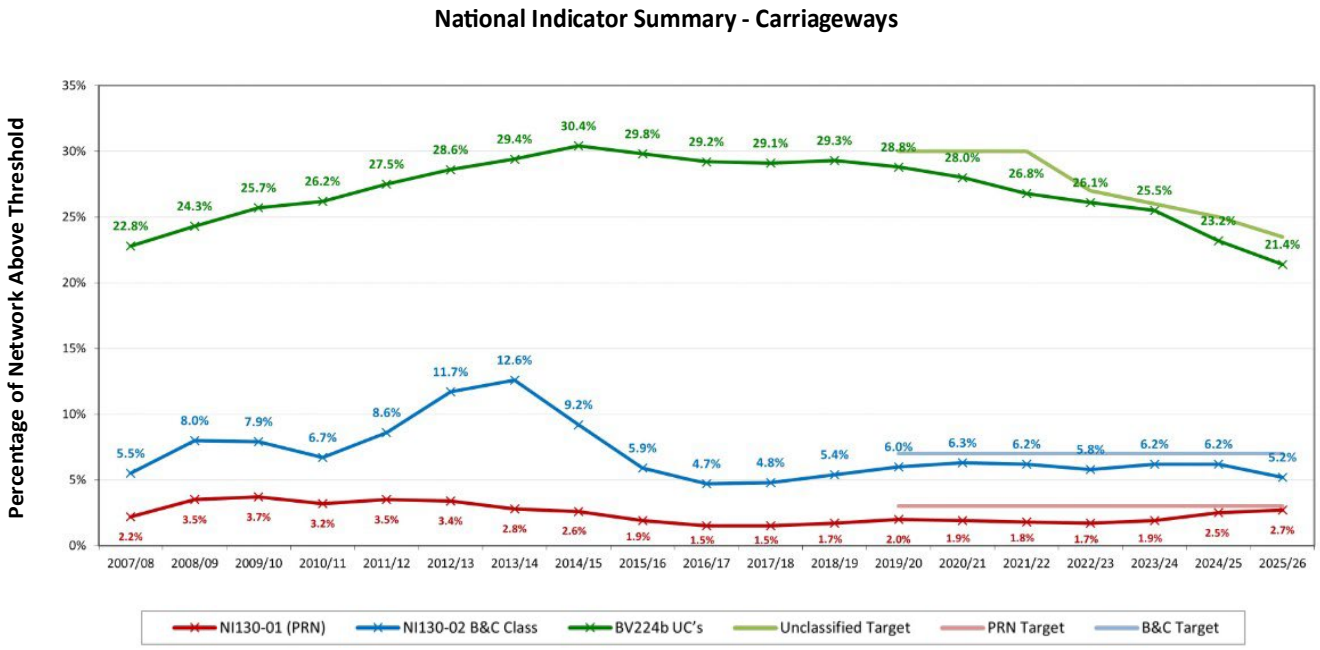

Figure 12: National indicator performance for Lincolnshire's carriageways (2007/08–2025/26), showing the percentage of the network above condition thresholds across PRN, B and C roads, and unclassified road network.

13.5 Current Challenges

Carriageways may suffer progressive deterioration where there is a lack of investment. The main concerns over the future condition of this asset are:

Sufficiency of future budgets to maintain the road network

Ensuring adequate funding for carriageway maintenance remains a significant challenge. With competing priorities across the authority and limited financial resources, there is a risk that future budgets will not be sufficient to maintain the network to an acceptable standard. This could lead to a decline in overall condition and increased long-term costs as defects worsen.

Maintaining a steady state condition within a diminishing funding envelope

Achieving a steady state condition across the highway network, while improving the unclassified network, is increasingly difficult within a shrinking budget. Maximising funding opportunities, such as the DfT Incentive Fund, through improved asset management and delivery practices is essential to mitigate this challenge.

Inflation pressures within the construction sector

Inflationary pressures in the construction industry continue to erode buying power, reducing the volume of work that can be delivered within existing budgets. Without further efficiency gains, this will lead to a decline in asset condition and increased backlog of maintenance needs.

Poor utility reinstatements

Utility works often compromise the integrity of the carriageway, especially when reinstatements are not carried out to the required standard. Poor reinstatements can lead to premature failure of the surface, creating safety hazards and increasing maintenance demands.

Impacts of changing climate

Changing climate and weather patterns pose a growing threat to carriageway assets through increased frequency of extreme weather events, such as heavy rainfall and heatwaves. These conditions accelerate deterioration, cause surface deformation, and increase the risk of flooding, requiring adaptive strategies and resilient materials.

Drought-related deterioration

Extended periods of drought are increasingly impacting carriageway performance, particularly in areas with susceptible ground conditions. Traditional 20-year design solutions on A roads are failing earlier than expected due to soil shrinkage and loss of structural support. This accelerates cracking and deformation, leading to costly repairs and reduced service life. Future designs may need to incorporate shorter design lives and reinforcement measures such as geogrids, as piling and complex engineering solutions for large sections of the network are not financially viable.

Minor roads at risk of rapid deterioration

Minor roads, which provide essential connectivity for local communities, often have little structural strength. They are heavily used and particularly vulnerable to water ingress and overloading, leading to rapid deterioration. Maintaining these routes is critical for social and economic sustainability.

Permeable paving

Permeable paving is a practical SuDS solution for urban highway environments where space for larger features is limited. By allowing water to infiltrate through the surface and into a designed sub-base, permeable paving reduces runoff and mitigates localised flooding. It is suited to low traffic areas and can improve water quality by filtering pollutants prior to infiltration.

Despite these benefits, permeable paving presents maintenance challenges. Surface pores can clog with silt and debris, reducing permeability and performance. Effective management requires regular sweeping or vacuuming and, in some cases, specialist cleaning techniques. Structural considerations, such as load-bearing capacity and freeze-thaw resistance, must also be addressed to ensure durability under highway conditions. These factors highlight the need for robust lifecycle planning and clear maintenance responsibilities to maximise long-term value.

Maintenance of carriageways within National Highways or Network Rail locations

Coordinating maintenance activities in areas managed by National Highways or Network Rail presents logistical and contractual challenges. Access restrictions and differing standards can delay works and increase costs, requiring effective collaboration and planning.

Refinement of the degradation models

Accurate prediction of carriageway deterioration is essential for effective asset management. Current models require refinement to better reflect local conditions, traffic patterns, and climate impacts, enabling more reliable forecasting and prioritisation of interventions.

13.6 Investment Requirements

To maintain the carriageway asset in a steady state condition and deliver sustainable improvements, an estimated investment of £50.9 million per annum is required for planned maintenance works, including reconstruction, resurfacing, and surface treatments. This strategy adopts a “prevention is cheaper than cure” approach, prioritising early interventions to minimise whole-life costs and reduce reliance on reactive maintenance.

Principles of Investment

Lifecycle Planning: Investment decisions will be informed by lifecycle modelling and deterioration forecasts to ensure interventions deliver maximum whole-life value.

Risk-Based Prioritisation: Schemes will be selected based on engineering condition surveys and risk assessment, focusing on routes with the greatest safety, economic, and connectivity importance.

Efficiency and Innovation: Predictive analytics and AI-based deterioration models will be utilised to optimise treatment timing and improve cost efficiency.

Investment will incorporate measures to address climate-related deterioration, including:

- trials of resilient materials and reinforcement techniques (e.g., geogrids) on drought-prone routes
- enhanced drainage improvements to mitigate flood risk and reduce water ingress
- adaptation of design standards for minor roads vulnerable to rapid deterioration

13.7 Projected Expenditure

Projected Maintenance Budgets

Asset Type	2026/27	2027/28	2028/29
Carriageway A	£19.1m	£21.0m	£22.0m
Carriageway B and C	£29.1m	£31.2m	£34.2m
Carriageway U	£18.7m	£18.7m	£19.2m
Total	**£66.9m**	**£70.9m**	**£75.4m**

13.8 Desired Outcomes and Objectives

To ensure Lincolnshire's carriageway network remains safe, serviceable, and sustainable, the following measurable objectives will be delivered during the strategy period:

- achieve 100% completion of scheduled safety inspections within prescribed timescales each year
- ensure 100% compliance with risk-based response times for priority carriageway defects
- maintain A roads at ≤3% requiring maintenance throughout the strategy period
- maintain B and C roads at ≤6% requiring maintenance by 2029
- reduce the proportion of unclassified roads in poor condition from 21.4% to 15% by 2029
- deliver at least 95% of planned preventative maintenance schemes annually to minimise whole-life costs
- improve public satisfaction with carriageway condition by 5% in the National Highways & Transport (NHT) survey by 2029, compared to the 2025 baseline
- implement three pilot schemes using climate-resilient materials or designs (e.g., geogrids, drought-resistant foundations) by 2028
- achieve full integration of predictive deterioration modelling in carriageway scheme selection by 2028
- reduce reactive carriageway maintenance expenditure by 5% by 2029, through increased use of preventative treatments
- establish and deliver a maintenance programme for permeable paving sites by 2027
- reduce defective utility reinstatements by 20% by 2028 through enhanced inspections and enforcement

14. Footways and Cycleways

14.1 Introduction

Footways and cycleways are critical assets supporting access and mobility for people in Lincolnshire. Securing continuous improvement in the safety and serviceability of footways and cycleways is necessary to encourage alternatives to cars, particularly for journeys in urban areas. Well maintained footways aid social inclusion, particularly improving accessibility for vulnerable people.

14.2 The Asset

Asset Type	Length (km)	Data Confidence
Bituminous Footways	4,332	**High**
Block Paved Footways	69	**High**
Flagged Footways	87	**High**
Concrete Footways	56	**High**
Dedicated Cycleways	8	**Low**

14.3 Asset Valuation

The asset has been valued as follows:

Valuation	2025
Gross Replacement Cost (GRC)	£712m
Depreciated Replacement Cost (DRC)	£645m

14.4 Condition

For footways the condition monitoring is based upon the Footway Network Survey (FNS). This is a simplified survey which allows the footways to be categorised into one of three bands:

- Functional (Green)
- Functionally Impaired (Amber)
- Structurally Impaired (Red)

Note: 'As New' and 'Aesthetically Impaired' have been replaced by a single category described as 'Functional'.

Figure 13 summarises the results of our latest footway network surveys whilst figure 14 shows an example of each of the condition categories:

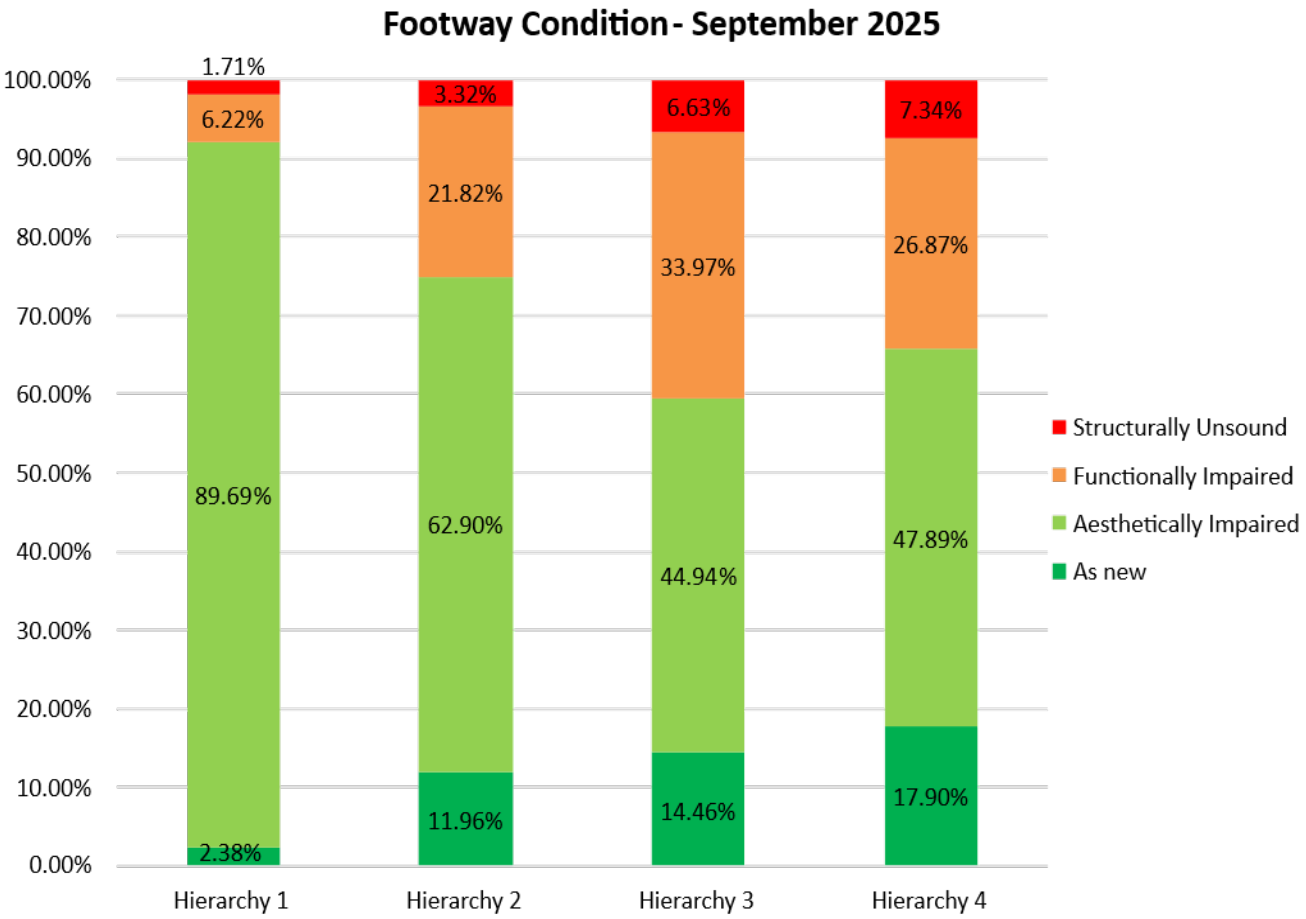

Figure 13: Footway condition by hierarchy as of September 2025, showing the proportion of assets in each condition category from 'as new' to 'structurally unsound

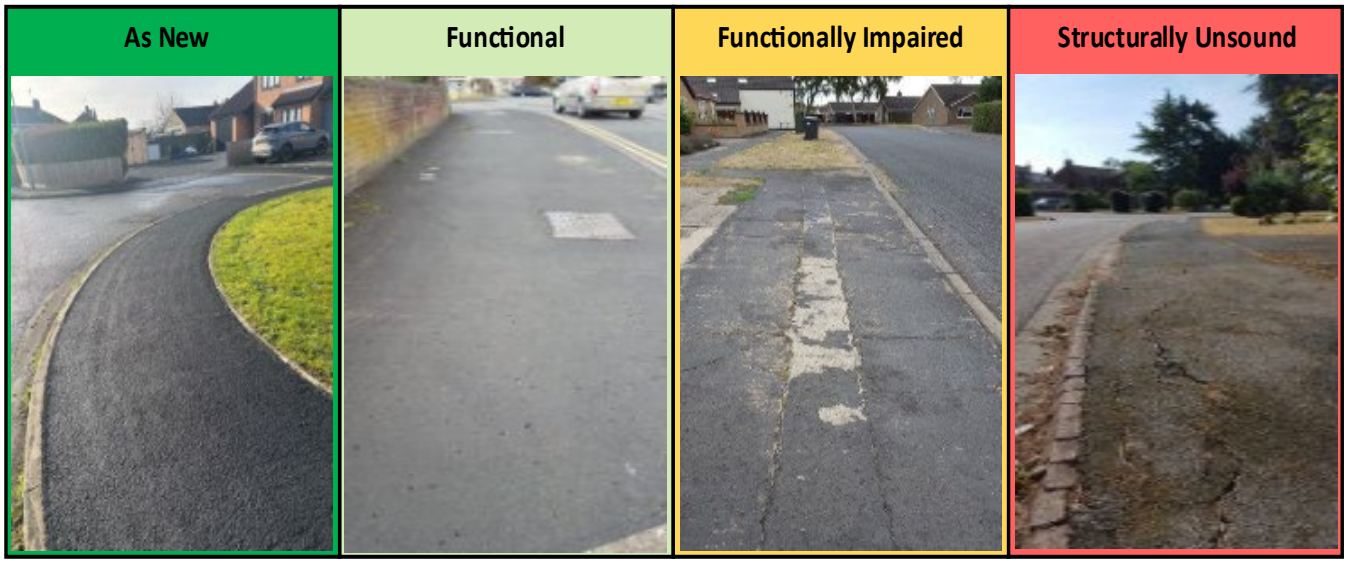

Figure 14: Examples of each of the condition categories

Footway Network Condition Surveys (FNS) have been undertaken on the whole of the footway (and shared cycleway) network. The current performance indicators show that the footways are generally relatively good condition overall. The maintenance programme will continue its emphasis on preventative treatments (slurry sealing) and selective structural repairs will be carried out to improve pedestrian and cyclist safety, whilst maintaining the overall condition of the footway network.

The asset management strategy for the footway network will involve the following:

- continued monitoring of the condition of the footway network based on FNS surveys
- maintenance schemes will be identified using information from engineering condition surveys
- aiming to maintain the overall condition of the network in a steady state through a focus on preventative maintenance treatments and selective structural repairs
- flagged footways will be prioritised for improvement as they represent our greatest liability in this asset group

14.5 Current Challenges

Strategic Review of Footway Condition

The establishment of an effective regime of inspection, assessment and monitoring of asset condition is an essential component of an effective asset plan.

A continuous, strategic review of the current footway condition and associated investment requirements is critical. Further development of this process is needed to:

- understand the scale of the footway maintenance backlog
- assess the levels of capital investment required to reduce pressure on revenue-funded maintenance activities
- determine investment levels necessary to: a) Improve overall network integrity and resilience, supporting both current and future performance targets. b) Maintain an agreed and affordable condition level, balancing service standards with available resources

Cycleway Identification and Mapping

We currently do not have a complete inventory of our cycleway network within our asset management system. During this strategy period, we will prioritise the identification, mapping, and recording of all existing cycleway assets to establish a comprehensive and consistent dataset. This work will enable more effective long-term planning, maintenance scheduling, and investment decision-making. Our intention is to have the full cycleway network captured, validated, and integrated into the asset management system by the end of this strategy period.

Maintenance Challenges

There are a variety of footway surfaces within Lincolnshire, each of which requires a different approach to maintenance. The flexible surface footways have a programme of preventative maintenance and renewal. The rigid surfaced are particularly susceptible to damage from vehicle

overriding and fall into two broad categories: 1) housing estates where there is an ongoing programme to replace flags with a flexible surfacing and, 2) city or town centres where flags may be used for aesthetic purposes or appropriate to the existing. These are particularly expensive to maintain should they be disturbed by vehicles (Lorries, mechanical sweepers), street works or any process that removes the jointing material between flags (example pressure washing), though some of these may be shared surfaced areas (pedestrianised with delivery vehicle access) they still account for a number of "trips and falls" insurance claims, especially those with the high level of footfall.

Inflation Pressures

Rising inflation within the construction sector continues to impact service delivery by decreasing the buying power and the amount of work that can be completed on the key asset groups. Based on the latest budget forecast it is anticipated that Highway budgets will not keep up with the pressure of reduced buying power unless further efficiencies can be delivered. If further efficiency gains can't be realised, the asset condition will start to deteriorate.

14.6 Investment Requirements

For maintenance purposes and the reporting of GRC and DRC it has been assumed that bituminous footways have a lifecycle of 40 years before resurfacing is required with a single surface treatment of slurry seal applied at an appropriate point during the 40-year lifecycle.

Modular slabs, block paving and concrete paving together account for only 6% of the Lincolnshire Footway Network. However, a recent review of data between 2020 and 2025 continues to show that flagged footways present the highest personal injury risk. Although they represent just 2.7% of the network, they are associated with 39% of reported footway related personal injuries. As a result, investment will be prioritised toward the reconstruction of flagged footways within hierarchies 3 and 4.

Several full cycles of FNS surveys have now been completed however, in order to develop a model for deterioration or scheme prioritisation, multiple surveys will be required over a period of years to determine the rates of deterioration. Investment levels have therefore been determined on an historic basis.

14.7 Projected Expenditure

The following table outlines the planned budget for maintaining the condition of the footway network over the next four years. The condition of the network will be monitored, reported and investment levels adjusted accordingly if FNS surveys indicate a significant change in their overall condition.

Projected Maintenance Budgets

2026/27	2027/28	2028/29
£4.3m	£5.3m	£6.3m

14.8 Desired Outcomes and Objectives

- to meet the statutory obligations as the highway authority to maintain the footways in a condition that is safe for use and fit for purpose
- maintain the condition of our footways and cycleways in a steady state condition
- investment to recognise the differences in condition between various footway types and hierarchies
- maintain their structural integrity and maximise their lifespan, to provide maximum value for money from investment.
- conduct a hierarchy review of all footways by 2029
- obtain an accurate inventory of all cycleways and ensure these are included within our asset management system by 2029
- conduct a review of low use footway assets suitable for reinstatement as verge
- continue to reduce the number of flagged footways across the network
- actively work towards a reduction in footway claims
- introduce digital inspection methods to speed up walked inspections.

15. Structures

15.1 Introduction

Over many years, the bridge stock has been carefully maintained at 'steady state', there has been a very slight gradual decline in overall condition. This is despite savings made in the Structures Revenue budget and Capital budget allocations which in real terms have reduced. It is expected that this situation will continue given adequate funding.

15.2 The Asset

Asset Type	Number	Data Confidence
Bridges	1513	**High**
Subways	14	**High**
Culverts >0.6M diameter	2229	**High**
Highway Footbridges	137	**High**
Retaining Walls	167	**High**
Gantries	10	**High**

15.3 Asset Valuation

The asset has been valued as follows:

Valuation	2025
Gross Replacement Cost (GRC)	£778m
Depreciated Replacement Cost (DRC)	*£524m

*Depreciation calculations are worked out using the Structures Asset Valuation and Investment (SAVI) Tool which is an update of the Structures Toolkit developed by the DfT as part of the Whole of Governments Accounting (WGA) initiative. It is evident that the SAVI method of reporting is giving lower values than the 'Structures Toolkit' method of valuation previously used for reporting, SAVI is however, the current CIPFA approved method.

15.4 Condition

The condition of the bridge stock asset is reflected in the following summary:

Year	21/22	22/23	23/24	24/25	25/26
BSCI AVE	92.4	92.4	92.4	92.4	92.4
BSCI CRIT	85.2	85.2	85.3	85.3	85.3

Bridge condition is reported in a variety of ways and the most common are; Bridge Condition Index (BCI) and Bridge Stock Condition Index (BSCI).

The BSCI (AVE) figures indicate that the overall condition of the Lincolnshire Bridge stock is "Good" and the BSCI (CRIT) indicator for the critical elements is also just within the "Good" category.

BCI values relate to individual bridges, while BSCI refers to the entire bridge stock and provides an overall picture of the condition of the stock. For both indices, a value of 100 indicates that the structure or stock is in very good condition. As the value decreases towards zero, the condition deteriorates accordingly.

15.5 Current Challenges

Balancing available budgets with identified needs, and with the specialist resources available both internally and through the term service provider, continues to present a significant challenge.

Inflation within the construction sector is reducing buying power, which in turn limits the volume of work that can be delivered across key asset groups. Based on the latest budget forecast, it is anticipated that highway budgets will not keep pace with these pressures unless further efficiencies can be achieved. If additional efficiency gains cannot be realised, asset condition will begin to deteriorate.

15.6 Investment Requirements

In recent years the revenue budget has been directed towards a planned maintenance regime, with the capability to respond reactively when required. Minor works have been identified through the inspection regime and prioritised according to need and risk. The capital budget, meanwhile, has been focused on larger maintenance schemes and reconstructions, where the latter represents the only economically viable option. The overarching objective has been to achieve a 'steady state' condition, and this appears to be reflected in the BSCI scores.

Budgets have effectively remained static for the past five years, whilst contractors' costs have risen significantly. As a result, the volume of planned maintenance that can be delivered, has reduced. This trend is expected to continue, and as structural deterioration becomes more apparent, BSCI values are likely to decline more sharply if budget increases in line with contractor cost inflation are not secured.

While the theoretical annual depreciation value for the structures stock (£15.5m) is considerably higher than the projected capital budget (£4.1m) this depreciation figure represents an average value across the entire asset lifecycle. In practice, the network condition can be maintained in a steady state with adequate, though lower, levels of sustained funding.

Over the next four years of planned maintenance, several large projects have been identified that will require significant expenditure. In addition, as some of the major bridges approach the end of their serviceable lifespan, a number of much more substantial schemes have been identified that will incur significant costs in the longer term. These structures will continue to be monitored, repaired and reported on until such time as major works become unavoidable.

These structures are:

- Langrick Bridge – Repainting (£0.95m) Programmed for 2026/27 (including steelwork repairs with investigations being undertaken 2025/26)
- Surfleet Bridge – Repainting (£0.7m) Programmed for 2027/28
- Langrick Bridge – Long term future; Potentially rebuild off-line (£28m)
- Cross Keys Swing Bridge – Major scheme – refurbishment of operating systems (£1.96m)

Cross Keys Swing Bridge has been identified as one of the highest risk assets on the network, and its long-term future is currently under high level consideration. However, because it is a Grade II* listed structure, even if a new crossing were proposed, we would still have responsibility for the listed bridge, even if it were bypassed.

15.7 Projected Expenditure

Projected Maintenance Budgets

2026/27	2027/28	2028/29
£3.6m	£3.7m	£3.7m

15.8 Desired Outcomes and Objectives

- To meet the statutory obligations as the highway authority to maintain the structures in a condition that is safe for use and fit for purpose
- maintain the condition of our structures with minimum whole life cost
- to deliver a sustainable improvement in the condition of our structures
- maintain their structural integrity and maximise their lifespan, to provide maximum value for money from investment
- to maintain the current condition to prevent further deterioration of our highway structure assets.

16. Street Lighting

16.1 Introduction

Street lighting and the associated illuminated signs and bollard equipment form an essential part of the overall highway asset. This key asset group is nearing a critical investment phase as the number of assets requiring intervention continues to increase due to column age. This document discusses an overview of their current operation and management.

Calculations are based on the inventory details contained in the Confirm asset management system, and prices are to the nearest pound. This summary does not include a breakdown of the budget by road hierarchy or geographical area.

16.2 The Asset

Asset Type	Number	Data Confidence
Lighting Columns	70,077	**High**
Illuminated Signs and Posts	7,160	**High**
Illuminated Bollards	1,919	**High**
Belisha Beacons	271	**High**
Vehicle Activated Signs	198	**High**
Underground Cables	210 km	**Low**

16.3 Asset Valuation

The asset has been valued as follows:

Valuation	**2025**
Gross Replacement Cost (GRC)*	£126m
Depreciated Replacement Cost (DRC)	£39m

16.4 Condition

Over the years the number of lighting assets that we operate has grown significantly, mainly due to the adoption of new development roads etc. Discussion on condition of the different equipment types is as follows:

Lighting Columns

Any new lighting columns currently installed meet specification BS EN 40, with the majority now manufactured from steel and aluminium however the asset inventory is varied with columns manufactured from other materials including stainless steel, cast iron and concrete, albeit these are now very much in the minority through recent capital replacement programmes. Older lighting columns still in operation pose challenges to maintaining network condition and safety. Depending on the material type, most existing lighting columns have a predicted lifespan of 45-55 years. By comparison, the average equivalent age of majority of the existing lighting column

network is currently calculated at approximately 25 years, indicating that some lighting columns are now significantly older than their predicted lifespan.

As of 2023, there has been a programme of column integrity testing in place, to ascertain the current condition of our lighting column stock, with testing performed on columns at least 15 years old. By December 2025, approximately three quarters of lighting columns over 15 years old will have been tested, with the remaining quarter due for completion in early 2026.

Based on the results of column integrity testing to date, the current street lighting budget is projected to sustain the replacement of assets which have reached the end of its life on an annual basis for the next ten years, based upon the estimated residual life figures provided by the column integrity testing.

Current budget position will allow some preventative maintenance to get ahead of the curve. Within the next 11-15 years, columns to be replaced is estimated to accelerate to 3,000 columns per annum (approximately four times more than current levels) and for 16-20 years this increases to over 5,000 columns per annum (approximately seven times current levels). However, this is based on current estimated residual life, and through monitoring asset condition by a risk-based approach for column integrity testing, the lighting columns with 11-15 years and 16-20 years estimated residual life may not deteriorate at the rate it is currently anticipated they will.

Lighting Lanterns

Since 2015 all newly installed lanterns have been specified with LED light sources. Notably, during the 2016 transformation project and the SOX lantern replacement project (2018-24), investment by us and making good use of SALIX has enabled approximately 48,000 lanterns to be converted to LED. This has enabled some of the older lanterns in poor condition to be removed from the network, and with lifespan for LED lanterns predicted at between 25 and 30 years, the new LED lanterns are delivering improved service reliability.

As of April 2024, approximately 19,000 street lights were still using non-LED light sources. Through a two-year LED replacement programme, scheduled for completion in March 2026, all of these will be converted to LED. This will involve around 12,000 LED lamp replacements in lanterns that are aged, but not in an average condition, 5,000 LED geartray replacements where direct LED lamp replacements are not available for that specific lamp technology (generally in the last generation non-LED lanterns in good condition) and 2,000 full LED lantern replacements for units that have significantly exceeded their rated life and are becoming susceptible to component failures (poor condition).

Illuminated Signs

The illuminated sign asset group is managed almost entirely through the reactive maintenance service. This is generally in line with the approach taken across Highways for maintaining other non-illuminated signs and is also due to the smaller number of assets – approximately 7,000, and the consequence of collapse being generally lower when compared to street lighting assets. The lifespan for an illuminated sign is predicted at 35 years, and the average equivalent age across the illuminated signs network is currently calculated at approximately 28 years. This high

average age is a result of the reactive nature of their maintenance and indicates there are an increasing number of illuminated signs on the network in or approaching poor condition.

Through the 2024-26 LED replacement project, there will be around 4,000 sign light upgrades to LED to convert the full sign light stock to LED technology. There is also a separate de-illumination assessment activity being concurrently undertaken, with a view to de-illuminating aged illuminated sign installations, where current TSRGD and budget will allow.

Illuminated Bollards

The illuminated bollards asset group is managed almost entirely through the reactive maintenance service. The lifespan for an illuminated bollard is predicted at approximately 30 years, and the average equivalent age across the illuminated bollard network is 24.5 years. Along with ageing equipment, their location on centre islands tends to make illuminated bollards more vulnerable to traffic and winter maintenance damage. Where illuminated bollards are beyond repair and agreement is sort from Lincolnshire Road Safety Partnership (LRSP), non-illuminated bollard alternatives are installed and ownership of these transferred from Street Lighting to the local Highways area team.

16.5 Current Challenges

Equipment and Supply Chain

Price volatility for steel-based products and lighting equipment, along with limited availability of electrical connection providers, continues to exert significant pressure to both the capital replacement programme and reactive maintenance activity, leading to increased workload and back log of outstanding works.

Energy Price Increases

Increased post-pandemic demand, various international conflicts and other factors have seen unprecedented rises in whole-sale energy prices, which peaked around 2023-24. Thanks to ongoing efforts to reduce electricity usage, street lighting electricity consumption has reduced by approximately 70% compared to a baseline figure from April 2016; and this reduction includes the adoption of at least an additional 2,000 lighting units. Despite the volatility between 2022 and 2024, the unit rate did decrease by about 40% in 2024, although it did see a modest increase of 3-5% in 2025.

Column Structural Testing

Lighting columns operated by us naturally deteriorate as they get older, and the risk of collapse continues to increase with age. Annual capital investment attempts to address this and maintain the lighting stock in a steady state condition. But the number of lighting columns exceeding their predicted lifespan is continuing to rise, and significant additional capital investment will be required from 2035 onwards to keep pace with the deteriorating lighting stock.

From column testing undertaken since 2023, the results inform the capital replacement programmes, targeting areas and estates with assets in the poorest condition. The current budget position should enable at least a steady state condition to be maintained with a small opportunity to undertake some degree of intervention ahead of the anticipated upward curve

arriving in 2035. A risk-based approach shall be adopted with regards to future column testing, targeting those in higher risk score areas (taller columns, traffic routes, coastal/exposed areas, schools etc.) with shorter estimated residual life, whereas a column with a lower risk score (shorter columns, inland, residential areas) with an estimated residual life of 15+ years may not need to be visited for at least 10 years.

Lighting of New Developments

Recent policy changes allow a more flexible approach to lighting in new developments. The changes enable new lighting to existing standards to continue; but now also allow for no lighting. Where lighting is installed that the authority did not instruct as a highway safety need, we will adopt this provided a suitable commuted sum is paid.

EV charging / 5G internet attachments

The planned UK Government ban on the sale of new petrol and diesel powered cars from 2030 means the introduction of on street EV charging points across Lincolnshire will be required. LCC policy to address this requirement is currently being developed and will inevitably involve installing EV charging equipment possibly linked to street lighting provision.

Database asset updates

The Confirm asset management system was introduced by us in 2010, and since then regular asset updating means data confidence is high for most of the street lighting inventory data. But recent pressure on staff resource has seen a backlog of both existing assets and new assets requiring updating or adding. Maintaining accurate asset data is an essential part of planning and organising design and maintenance activity, as well as meeting the electricity reporting requirements for Managing Unmetered Energy Street Lighting Inventories (MUESLI).

Inflation

Rising inflation within the construction sector continues to impact service delivery by decreasing the buying power and the amount of work that can be completed on the key asset groups. Based on the latest budget forecast it is anticipated that Highway budgets will not keep up with the pressure of reduced buying power unless further efficiencies can be delivered. If further efficiency gains can't be realised, the asset condition will start to deteriorate.

Local Government Reorganisation

Local Government Reorganisation (LGR) is currently anticipated to take effect from 2028; however, the final outcome and organisational structures resulting from LGR remain uncertain at this stage. It is anticipated that LGR will result in the formation of a new authority or authorities, and any resulting changes in governance and responsibilities will require careful consideration as part of future asset management planning.

At present, the seven district councils within Lincolnshire act as Highway Lighting Authorities. We currently provide maintenance services for the street lighting stock of four of these district councils through shared service arrangements. Pending the outcome of LGR, responsibility for all street lighting assets may transfer to a successor organisation or organisations.

A full review of the condition, age, and specification of all street lighting assets across the County will be required. It is known that although some LED lantern replacement has taken place, a proportion of the stock remains non-LED. In addition, historic investment in column replacement and systematic structural testing has varied. This creates uncertainty regarding the long-term structural condition, safety, and remaining service life of parts of the lighting network.

There is therefore a potential risk that additional liabilities may arise in relation to asset condition, compliance, and ongoing maintenance requirements. Addressing these risks may necessitate increased levels of inspection, testing, renewal, or replacement to ensure that street lighting assets remain safe, serviceable, and aligned with current standards and asset management principles.

This potential risk will need to be considered as part of future asset management strategies and investment planning, once the outcomes of LGR and associated governance arrangements are clearer.

16.6 Investment Requirements

Over the term of this strategy document, the anticipated investment requirements will include:

The current £887,000 capital replacements budget is not expected to increase in the short term, despite inflation year on year reducing the amount of assets that can be replaced. Additional investment will be required beyond this strategy and into the next decade to keep pace with the ageing street lighting stock.

From 2026, the non-destructive structural testing programme be reduced to around £60,000 to allow for a risk-based approach, where testing will be prioritised on a risk score.

Ongoing volatility in Energy markets will likely lead to an increase in electricity price paid by the authority, despite the most recent energy price increase being relatively modest at 3-5%. Further annual increases in electricity prices are anticipated over the term of this strategy. For context, a 10% increase on the current rate would equate to around £225,000 per annum.

Following the implementation of LGR it is anticipated that a full review of the condition, age, and specification of all street lighting assets across the County will be required by the new authority. As a result of this, it is anticipated that additional budget will be needed to bring the assets up to a consistent standard within the new authority or authorities. Whilst the exact amount is unknown it is anticipated that, an additional investment of £1million will be required whilst the stock is standardised.

16.7 Projected Expenditure

The projected expenditure shown below includes as a baseline continuance of the current Revenue funding, with the additional investment and budget requirements shown:

2026/27	2027/28	2028/29
£3.8m	£4.0m	£4.3m

16.8 Desired Outcomes and Objectives

Alongside delivering the day-to-day duties of the street lighting service, effective use of the additional investment outlined above will enable us to achieve the following outcomes:

- complete column integrity baseline testing by early 2026 to enable a risk-based approach for future testing and targeted replacements
- remove all switched-off columns by the end of 2026 to improve network safety and efficiency
- achieve full LED conversion for all street lights and illuminated signs by 2026 to reduce energy use and maintenance costs
- continue to deliver street lighting designs for major highway schemes such as Hykeham Southern Relief Road to support infrastructure growth
- maximise energy efficiency through adoption of second-generation LED lanterns with improved performance
- complete a full cycle of routine maintenance and inspection under the current BBLP contract to maintain service standards
- initiate first-generation LED lantern refresh programme alongside routine maintenance to sustain reliability
- clear backlog of single-unit replacements and asset inventory updates to improve data accuracy and service responsiveness
- increase capital investment for district lighting upgrades following Local Government Reorganisation for address poor asset condition

17. Traffic Signals

17.1 Introduction

Traffic signals are a cost effective and simpler solution to address safety and capacity issues on the highway compared to other major improvements such as roundabouts. As a result, the asset base has continued to grow year-on-year as more signal-controlled junctions and crossings are installed. Notable recent projects include the Community Crossings Initiative (2023-2025), which added 11 crossings to the inventory, and the new junction at Tritton Road / Charterholme in Lincoln, supporting the City's Western Growth Corridor development.

Our asset lifecycle for a traffic signal installation is set at 25 years to minimise capital replacement costs. While this extended lifecycle helps distribute expenditure over time, it also presents challenges, including equipment obsolescence and limited availability of spare parts. By comparison, the industry standard lifecycle is typically 15 years, and our research has shown that most local authorities in England and Wales operate within a 15-20 year lifecycle.

17.2 The Asset

Asset Type	Number	Data Confidence
Signals at Junctions	153	**High**
Signals at pedestrian crossings (Pelican / Puffin)	137	**High**
Signals at pedestrian and cycle crossings (Toucan)	40	**High**
Signals at equestrian crossings	1	**High**

In addition to the above we manage assets associated with the Urban Traffic Management and Control System, the Tidal Flow system, traffic signal matrix signs, fixed and portable CCTV cameras and the Fire Service priority equipment.

17.3 Asset Valuation

Valuation	2025
Gross Replacement Cost (GRC)*	£26.6m
Depreciated Replacement Cost (DRC)	£14.9m

17.4 Condition

With a projected 25-year lifespan, many traffic signal assets are now ageing, leading to a gradual decline in overall condition. Although we continue to replace faulty components and reuse older controllers to maintain functionality, more significant maintenance interventions are increasingly necessary to uphold safety standards. For example, corrosion on poles at some older sites has reached critical levels, requiring urgent replacement ahead of scheduled refurbishment.

At present, 16 crossings and 24 junctions have exceeded 20 years in service, with the oldest sites such as the Skellingthorpe Road (Almond Avenue) crossing and the Ropewalk (University roundabout) dating back up to 28 years.

Each year, our periodic Inspection (PI) process assesses asset condition and serviceability, incorporating fault history to prioritise those sites most at risk. These findings inform the annual maintenance programme drawn up and presented to the Highways Term Maintenance Contractor for delivery.

17.5 Current Challenges

Scheduling Constrains and Coordination

Whilst asset data and condition assessments are used to prioritise sites for refurbishment through our Capital Asset Refurbishment Programme, scheduling is often constrained by competing demands for highway space. As a result, some schemes have been postponed over the past three years to align with resurfacing works, minimising disruption for road users. This coordinated approach is sensible and supports integrated asset management; however, it also results in traffic signal assets operating at or beyond their intended lifespan. The opposite is also true; when major works are being carried out at critical locations, we sometimes accelerate signal refurbishment to coincide with those projects, avoiding the need for future interventions that would cause additional disruption. A forthcoming example will be the A16 John Adams Way / South End junction in Boston which is being brought forward from 2030 to 2027 to align with the planned re-waterproofing of Haven Bridge.

Equipment Obsolescence and Spare Part Availability

Equipment obsolescence presents a significant challenge, particularly in sourcing spare parts and maintaining sites operating to their designed efficiency. Currently, 94 signal installations rely on controllers that manufacturers have been officially declared obsolete. Of these, nine are utilising old halogen lamps rather than modern LED signal heads, which offer greater reliability and substantially lower energy consumption. Global production of halogen bulbs has declined sharply in recent years due to widespread adoption of LED technology, making it increasingly difficult for our maintenance contractor to source replacements. As a result, prioritising the replacement of these sites is essential.

Inflationary Pressures and Budget Limitations

Persistent inflation in the construction sector continues to erode buying power, reducing the volume of work achievable across key asset groups. Current budget forecasts indicate that highway funding will not keep pace with these cost pressures unless additional efficiencies are delivered. Without further gains, traffic signal assets will enter a state of managed decline rather than maintaining current service levels. Our forward 10-year projection shows that, under existing investment and pricing assumptions, the average age of an asset we refurbish in 2035 will be 28 years old.

17.6 Investment Requirements

The current investment profile for traffic signals is not sufficient to maintain asset condition at a steady state. With no favourable outlook for increased budgets, significant changes to the delivery of our refurbishment programme are required.

Historically, our approach has always been to upgrade sites to a “like-new” standard, replacing not only signal equipment but also tactile paving, kerbs, inspection chambers, guardrails, and adjacent surfacing. However, our 10-year forecast shows that this level of expenditure per installation is no longer sustainable if we are to maintain the signal assets to a 25 year or less lifecycle. Moving forward, we will need to be more selective over which other parts of the installation we actually replace whilst carrying out our works.

The consequence of this approach is that other Highways teams will inherit responsibility for ageing footway surfacing, kerbs and related features as part of their general maintenance programme, effectively shifting the problem rather than eliminating it.

17.7 Projected Expenditure

Based on the maintenance spending profile at section 17.6, the envisaged spend for traffic signal refurbishments and maintenance would be as follows;

Maintenance Budget Profile

2026/27	2027/28	2028/29
£2.6m	£2.9m	£3.2m

17.8 Desired Outcomes and Objectives

- prioritise core asset investment by reducing ancillary works, enabling more junctions and crossings to be refurbished and lowering overall asset age to below 25 years
- accelerate transition to LED technology by replacing all remaining halogen lamp sites to improve reliability and energy efficiency
- introduce a risk-based prioritisation framework combining age, condition, fault history, and obsolescence risk to target the highest-risk sites first
- enhance lifecycle planning and forecasting through predictive models to anticipate future obsolescence and maintenance needs
- improve coordination with other highway works via a formalised scheduling protocol to optimise integration and minimise disruption
- explore alternative funding and efficiency measures including external grants and innovative technologies to reduce lifecycle costs
- enhance monitoring and reporting with dashboards and KPIs to track asset age, condition trends, and refurbishment progress

18. Drainage

18.1 Introduction

Highway drainage is a vital asset that supports the safety and resilience of our road network. Effective drainage ensures that highways remain safe for users during adverse weather, reduces the likelihood of flooding, and protects the structural integrity of the carriageway. It also plays a key role in enabling the network to continue operating during rainfall events and to recover more quickly following extreme weather.

Highway drainage is an asset group where we aim to improve service levels beyond those currently delivered. Stakeholders have repeatedly highlighted the importance of drainage condition and have identified improved flood management as a priority. Better functioning drainage systems directly support network resilience, sustainability, and public satisfaction.

At present, we do not hold a comprehensive inventory for all drainage assets. While we have good information for gullies and offlets, data on many other drainage components remains limited. In addition, most maintenance activity continues to be reactive, triggered by reports of flooding, blockages, asset failures, or damage. Routine cleansing of gullies, offlets and chambers, cutting of swale grass, and weed-spraying of permeable pavements represent the main proactive activities currently undertaken.

18.2 The Asset

Asset Type	Number or Length	Data Confidence
Gullies	152,304 No.	High
Offlets	28,920 No.	High
Chambers	15,467 No.	Medium
Rodding Eyes	152 No.	Medium
Pipes (exc Gully laterals)	1,165 km	Low

In addition to the above we also manage other drainage assets including Filter Drains, Grips, Swales and Soakaways.

18.3 Asset Valuation

Valuation	2025
Gross Replacement Cost (GRC)	Unknown
Depreciated Replacement Cost (DRC)	Unknown

18.4 Condition

Assets that are currently included in cyclic cleansing regimes are, overall, in good condition. Due to their relative youth, most SuDS systems are also expected to be in good condition; however, they will require intervention in the near future to maintain serviceability and extend their operational life. The condition of other drainage assets remains uncertain because of insufficient data.

18.5 Challenges

Sustainable Drainage Systems (SuDS)

Sustainable Drainage Systems (SuDS) are an essential component of modern highway infrastructure. Their purpose is to manage surface water runoff in a way that replicates natural drainage processes, reducing flood risk and improving water quality. Unlike conventional piped systems, SuDS attenuate flows, promote infiltration, and treat pollutants, supporting compliance with national legislation and environmental objectives.

Integrating SuDS within the highway network delivers benefits including climate resilience, reduced pressure on traditional drainage assets, and improved biodiversity. Features such as swales, detention basins, infiltration trenches, and filter strips can be incorporated into verges and landscaped areas without compromising safety or performance. These measures align with national guidance, including the Design Manual for Roads and Bridges (DMRB) and CIRIA SuDS Manual, and support our strategic objectives for sustainable asset management.

However, SuDS introduce challenges in asset management. Their performance depends on soil conditions, vegetation growth, and sediment accumulation. Routine maintenance is essential to prevent blockages, maintain infiltration capacity, and sustain water quality benefits. This requires a shift from reactive maintenance towards planned regimes, supported by clear asset records and inspection protocols. Additionally, the dispersed nature of SuDS features complicates inventory management and increases inspection resource requirements.

Obtaining the best possible data of our highway drainage assets

We hold detailed data for our gullies, chambers and pipework. Work has been undertaken and is still continuing to map highway SuDs and ancillary assets within our drainage systems that help to reduce the risk of flooding and pollution. These include, but not limited to, flow control devices, storage tanks, flap valves, outfalls and pollution control devices. There is also limited condition data for many of our drainage assets, which needs to be improved through routine inspection.

Developing risk-based maintenance regimes for all our highway drainage assets

Modern drainage systems require proactive and regular maintenance to ensure they do not increase the risk of flooding. SuDs in particular require different maintenance regimes to that of present, as they use ‘soft engineering’ eg, swales, grass channels, ponds. Most newly adopted or designed systems have a flow control to limit the outflow of water and storage within the system to hold to reduce the risk of flooding. Without carrying out regular maintenance these systems can become overgrown with vegetation, blocked by debris or silted up, which reduces their performance and life expectancy.

Sufficiency of future budgets to maintain the drainage asset

Ensuring adequate funding for drainage maintenance remains a significant challenge. Competing priorities across the authority and limited financial resources create a risk that future budgets may be insufficient to keep systems operating effectively. Without the necessary investment, drainage performance may decline, increasing the likelihood of flooding, reducing highway user safety during inclement weather, and accelerating deterioration of the carriageway's structural condition. Over time, these issues can lead to more severe defects and higher long-term costs as problems become harder and more expensive to address.

Understand how risks associated with national climate change scenarios impact on highway drainage systems and develop a plan for adaption

Highway drainage assets adopted or improved over the past decade have generally been designed to meet the national climate change scenarios applicable at the time. However, many older assets can struggle to cope with more extreme rainfall events leading to increased flooding. We need to understand the scale and severity of the issue in order to develop a long-term plan of adaption.

Resourcing

As our understanding of the drainage network grow, additional staffing will be required to deliver future forward programmes. Engineers and technicians with drainage expertise are difficult to recruit due to a limited resource pool nationally. Likewise, there will be reliance on specialist contractors to undertake maintenance activities which again has a finite resource pool.

Inflation

Rising inflation within the construction sector continues to impact service delivery by decreasing the buying power and the amount of work that can be completed on the key asset groups. Based on the latest budget forecast it is anticipated that Highway budgets will not keep up with the pressure of reduced buying power unless further efficiencies can be delivered. If further efficiency gains can't be realised, the asset condition will start to deteriorate.

18.6 Investment Requirements

Data on our highway drainage assets remains limited, and current maintenance activities comprise the cleansing of gullies, offlets and chambers, swale grass cutting and weed spraying permeable pavements together with essential, but often reactive repairs.

We have begun a multi-year programme of data-gathering to expand our understanding of the drainage network. As this data set develops, we will be able to review and refine maintenance regimes to cover all drainage assets, ensuring that systems operate effectively, efficiently, and with greater resilience. This expanded data set would also allow condition monitoring to be undertaken leading to more detailed planning, prioritisation of schemes and interactions, along with greater efficiency thereby enacting a move from a reactive to a risk based preventative maintenance regime.

The increasing number of sustainability focused highway drainage systems also requires a change in how we approach maintenance. Being comprised of soft engineering features such as swales (shallow grass lined ditches), structures and devices that store and control the release of storm water, means they require a different maintenance approach. Without regular maintenance these systems can quickly degrade, leading to failure, and can be costly to restore to a serviceable condition.

18.7 Projected Expenditure

Projected Maintenance Budgets

2026/27	2027/28	2028/29
£9.3m	£7.5m	£7.5m

18.8 Desired Outcomes and Objectives

Addressing the challenges outlined above will help deliver a safe, resilient, and reliable drainage system. This will reduce the risk of highway flooding caused by our assets, support the longevity of our highway network through efficient and effective collection and disposal of highway runoff along with improving the safety of our highway users during inclement weather.

Improving and expanding our highway drainage asset data will allow more detailed planning for maintenance regimes across all asset types, support evidence and risk-based investment decision, and lead to less reliance on reactive maintenance. As our asset data improves, condition monitoring can be developed allowing greater focus on timely, planned maintenance interventions.

Overall, our aim is to maintain current asset condition levels to prevent further deterioration of our highway drainage assets.

19. Trees

19.1 Introduction

We are responsible for a significant tree stock across the county, with over 69,382 recorded trees under Highways responsibility.

Trees growing within the highway are managed and maintained like any other element of highway infrastructure, requiring maintenance or replacement when absolutely necessary in the interest of Safety.

However, trees differ from other highway assets because they are dynamic, living organisms. They grow and expand over time, both above and below ground, shed leaves and branches and in some cases may fall, presenting hazards to highway users. While this growth and lifecycle may be benign in a natural setting, it becomes problematic when the trees interact with built infrastructure in a highway environment. Trees can cause maintenance issues for kerbs, footways, carriageway surfaces and adjacent shallow-founded structures (direct damage). In certain conditions, they may also affect building foundations as well.

Despite all these issues trees provide immense environmental benefits:

- storing carbon
- improving air quality
- collecting rainwater
- providing shade
- reducing noise
- protecting soil from erosion
- supporting wildlife habitats

Additionally, trees offer amenity and functional benefits, such as slowing vehicle speeds and providing shelter from wind.

19.2 The Asset

Asset Type	Number	Data Confidence
Trees – Highway owned over 30cm diameter	69,382	**Medium**
Trees - Privately owned	14,310	**Medium**

19.3 Asset Valuation

Trees can now be valued using an asset valuation system known as CAVAT – Capital Asset Value for Amenity Trees. This approach, based on UK law, considers amenity as the sum of public benefits – primarily, but not exclusively, visual benefits.

CAVAT uses a replacement cost approach, adjusted and depreciated to reflect key criteria, including:

- attributes
- visibility
- primary structure Quality
- canopy Completeness
- life expectancy

Using the CAVAT methodology, a monetary value is assigned to an individual tree or woodland. Our tree stock is valued using this system, applying an average valuation per tree to estimate the total asset value.

The table below shows the total valuation of inspected trees above 30cm diameter.

Note: CAVAT valuations will only be carried out by LCC Qualified Arborists on highways and LCC-owned trees.

Valuation for highways trees over 30cm diameter	**2025**
CAVAT Value	£3.4bn
Gross Replacement Cost (GRC)	£300m
Depreciated Replacement Cost (DRC)	Not Applicable

19.4 Current Challenges

An accurate assessment of the highway tree stock in terms of quantity, species and condition, as well as the identification and prioritisation of tree related hazards is currently being undertaken by qualified and licensed surveyors

While trees provide significant benefits, it is recognised that some residual risk will always remain in exchange for those benefits. For members of the public who are exposed to risk “in the wider public interest,” the Health and Safety Executive (HSE) sets an acceptable risk threshold at 1 in 10,000 (HSE, 1996).

We must also demonstrate that the risks posed by highway trees are As Low As Reasonably Practicable (ALARP), balancing safety considerations with the environmental, amenity, and functional benefits provided by each individual tree.

19.5 Projected Expenditure

Projected Maintenance Budgets

2026/27	**2027/28**	**2028/29**
£1.3m	£1.33m	£1.33m

19.6 Desired Outcomes and Objectives

- improve data accuracy and confidence by moving from *medium* confidence to *high* confidence in tree asset data by completing comprehensive surveys and implementing ongoing monitoring
- implement a risk-based management framework by fully integrating QTRA and ALARP principles into operational decision-making to ensure safety while retaining tree benefits
- ensure “right tree, right place” by planting the correct tree species in suitable highway locations, considering root growth, canopy size, soil conditions, and proximity to infrastructure to minimise future maintenance issues and maximise benefits