Highways Infrastructure Asset Management Strategy

2022 - 2025

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	October 2022	Full review and update of the 2016 Highways Asset Management Strategy document	Clair Dixon, Policy and Strategic Asset Manager

Foreword

I am pleased to be able to introduce our Highways Infrastructure Asset Management Strategy for 2022 to 2025.

The local highway network is our largest and most valuable publicly owned asset, valued at over £11 billion. The management of this asset has a significant impact on our county's residents, businesses and visitors. It is important to recognise how much we all depend upon our highway network, to sustain our economic and transportation needs and develop a strategy that uses the resources available in an efficient, responsible and sustainable way.

This Highways Infrastructure Asset Management Strategy aligns with our vision for Lincolnshire and describes how our highway assets contribute to the achieving of our objectives. This strategy document sets out our funding requirements to maintain our assets in a defined position and contains budget modelling for future investment scenarios against all key asset groups. This document aims to provide the optimum balance between responsible investment of public money, and the maintenance of the highways asset at an acceptable standard, based on the latest lifecycle planning and whole-life asset management science.

The information provided in this document will allow us to make more informed decisions and ensure that the standard of highway assets meets our desires both now and into the future.

A sound asset management strategy, which balances a data-led approach to maintenance with customer expectations and our aspirations for growth, is the foundation for a sustainable highway network for Lincolnshire. This Highways Infrastructure Asset Management Strategy is the basis of not only maintaining but improving the condition of our highway assets for future generations of residents, businesses and visitors.

Councillor Richard Davies, Executive Councillor for Highways, Transport and I.T.

1. Introduction

1.1 Overview

We have the sixth largest highway network in England with approximately 9000km of carriageway and an estimated value of around £11 billion.

Our network is a significant asset that connects people and places across Lincolnshire, contributing to the wellbeing of residents, thriving communities and enabling people to access work, learning and business opportunities to fulfil their ambitions.

We recognise that the delivery of an efficient highway service cannot be undertaken without effective maintenance of the existing highway network. It is therefore essential that new infrastructure which supports our priority outcomes, should be maintained to the appropriate standard in the future, and that the existing highway infrastructure remains serviceable. We are committed to having the best network condition for the investment available and support an asset management-based approach for the maintenance of the highway network.

Therefore, this strategy sets out how we will maintain the county's highway network to the best possible standard within the available resources, while continuing to pursue all the opportunities we can to secure additional funding for the maintenance and improvement of our highways and transport infrastructure.

The funds we have available, especially revenue funding, are severely constrained and therefore, it is now more important than ever to optimise our resources and to get maximum longevity from the highway asset.

Since the last Highways Asset Management Strategy was published in 2016, there have been significant national events that have had a dramatic influence on local and national policy.

In October 2018, the UK Roads Liaison Group published 'Well-managed Highway Infrastructure: A Code of Practice'. This document promoted the transition from a series of specific guidance and recommendations to an integrated risk-based approach determined by individual Highway Authorities in accordance with their local needs, priorities and affordability. This publication has been key in the development of Lincolnshire's approach to determining levels of service and identifying needs across the network.

Our asset led approach will assist us to deliver a more efficient and effective method to manage the highway infrastructure assets, through longer term planning and ensuring that levels of service are defined and achievable within available budgets. We put our customers at the heart of our strategy to ensure the highway infrastructure is maintained to provide the best service to the people of Lincolnshire.

This Highways Infrastructure Asset Management Strategy replaces the previous Highway Asset Management Strategy 2016-2022 and has been updated to reflect:

- current financial constraints
- local and political aspirations for Lincolnshire
- the changing road network and associated conditions in Lincolnshire
- climate change 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 match the current funding allocations from the Department for Transport (DfT) and align with our electoral cycle which will hold the elections for the next administration in 2025. Our strategy will be amended as a live document and comprehensively reviewed when necessary, or in 2025 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 objectives of this strategy are to:

- 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.

The Framework is presented 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.

How the various documents interact with the different levels of the framework is illustrated below.

Context

This establishes the context for highway infrastructure asset management in Lincolnshire. The context includes a variety of factors that need to be taken into consideration when determining the Council's expectations for the highway service. The factors include:

National Transport Policy

Local vision & Local transport policies

Stakeholder Expectations

Legal & funding constraints

Planning

This sets out the key activities that are undertaken by Lincolnshire as part of the asset management planning process. The activities include:

Highways Infrastructure Asset Management Policy
Our published commitment to highway infrastructure asset management

Highways Infrastructure Asset Management Strategy
Our published statement on: how the policy will be implemented using the asset management framework, the strategy for each asset group, and the commitment to continuous improvement.

Performance
The levels of service to be provided by Lincolnshire's highway service and how performance will be measured and reported.

Highway Asset Data
Our strategy for data collection and management, without which informed decisions cannot be taken.

Lifecycle Plans
Our lifecycle plans for each asset group which when combined with funding levels and desired levels of service enable informed decisions to be taken.

Works Programmes
Our rolling programme of works for each asset group

Enablers

Enablers are a series of supporting activities that support the implementation of the Asset Management Framework. They provide a means of:

Leadership & Organisation
Our active demonstration of our commitment to asset management

Competencies and Training
Lincolnshire's training programme to provide staff with appropriate highways infrastructure asset management competencies and skills

Risk Management
- Our risk management process
- Our risk register

Performance Monitoring & Continuous Improvement
- NHT Customer Satisfaction Survey
- Performance targets and monitoring

Communications
- Lincolnshire's communication strategy
- Customer Engagement and Liasion Strategy

Highways Infrastructure Asset Management Systems
- Lincolnshire's asset data system

Delivery

The delivery component of the framework sets out how the highway service will be delivered via the new highway service contract for which a series of service delivery and contract delivery objectives have been established respectively.

- Routine and Cyclic Maintenance
- Reactive and Planned Maintenance
- Safety Inspections
- Delivery of Capital Programme

Programme & Service Delivery

- Procurement
- Provide better value for money
- Contribute to road safety improvements
- Better engagement with stakeholders

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 and 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

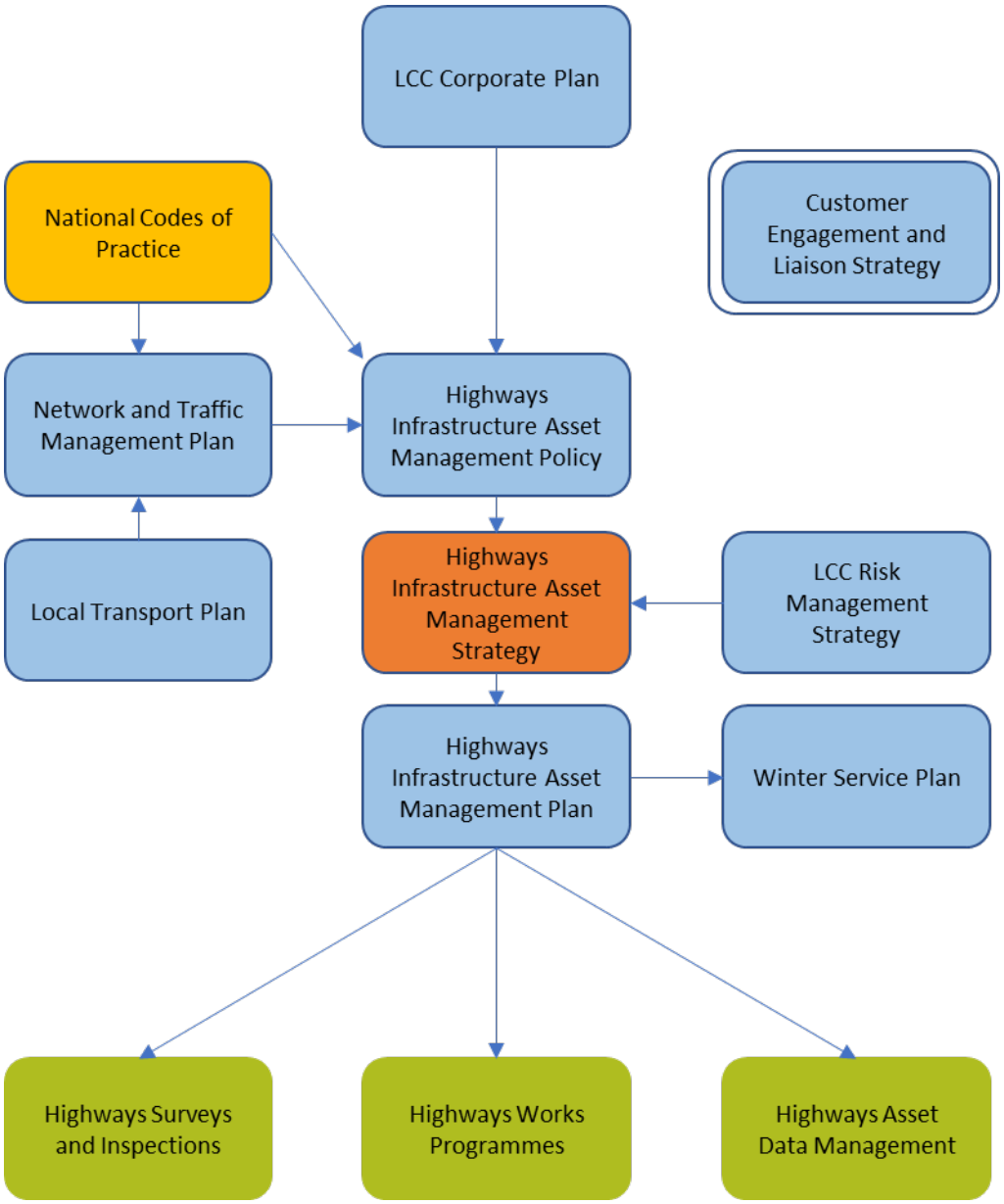
Lifecycle planning comprises the approach to the maintenance of an asset from construction to disposal. It is the prediction of future performance of an asset, or a group of assets, based on investment scenarios and maintenance strategies. The lifecycle plan is the documented output from this process.

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. The chart below identifies these key elements and how they are aligned with one another.



3. Stakeholder Engagement and Communication

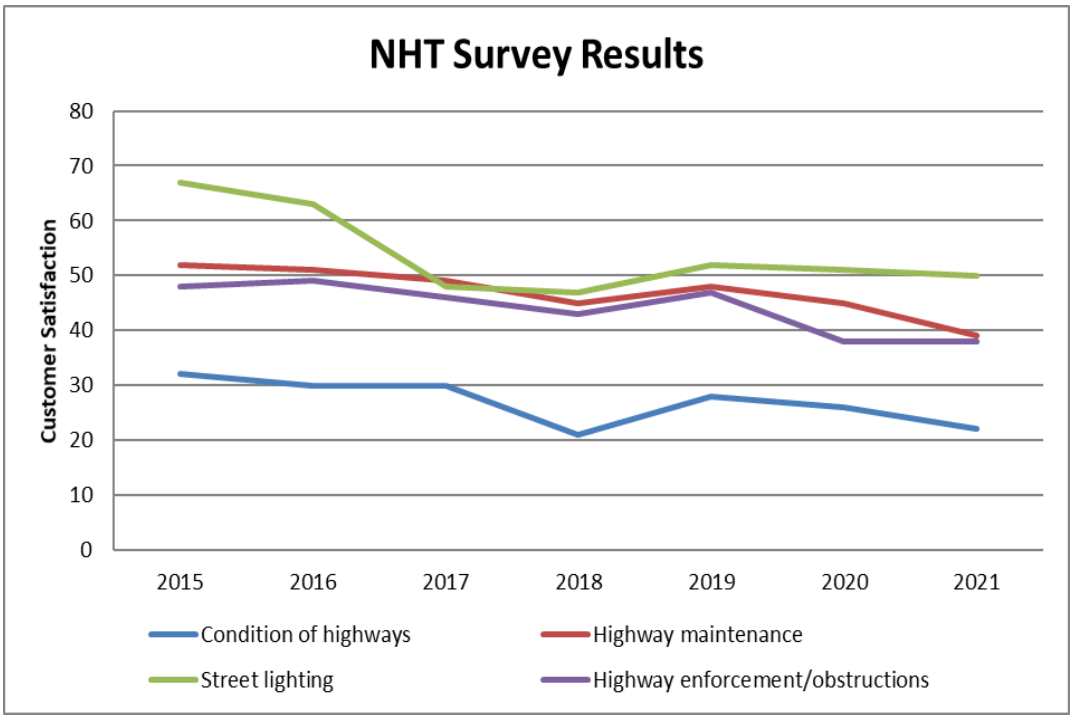
The principal purpose of asset management is to ensure that our network meets the needs and expectations of our stakeholders. To ensure we keep our stakeholders at the heart of all we do we communicate with them on a regular basis and seek feedback at many opportunities.

3.1 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 at www.nhtsurvey.org.

We have participated in the NHT survey since 2008 and this enables us to understand the views and preferences of a sample of residents and to compare these against other similar councils. 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.

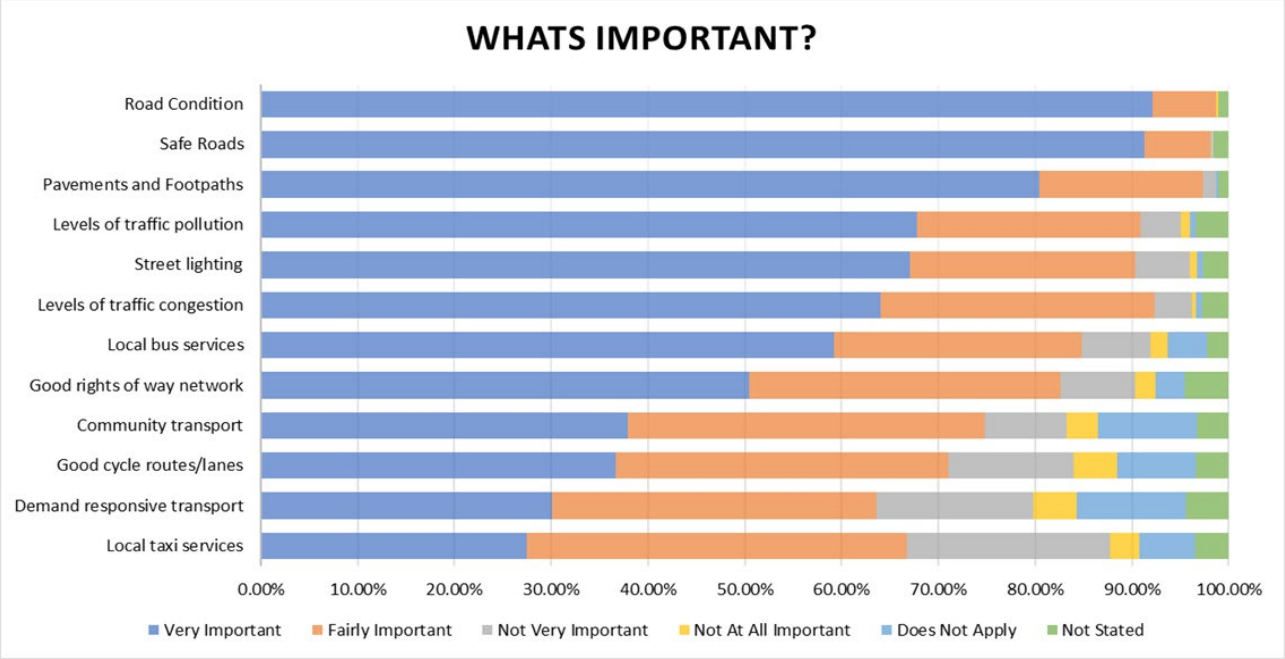
The results shown below from the 2021 survey indicate that there has been a decrease in customer satisfaction levels with the condition of highways and highway maintenance over the past 5 years, although a slight increase was recorded in the 2019 survey. The most significant change has been a decrease in satisfaction to Street Lighting. This is likely to be a consequence of the Street Lighting Transformation Project which includes a programme of part night-time lighting and switch-offs.



The following sets of data 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 is still the most important issue with 92% of the public seeing it as very important and a further 6% as fairly important.

Safer roads were second, with 91% of responders saying it is very important and a further 7% as fairly important.

The third-place issue is pavements and footpaths – this means that the top three priorities have remained consistent over the last seven years. There was 80% of the public who saw Pavements as very important and a further 17% who saw it as fairly important.



3.2 Stakeholder Engagement

In order 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.

In order 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.

3.3 Communication

We recognise the importance of 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 currently utilise a number of different media to communicate our highway service, and we will continue to do so, adopting a more technology-driven focus to provide our residents and road users with up-to-date and accurate information.

We will utilise, where appropriate, local media forms 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 forms such as Twitter and Facebook, to relay information regarding our highway service.

During the period of this strategy, we will widen the range of information we share with our stakeholders. We will use new and emerging technologies to ensure our stakeholders are

provided with information on what they want to know and when they need to know it. We will ensure that all information is easy to find and easy to understand.

4. Service and Contract Delivery

Our highway service uses a number of contract options in order to fulfil the requirements of our strategy. The majority of services are delivered using long term strategic maintenance contracts with key supply chain partners, which are supplemented with a number of frameworks and alternative delivery routes to ensure operational success and value for money. We retain the role of client and have developed an operating model based around specialist teams delivering specific areas of service. The model is designed to follow the asset management principles set out in this strategy and to ensure that the service delivers in the most effective manner.

Our current highways contract arrangement commenced in 2020 which is managed by the Client and Contractual Management Services team, providing specialist contract, commercial, performance and service development functions. A series of asset management outcomes linked to service outcomes have been created that are directly aligned to the achievement of our Council Plan.

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 respectively. The highways work programmes are established on an asset management basis for delivery through the highways contract. 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 us.

4.1 Service Delivery Outcomes

Improve asset condition

- eg, carriageway and footway condition indicators, drainage performance, safety barrier maintenance and inspections

Improve customer satisfaction

- eg, annual NHT survey and level of complaints

Reduce third party claims

- eg, level of claims by value and volume

Provide value for money

- eg, fixed costs per kilometre of network and schemes within budget

Local engagement and service delivery

- eg, number of local employees working on the contract and number of local Subject Matter Expert's

Promote economic growth

- eg, measure of network availability and value of network improvements

4.2 Contract Delivery Outcomes

Safety

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

Sustainability

- eg, to ensure resources are used efficiently with due consideration to the environment, carbon emissions are reduced and the local economy is promoted and utilised as appropriate

Customer

- eg, to ensure we listen to stakeholders, disruption to road users is minimised and stakeholders are satisfied

Operational Delivery

- eg, 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 plan

Asset

- eg, to ensure information is available in a timely manner to support effective decision making.

5. Data Management

We undertake a risk-based approach to asset management through our knowledge of the various elements of the highway. The knowledge of the asset is undertaken by:

- holding and updating all appropriate records
- validating the records
- ensuring the data is transparent for decision makers

In 2022 we published our Data Management Strategy for the Place Directorate which sets out our approach to how we:

- **Identify business need**
  - This is through the appropriate data being collected and an appreciation of the validity of the information and how it is best used

- **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 strive to ensure the data collected is accurate, appropriate and collected in such a way that repeatability of collection is achievable

- **Statutory Requirements**
  - Our Place Directorate is committed to ensuring that data is managed correctly and in accordance with the General Data Protection Regulations (GDPR) 2018 and The Freedom of Information Act (FOI) 2000 and the Data Protection Act 2018

- **Inventory Register**
  - We hold our infrastructure inventory and asset data in a single integrated electronic system called Confirm

- **Data Retention**
  - Our Data Retention Policy outlines the duration of time for which a record should be maintained or “retained” before destruction or archive.

The Data Management Strategy will enable all service areas to view and share data information which will be listed and found in one place. Data included in the strategy will be statutory data which is collected, stored and used for the purpose of bidding for funding from the DfT and additional highways and transport data that may be shared and of benefit to other service areas.

6. Our Highway Assets and their Condition

6.1 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	1,090 km	**High**
B Roads	782 km	**High**
C Roads	2,915 km	**High**
Unclassified Roads	4,080 km	**High**
Unclassified Roads - Unmetalled	373 km	**High**
White and Yellow Lines	No Data	**Low**

Footways and Cycleways

Element	Quantity	Data Confidence
Footways (including combined Cycleways)	4,370 km	**High**
Dedicated Cycleways	7 km	**High**

Verges

Element	Quantity	Data Confidence
Highway Verge	7,456 Ha	**High**

Public Rights of Way (PRoW)

Element	Quantity	Data Confidence
Remote from the carriageway – total length of PRoW	4,033 km	**High**

Structures

Element	Quantity	Data Confidence
Bridges	1516 No.	**High**
Footbridges	141 No.	**High**
Culverts >0.6m diameter	2206 No.	**High**
Retaining walls	148 No.	**High**
Subways (including submersible pumps)	14 No.	**High**
Gantries	10 No.	**High**

Street Lighting

Element	Quantity	Data Confidence
Lighting columns	67,739 No.	**High**
Illuminated signs and posts	7,991 No.	**High**
Illuminated bollards	2,250 No.	**High**
Feeder pillars	851 No.	**High**
Vehicle activated signs	303 No.	**High**
Zebra crossings	276 No.	**High**
Underground Cables	210 Km	**Low**

Traffic Management Systems

Element	Quantity	Data Confidence
Signals at junctions	156 No.	**High**
Signals at pedestrian crossings	133 No.	**High**
Signals at pedestrian and cycle crossings	46 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	148,292 No.	**High**
Offlets	28,855 No.	**High**
Chambers	13,163 No.	**Medium**
Rodding Eyes	100 No.	**Medium**
Pipes (exc. Gully laterals	1,165 km	**Low**

Street Furniture

Element	Quantity	Data Confidence
Vehicle safety fences	202,743 m	**High**
Pedestrian Guard rails	No Data	**Low**
Non-illuminated signs (warning, regulatory and local direction / info signs)	86,563 No.	**Medium**

Element	Quantity	Data Confidence
Non-Illuminated bollards	568 No.	**High**
Trees – Highway owned over 30cm diameter	8,130 No.	**Medium**
Trees – LCC owned over 30cm diameter	2,170 No.	**Medium**
Automatic Traffic Counters (carriageway and cycleway)	70 No.	**Low**
Weather stations (ice prediction equipment managed by Vaisala Ltd.)	12 No.	**High**
Bus Stops	1,995 No.	**Medium**
Safety Cameras	39 No.	**High**
Average Speed Safety Cameras	10 No.	**High**

6.2 Condition Surveys

Condition surveys reveal the state of the network and are used to inform decisions on long-term and short-term maintenance funding. Comparing results from consecutive years allows trends to be analysed in respect of the performance of the asset and ensuring that objectives are being achieved and budgets are being spent effectively.

Condition survey data is used to produce National Indicators and Best Value Performance Indicators (BVPIs) which are an integral part of local government's management framework towards continuous improvement in efficiency and effectiveness of services.

Monitoring the condition of our assets is a fundamental component of asset management. It helps to:

- demonstrate the levels of service that we are delivering
- identify trends in improvement or deterioration
- identify priorities for focusing our resources
- monitor the effect of our treatment strategies
- provide the base data required for lifecycle modelling and the calculation of Depreciated Replacement Costs - DRC (the current cost of replacing an asset with its modern equivalent, less deductions for physical deterioration).

6.3 Lifecycle Planning

Life Cycle Planning is a process which underpins asset management, it is a technique for which each type of asset considers:

- rate of deterioration
- desired level of service

- available maintenance options
- cost and lifetime of each maintenance option.

Using this information, a lifecycle plan and optimal treatment strategy will be developed that shows an asset's life from cradle to grave and the likely maintenance cycles undertaken.

Life cycle planning tools have been produced to predict outcomes from investment strategies. These are used to develop strategies that deliver an agreed level of performance. They can also predict the level of service that can be delivered for a particular funding scenario.

Using current condition data, and lifecycle planning tools, we will develop work programmes which make best use of the available funding in meeting long-term objectives, whilst mitigating the risk of failure by allocating funds to where they will be most beneficial. This will then inform future maintenance needs for each asset and indicate future funding requirements.

6.4 Data Collection

A programme of inventory surveys is developed each year based on priorities and available budgets. Inventory data is only collected and maintained where there are demonstrable benefits when compared to the cost of collecting and maintaining this data.

6.5 Assets Not Covered by This Strategy

There are some highway related assets that we do not have responsibility for, and the assets not covered in this strategy include:

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

7. Future Demands

The population of Lincolnshire has increased, on average, by 7.9% in the 10 years from 2011 to 2021 and whilst Lincolnshire will continue to encourage active travel, the population growth, together with new business and housing developments will continue to add new highway assets to manage and maintain.

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.

7.1 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. Over the last 10 years (2011 to 2021) the key highways assets have grown as follows:

Asset Type	Average Growth per Annum (2011 to 2021)	Growth in 2021
Carriageway	11.7 km	19.0 km
Footway	28.9 km	45.2 km
Street Lighting Columns	406 No	242 No.
Structures	8.4 No.	21 No.
Signal Installations	22 No.	1 No.

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.

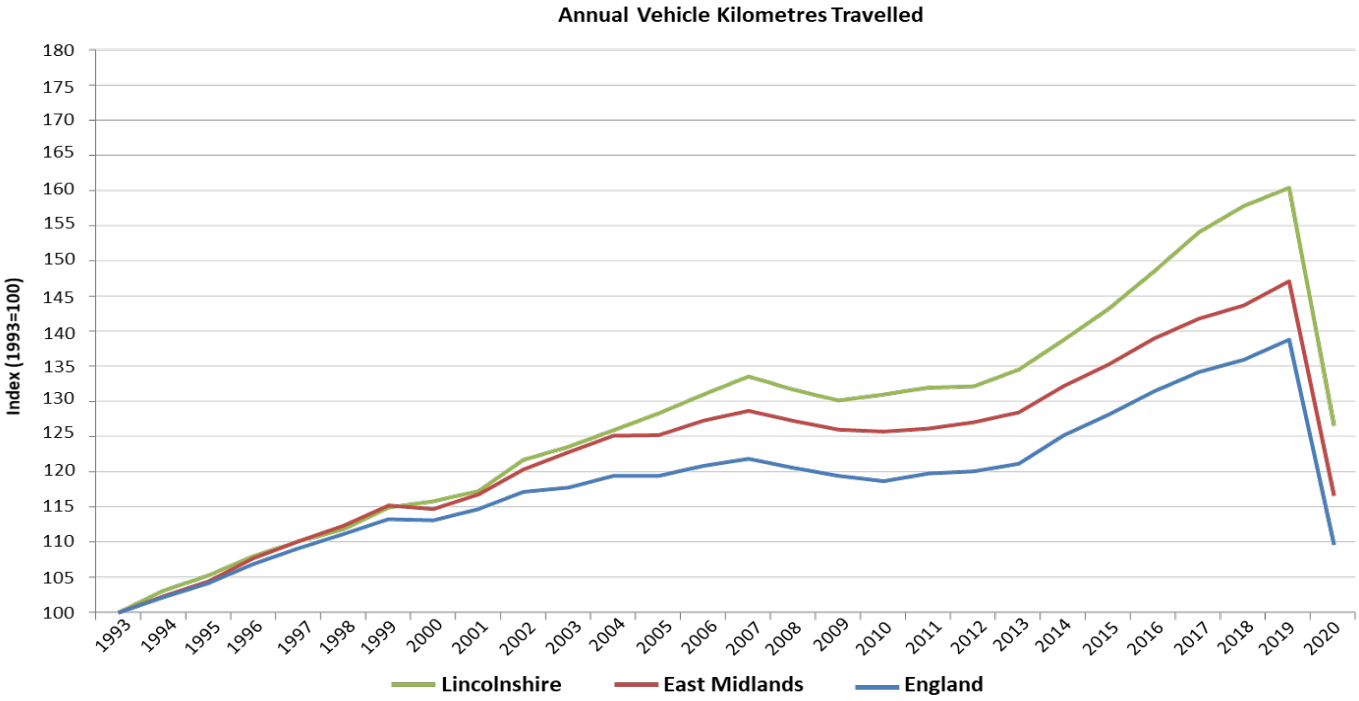
7.2 Traffic Growth

Traffic growth is monitored regularly, and details are published in an annual Transport Monitoring Report. The Key elements identified in this report are:

- Over the 24-year period between 1993 and 2018, the number of vehicle kilometres travelled in Lincolnshire rose by 46.4%. This is substantially greater than that for England (26.9%) and for the East Midlands (36.2%) over that same period.
- Traffic levels grew steadily until 2007. However, between 2007 and 2012 levels fell by some 3.4%, reflecting the economic conditions at that time. There was a similar trend nationally and regionally.

- Since 2012, growth in vehicle kilometres travelled in Lincolnshire had resumed again with an increase of some 13.5% between 2012 and 2018. This is well above the corresponding national figure of 8.1%.
- However, the impact of Covid 19 in Lincolnshire saw levels fall to those in 2005

The following graph illustrates the growth in traffic in Lincolnshire in comparison with the East Midlands and National trends:



7.3 Traffic Composition

Traffic composition is a major factor affecting the rate of deterioration of our highway infrastructure. In particular, concentrations of heavy good vehicles on roads that were never designed to cope with such loadings can cause accelerated deterioration of carriageway pavements. This has a significant impact in certain areas of the county where there are a number of distribution warehouses with very significant levels of heavy goods vehicle traffic.

8. Environmental Conditions and Climate Change

8.1 Environmental Conditions

Environmental conditions have a significant influence on the condition of the road network. During winter periods, freeze and thaw action can accelerate the deterioration of carriageways and footways, and winter maintenance operations have a direct effect on the resources needed for other maintenance activities. The UK experienced a particularly harsh winter in 2018 with periods of severe weather, but the winters since have been relatively mild.

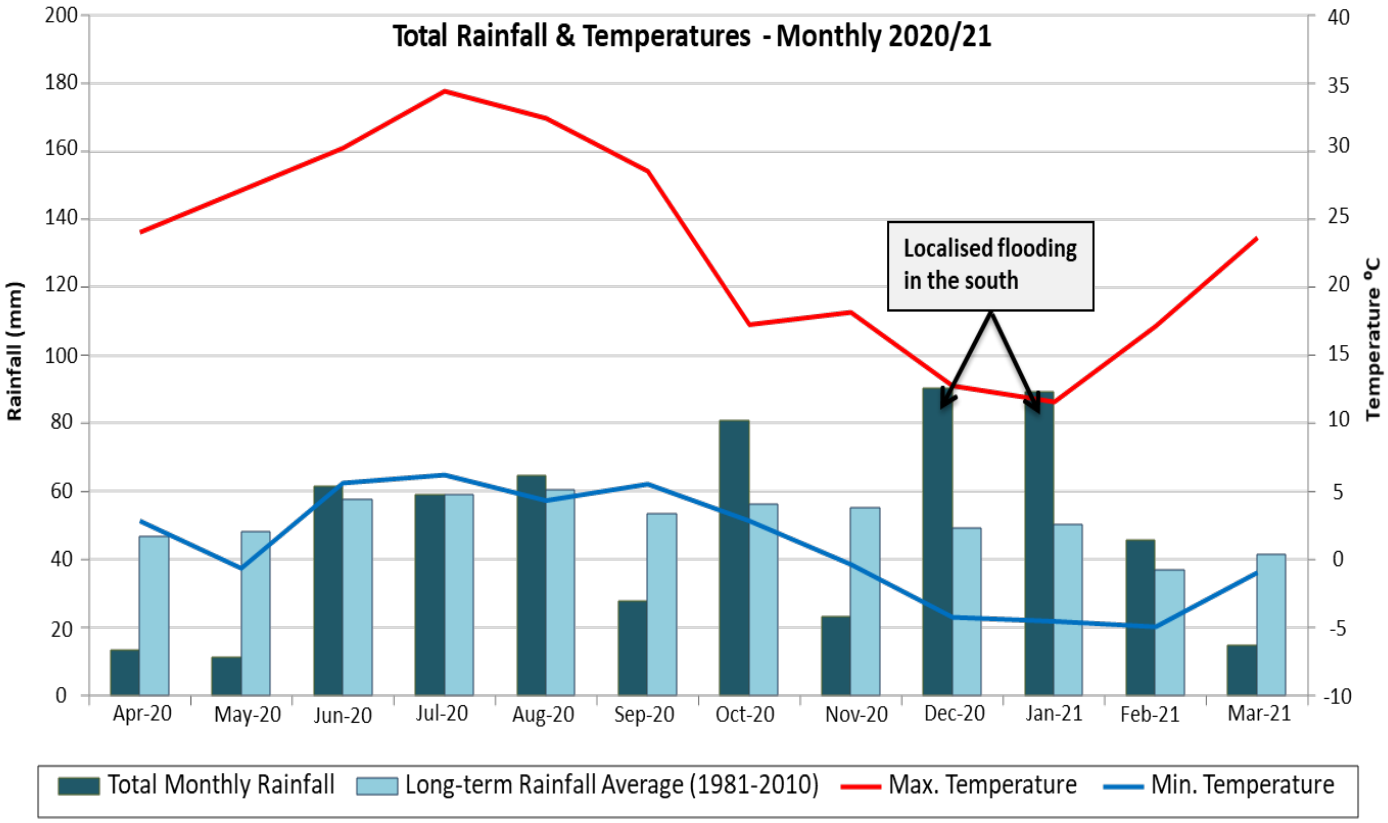
Changes in the climate also have significant implications for the management of highway infrastructure assets.

Within Lincolnshire, roads constructed in the fenland areas are susceptible to severe damage during long periods of dry conditions. This is due to the uneven settlement of roads constructed on moisture susceptible soils which, on drying, shrink significantly and unevenly. This reduces the carrying capacity of the road construction and creates surface alignments that are not consistent with high or medium speed traffic requirements. Work has been undertaken to identify the areas of the county which are susceptible to drought damage during these conditions and identify specific treatments to remediate the roads affected in these areas.

With the ongoing predicted increases in rainfall and river levels due to climate change, older highway drainage systems were not designed to cope with the challenges that they are expected to manage today. As the frequency of extreme storm events increases, it is more likely we will see our drainage assets failing in service and taking time to recover even with emergency interventions. However, highway drainage systems on new developments along with the refurbishment and upgrading of existing highway drainage assets are designed, as far as is reasonably practical, to manage these predicted rainfall increases set out in UKCP18. The requirements for SuDS are clearly detailed in the Development Roads and Sustainable Drainage Design Approach and Development Road and Sustainable Drainage Specification for new developments and SuDS are also used on major highway improvements, helping to reduce the local flood risk but also offering biodiversity, amenity and improvement to water quality.

A more general change in extreme temperatures also offers a challenge for the delivery of the service as the occurrences of these extremes becomes more common. Our service takes part in efforts at a national level to understand the impact and potential remediations of these events and no specific outcome is required from this strategy.

Several severe weather events are expected within the period of this strategy and the contingencies are outlined in the highways service risk register to maintain a resilient network, but the strategy itself is not designed to accommodate these short-term impacts.



8.2 Climate Change

We are aware of the effects of climate change on our environment and will ensure that all mitigation measures are considered when dealing with the direct and indirect impact of highway maintenance on the environment and our communities.

This includes:

- consideration of whole life carbon costs
- appraisal of materials, products and treatments for maintenance for environmental impact,
- nature conservation and biodiversity
- risk assessment and mitigations for the effects of extreme weather on highway infrastructure assets (Climate Change Adaptation)

We take into account the following issues when considering our approach to highway maintenance:

- carbon costs and energy reduction
- noise
- materials utilisation

- waste management and recycling
- air quality and pollution control
- nature conservation and biodiversity
- environmental intrusion

Highway maintenance sustainability links to the wider environment and sustainability principles and outcomes of ourselves, our stakeholders and our partner contractors.

Our key focus for responding to climate change includes the following:

- using intelligence and data to improve our ability in planning for and responding to seasonal and adverse weather events
- working with partners to improve air quality and reduce carbon footprint
- increase usage of more environmentally friendly and recycled materials.

9. Financial Summary

As most of the funding to renew or improve highway assets is received centrally from the DfT, and in order to help us determine our strategy, it is important to consider what is currently happening nationally with highways and the indications for the future.

DfT data indicates there has been a decline in maintenance conditions across the local road network during the last 30 years with minor roads being the most affected. Furthermore, over the last 6 years the RAC reports that motorists believe road conditions are getting worse. A one-time catch-up to remove the national backlog of pothole repairs would take ten years to complete and cost over £12 billion.

9.1 Asset Valuation

The following table outlines the value of our highway assets at 31 March 2021 as submitted for the WGA (Whole of Government Accounts) return:

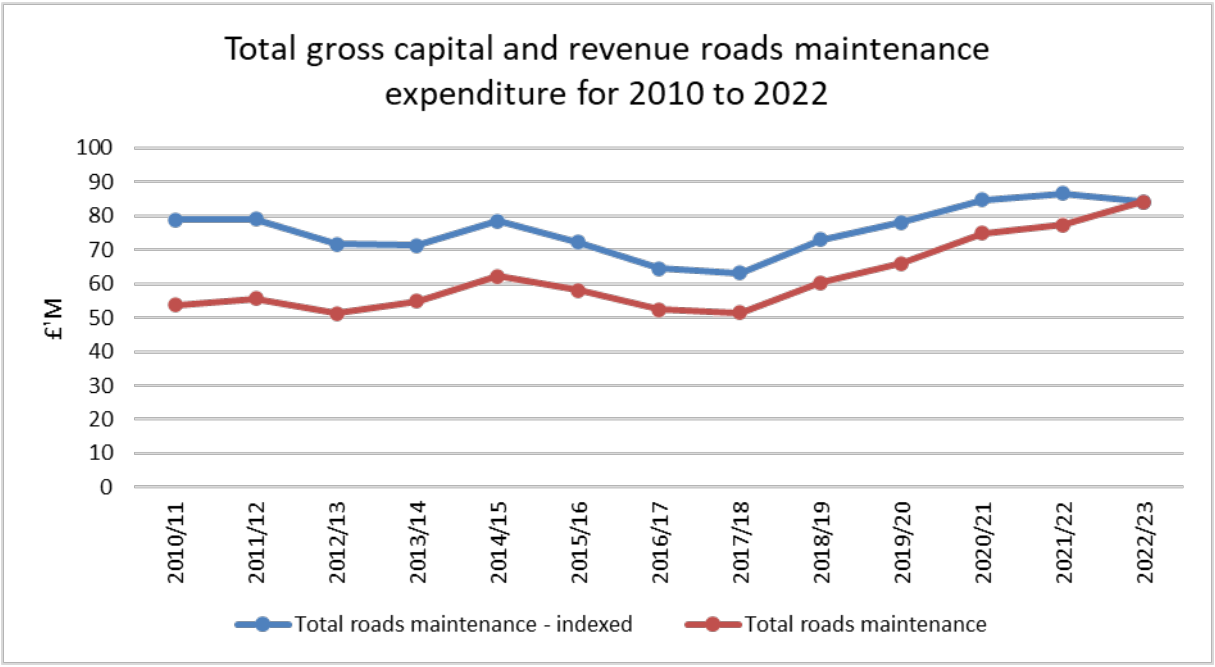
Asset Type	Gross Replacement Cost (GRC)	Depreciated Replacement Cost (DRC)	Annualised Depreciation
Carriageways	£8,726m	£8,328m	£43.3m
Structures	£778m	£524m	£15.5m
Footways	£600m	£542m	£6.9m
Street Lighting	£115m	£44m	£2.9m
Traffic Signals	£21.7m	£11.3m	£0.9m
Drainage	Unknown	Unknown	£4.5m
Street Furniture	£104m	£52m	£3.9m
Trees	£12.2m	£10.5m	£0.3m
Total	**£10,356m**	**£9,506**	**£78.2m**

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.

The annualised depreciation figure is the cost of all the treatment required to restore the service life of the asset spread over the lifecycle. This is the theoretical annual cost of maintaining the asset in a “Steady State” condition.

9.2 Historical Expenditure

The following table shows details of the historic total roads maintenance budgets and the total roads maintenance budget indexed to provide the relative buying power in terms of 2022/23.



9.3 Funding

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

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
- we provide the revenue funding

In addition, specific grants (revenue and capital) may be made available by both us 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.

9.4 Investment Scenarios

To better inform our position over the lifecycle of this strategy, several investment scenarios have been modelled in line with the approach adopted by the UK Roads Leadership Group (UKRLG) Case for Investing in Highways Maintenance 2021. The Investment scenarios considered are Decline, Managed Decline, Maintain (Steady State), Gradual Improvement and Accelerated Improvement. For each investment scenario, a description in relation to the impact on the asset condition and backlog position is outlined.

At one end of the scale there is a strategy of accelerated improvement while at the other end there is a strategy of decline, with further details of how 3 other investment scenarios in between are likely to play out. The accelerated improvement scenario would see the backlog of road maintenance repair reduce by £17.8 million each year, eliminating all the backlog over 10 years.

Investment Scenario	**Funding Need Estimate (1 April 2022)**	**Description**
Accelerated improvement: Accelerate backlog reduction and condition improvement	£99.8m	**Backlog** – reduce by circa £17.8m 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	£91.1m	**Backlog** – reduce by circa £9.1m per annum, backlog removed in 20 year Address risks and start to move to a planned/proactive management strategy
Maintain: Investment required to maintain a basic highway service	£82.0m	**Backlog** – holding at current level and prevents increase Condition generally remains as is (Unclassified roads in poor condition) and substandard drainage
Managed decline: Investment below required level to maintain the current levels of service	£74.3m	**Backlog** – unsustainable and growing by circa £7.7m per annum Network condition will slowly decline leading to a reactive management strategy
Decline: Investment levels significantly below required level	£67.8m	**Backlog** – unsustainable and growing by circa £14.2m per annum Network condition will decline, will be evident through bridge restrictions, flooding, more footway and carriageway defects; and a reactive management strategy

The three-year funding allocation identified in the 2022 budget and spending review enables us to plan with a degree of certainty its capital strategy for the next three years. The intention is to continue to invest in each asset group to achieve, as far as is practicable, a steady state

across all our assets whilst improving on the unclassified road network on a gradual improvement scenario.

The table below outlines the funding that will need to be available between 2022 and 2025 in order to achieve a steady state across all assets whilst improving the unclassified network on a gradual improvement scenario. These figures exclude the repair and maintenance of specific major structures.

Projected Highway Budgets

Asset Type	**2022/23***	**2023/24***	**2024/25***
Carriageways	£46.1m	£46.1m	£46.1m
Footways	£7.3m	£7.3m	£7.3m
Structures	£4.1m	£4.1m	£4.1m
Street Lighting	£7.0m	£7.5m	£7.5m
Traffic Signals	£2.3m	£2.3m	£2.3m
Drainage	£4.5m	£4.5m	£4.5m
Trees	£0.4m	£0.4m	£0.4m
Other (non-asset service delivery)	£14.6m	£14.6m	£14.6m
Total	**£86.3m**	**£86.8m**	**£86.8m**

*It should be noted that no allowance has been made for construction inflation from the 1st April 2022.

The actual funding levels allocated to the key assets will be reviewed on an annual basis taking into account any specific funding pressures identified.

10. Risk Management

Managing risks is a critical part of the management of the highway asset. This section describes how these risks are managed. It identifies the risks that could prevent this strategy being delivered with how these risks are to be controlled.

10.1 Risk Context

This Highways Infrastructure Asset Management Strategy will align with our Risk Management Strategy which sets out how we manage risks corporately. This risk strategy has been applied to managing our highway assets and the highest rated risks that were considered 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

10.2 Risk Identification

Risks are identified from historical experience from both contractor and our staff. They are informed by our internal legal services, risk management and insurance teams.

10.3 Risk Assessment / Treatment / Control

Risks are assessed in terms of impact and likelihood using a predefined scoring matrix to determine the overall risk score.

“Control is a response to risk – to contain the risk to an acceptable level and to reduce the likelihood of an unwanted outcome.”

Each risk identified in this strategy does have an associated control measure. If the existing control measure is considered to be inadequate or a control measure does not exist, a mitigating action will be identified to enhance the existing control measure or put a suitable control measure in place. These mitigating actions will be specific tasks allocated to a specified lead officer with a deadline for completion.

10.4 Risk Reporting

Risks will be monitored, and any progress made should be recorded in accordance with the reporting regime in the Corporate Risk Management Strategy. The management team and elected members will be kept informed of the risks and progress in their control and management via regular reports.

11. Carriageways

11.1 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 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 and in 2021/22, 26.8% of the unclassified road network was identified as requiring maintenance, compared to just 1.8% of the principal road network and 6.2% of B and C classified roads. During this strategy period our aim is to hold our principal and non-principal road network in steady state condition whilst improving on the condition of the unclassified network.

11.2 The Asset

Asset Type	Length (km)	Data Confidence
A Roads	1,090	**High**
B Roads	782	**High**
C Roads	2,915	**High**
Unclassified Roads	4,080	**High**
Unmetalled “green” lanes	373	**High**
White and yellow lines	No data	**Low**

11.3 Asset Valuation

The asset has been valued as follows:

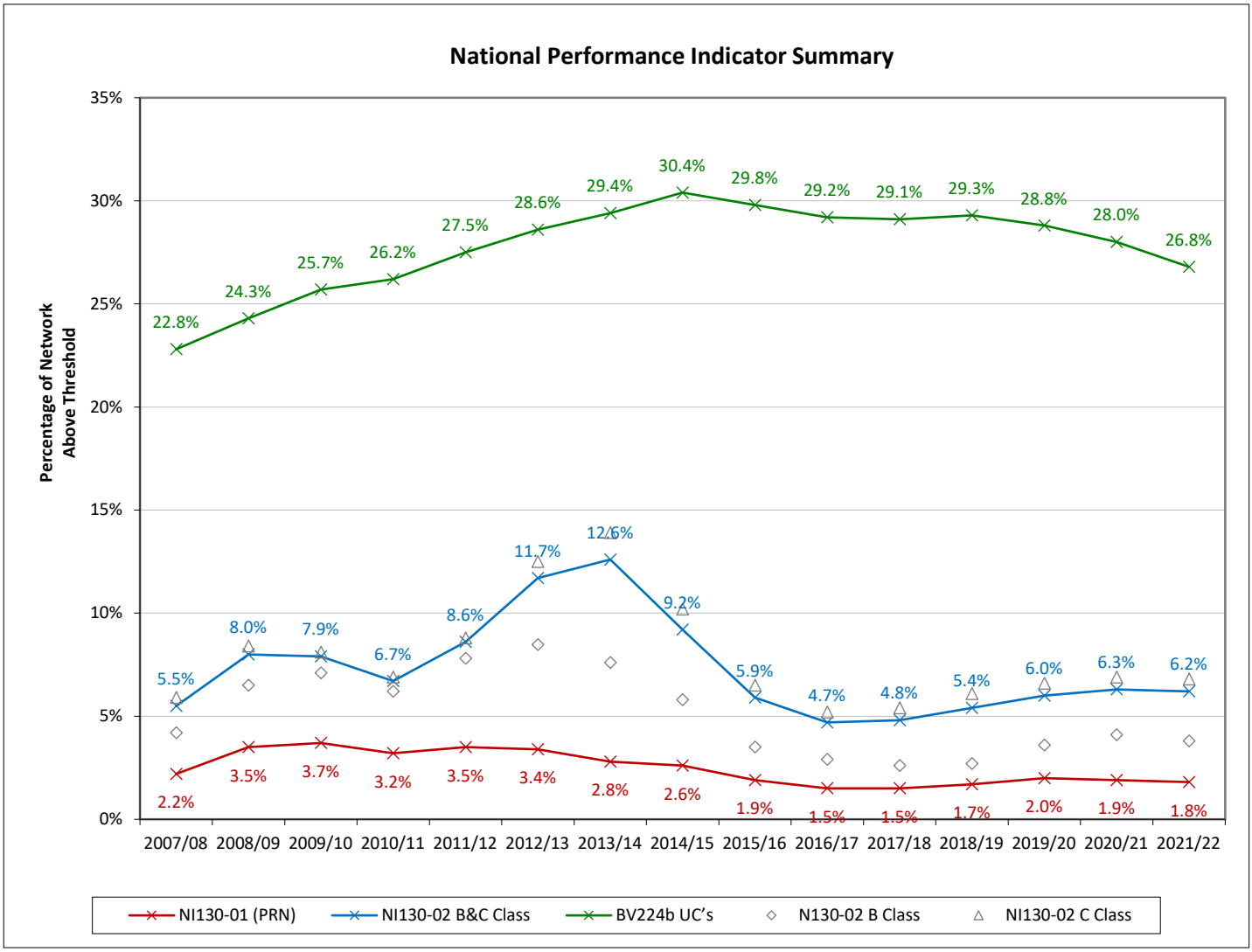
Valuation	2022
Gross Replacement Cost (GRC)	*£8,726m
Depreciated Replacement Cost (DRC)	£8,328m
Annualised Depreciation (AD)	**£43.3m

*It should be noted that no allowance has been made for construction inflation from the 1st April 2022
**In theory the annualised depreciation represents the average amount of annual investment required in asset renewals in order to keep the asset in its current state.

11.4 Condition

Our condition surveys conform to national standards and are processed using accredited systems. The surveys establish key characteristics of the network including ride quality, rutting, surface texture, and skid resistance. In addition, our team of highway inspectors carry out visual checks to make sure 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, for example repairing potholes and other surface failures.

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



11.5 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
- roads with less substructure at risk of rapid deterioration
- poor utility reinstatements
- resource to deliver the current programme and develop the forward programme
- impacts of climate change
- minor roads, forming vital link for local communities being heavily used, but with little structure are at risk of rapid deterioration due to water ingress and overloading

- to maintain a steady state condition of the highway carriageway network and improve the unclassified network within a diminishing funding envelope. Maximising the available funding from DfT Incentive Fund through improved asset management and delivery practices across the service
- 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.

11.6 Investment Requirements

It is estimated that to maintain the carriageway asset in a steady state will require investment of up to £43.3 million per annum in planned maintenance works (reconstruction, resurfacing and surface treatment). This strategy is based on taking the opportunities for making the available funding deliver the best possible value and to obtain the best possible condition for the available budget using a "prevention is cheaper than cure" approach. This will entail the following:

- maintenance schemes will be identified and prioritised based upon information from engineering condition surveys
- aiming to maintain the condition of the network
- a focus on continued investment in preventative maintenance, predominantly surface dressing and targeted structural patching
- a continuing reviewing of reactive maintenance works to determine if greater efficiency can be achieved
- a reduction in service levels relating to the condition of some lightly trafficked roads where maintenance will primarily comprise works to make safe defects requiring urgent attention.
- the standards applied to the repair of priority defects both in terms of what constitutes requiring urgent attention and the response times will be determined using a risk-based approach, details of which can be found in the HIAMP. These response times will continue to be reviewed throughout the life of this document

11.7 Projected Expenditure

Projected Maintenance Budgets

Asset Type	**2022/23**	**2023/24**	**2024/25**
Carriageway A	£13.02m	£13.02m	£13.02m
Carriageway B/C	£19.09m	£19.09m	£19.09m
Carriageway U	£14.07m	£14.07m	£14.07m
Total	**£46.12m**	**£46.12m**	**£46.12m**

11.8 Desired Outcome

- To meet the statutory obligations as the highway authority to maintain the carriageways in a condition that is safe for use and fit for purpose
- maintain the condition of our carriageways with minimum whole life cost
- to deliver a sustainable improvement in the condition of our carriageways
- investment will recognise the differences in condition between various road hierarchies
- maintain their structural integrity and maximise their lifespan, to provide maximum value for money from investment.

12. Footways

12.1 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.

12.2 The Asset

Asset Type	Length (km)	Data Confidence
Bituminous Footways	4,158	**High**
Block Paved Footways	69	**High**
Flagged Footways	87	**High**
Concrete Footways	56	**High**
Dedicated Cycleways	7	**High**

12.3 Asset Valuation

The asset has been valued as follows:

Valuation	2022
Gross Replacement Cost (GRC)	*£600m
Depreciated Replacement Cost (DRC)	£542m
Annualised Depreciation (AD)	** £6.9m

*It should be noted that no allowance has been made for construction inflation from the 1st April 2022
**In theory the annualised depreciation represents the average amount of annual investment required in asset renewals in order to keep the asset in its current state.

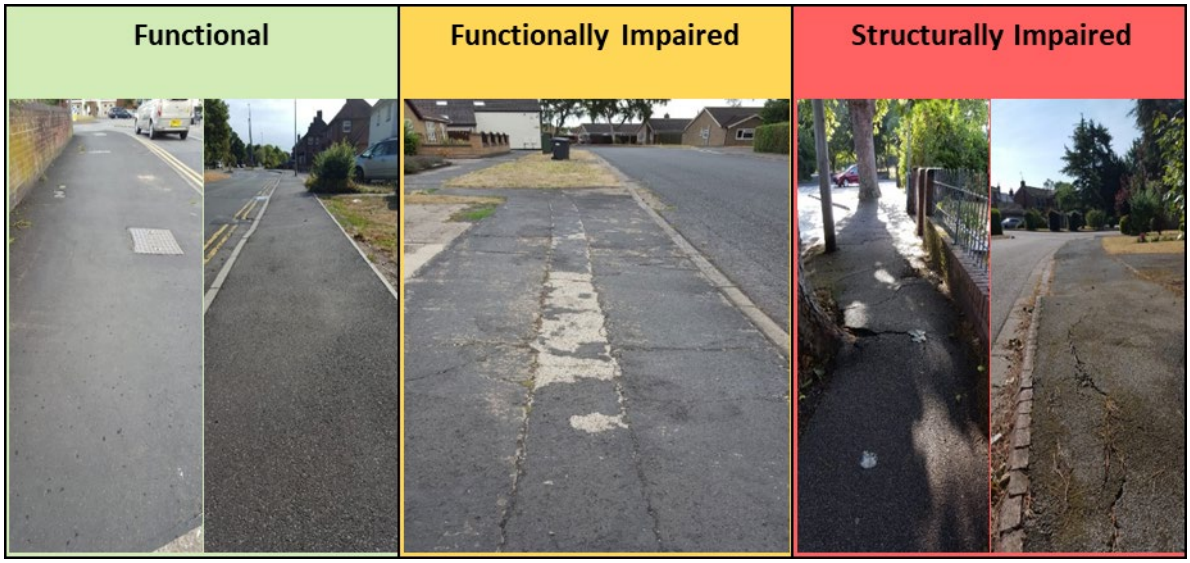
12.4 Condition

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:

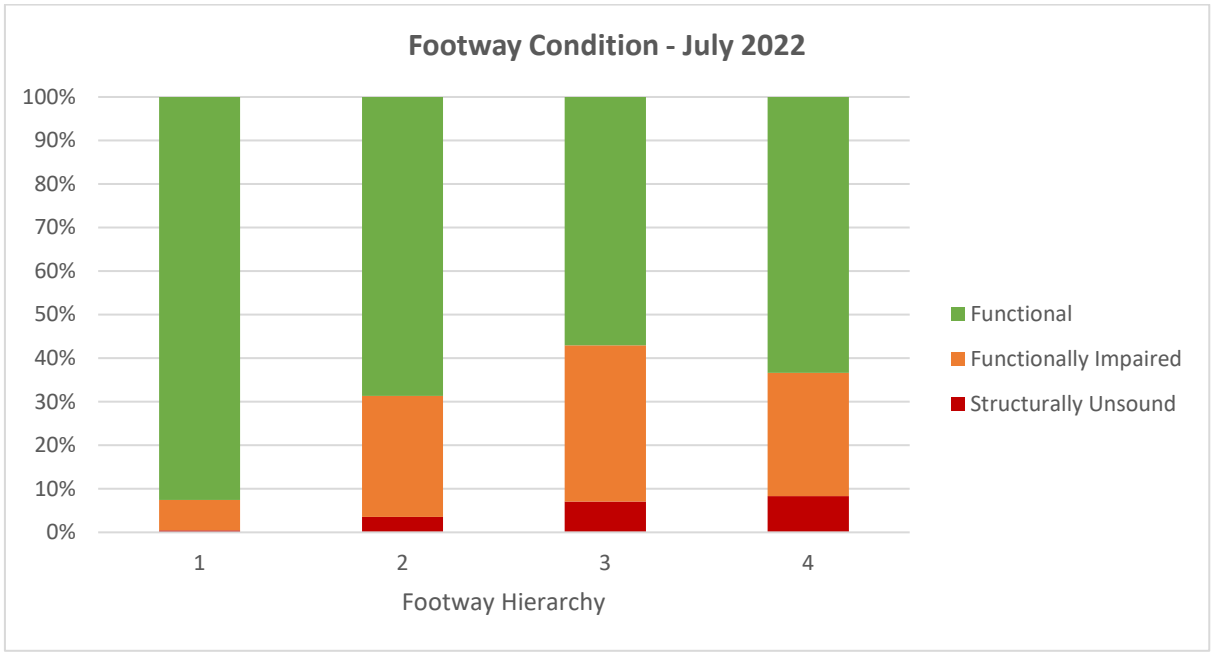
- Functional (Green)
- Functionally Impaired (Amber)
- Structurally Impaired (Red)

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

Examples of each of the condition categories are shown below:



The following graph summarises the results of the FNS surveys on the network:



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 up to 2025 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.

12.5 Current 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.

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.

12.6 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.

Footways comprising modular slabs, block and concrete paving represent a relatively small proportion (7%) of the Lincolnshire Footway Network. The 2021 footway review found during the period 2015-20 that flagged footways carried the greatest risk of personal injury; at 3% of the total footway network making up 40% of footway personal injuries. Investment will be targeted at the reconstruction of flagged hierarchy 3 and 4 footways.

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.

12.7 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

2022/23	2023/24	2024/25
£7.26m	£7.26m	£7.26m

12.8 Desired Outcome

- 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 with minimum whole life cost
- to deliver a sustainable improvement in the condition of our footways
- investment will 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.

13. Structures

13.1 Introduction

The last thirteen years have seen the bridge stock 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.

13.2 The Asset

Asset Type	Number	Data Confidence
Bridges	1516	**High**
Subways	14	**High**
Culverts	2206	**High**
Highway Footbridges	141	**High**
Retaining Walls	148	**High**
Gantries	10	**High**

13.3 Asset Valuation

The asset has been valued as follows:

Valuation	2022
Gross Replacement Cost (GRC)	*£778m
Depreciated Replacement Cost (DRC)	**£524m
Annualised Depreciation (AD)	***£15.5m

*It should be noted that no allowance has been made for construction inflation from the 1st April 2022
**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.
***In theory the annualised depreciation represents the average amount of annual investment required in asset renewals in order to keep the asset in its current state.

13.4 Condition

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

Year	17/18	18/19	19/20	20/21	21/22
BSCI AVE	92.7	92.7	92.5	92.4	92.4
BSCI CRIT	85.4	86.0	85.6	85.3	85.2

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 particular bridges whereas BSCI refers to the entire bridge stock and gives an overall picture of the condition of the stock. For both of these indices a value of 100 indicates that the structure or stock is in very good condition and as the index reduces towards zero then the condition also reduces.

13.5 Current Challenges

Balancing budget with need and with the specialist resources available both internally and from the term service provider does present a challenge.

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.

13.6 Investment Requirements

In recent years the revenue budget has been targeted to a planned maintenance regime (with the capability to respond reactively when required), minor works having been identified from the inspection regime and prioritised according to need and risk. The capital budget is targeted towards larger maintenance schemes and reconstructions (where the latter is the only economic option). The overall objective has been to work towards 'steady state' condition and this appears to be reflected in the BSCI scores.

Budgets have effectively remained fixed for the last five years, whilst contractor's costs have increased considerably. The result of this has been to reduce the amount of planned maintenance which can be carried out, and this is reflected in the very slight downturn of BSCI results. It is anticipated this trend will continue and as structural deterioration starts to become more evident BSCI values will decline more sharply in the future should increases to budget in line with contractor's cost increases not be made.

Whilst the theoretical annual depreciation value for the structures stock (£15.5m) is significantly higher than the projected capital budget (£4.1m) this is an average value over the whole life of the structures stock and in practice the condition can be maintained in a steady state with adequate lower levels of funding.

It can be seen that in the next four years of planned maintenance, there are some larger projects which require significant expenditure. In addition, as some of the larger bridges reach the end of their serviceable lifespan a number of much larger projects have been identified which 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:

- Cross keys Swing Bridge – Repainting (£1.4m) Currently in progress
- Langrick Bridge – Repainting (£0.7m) Programmed for 2024/25
- Surfleet Bridge – Repainting (£0.5m) Programmed for 2025/26
- Langrick Bridge – Long term future; Potentially rebuild off-line. (£21m)
- Cross Keys Swing Bridge – Major scheme/Replacement (cost not projected)

Cross Keys Swing Bridge has been identified as one of the highest risk assets on the network, its long-term future is under high level consideration.

13.7 Projected Expenditure

Projected Maintenance Budgets

2022/23	2023/24	2024/25
£4.08m	£4.08m	£4.08m

13.8 Desired Outcome

- 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.

14. Street Lighting

14.1 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 approaching a crucial phase of investment at the end of this strategy cycle as the number of assets requiring intervention continues to grow based on 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. Budget split between different road hierarchies / geographical areas has not been undertaken in this summary.

14.2 The Asset

Asset Type	Number	Data Confidence
Lighting Columns	67,739	**High**
Illuminated Signs and Posts	7,991	**High**
Illuminated Bollards	2,250	**High**
Belisha Beacons	276	**High**
Vehicle Activated Signs	303	**High**
Underground Cables	210 km	**Low**

14.3 Asset Valuation

The asset has been valued as follows:

Valuation	2022
Gross Replacement Cost (GRC)*	*£115m
Depreciated Replacement Cost (DRC)	£44m
Annualised Depreciation (AD)**	**£2.9m

*It should be noted that no allowance has been made for construction inflation from the 1st April 2022
***In theory the annualised depreciation represents the average amount of annual investment required in asset renewals in order to keep the asset in its current state.

14.4 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. The legacy of older lighting columns still operating is a challenge to the current condition and safety of the network. Depending on the material type, the lifespan for lighting columns is predicted at between 40 and 45 years. By comparison, the average equivalent age of the lighting column network is currently calculated at approximately 25 years, indicating that some lighting columns are now significantly older than their predicted lifespan.

Lighting Lanterns - Since 2015 new lanterns installed have been specified with an LED light source, and in particular during the 2016 transformation project and the SOX lantern replacement project since 2018, investment by us and making good use of SALIX has seen approximately 41,000 lanterns changed 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. There are approximately 7,000 SOX lanterns still to be replaced, and some of the older decorative and heritage lighting lanterns also require attention. But the remaining 19,000 lanterns not currently included in plans for conversion to LED are generally reported as still being in good to average 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 8,000, 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

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.

14.5 Current Challenges

Equipment and Supply Chain - Availability and volatility of prices for steel-based products, lighting equipment, and availability of providers for electrical connection works continue to apply acute 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 and other factors have seen unprecedented rises in whole-sale energy prices. Thanks to ongoing efforts to reduce electricity usage, street lighting electricity consumption has reduced by approximately 65% compared to a baseline figure from April 2016; and this reduction includes the adoption of a further 1,700 lighting units. But despite efforts to make the street lighting service as sustainable as possible, electricity prices continue to rise annually with further price rises anticipated of between 67% and 80% during 2022. This unprecedented level of increase will inevitably drive an acute pressure on the street lighting energy budget.

Withdrawal of Mercury based lamps - Changes in the Reduction of Hazardous Substance (RoHS) regulations mean fluorescent and other light sources involving mercury are due to be withdrawn from sale by August 2023. This includes lamp types such as MCFE, PLL, PLT etc, and will affect approximately 10,000 street light units and 6,700 illuminated sign and bollard units. Some of the assets affected have lighting lanterns that are still considered to be in good to average condition, and conversion to LED rather than replacement may offer a cost-effective solution. Initial trials with conversion of mercury based lamps to LED are ongoing with good results so far. But further budget pressure is anticipated after the completion of the SOX lantern replacement in April 2024 when attention will be needed to convert the approximately 16,700 assets affected by the withdrawal of mercury based lamps.

Backlog of Routine Maintenance - Contractor resource issues have led to a significant backlog in completion of the cyclic routine maintenance and inspection programme. Sub-contractor resource has been procured through the supply chain to improve productivity in this aspect of service delivery, and plans are in place to amortise the backlog built up in previous years across the remaining 2 years of the 6-year cycle. Progress is monitored and reported on at regular monthly meetings, with the intention of still completing the current cycle of routine maintenance and inspection on time by April 2024.

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 although a modest rise in budget is forecast during the term of this HIAMS, significant additional capital investment will be required over the next decade to keep pace with the deteriorating lighting stock. For best value investment, a programme of non-destructive structural testing is required to identify the areas of lighting columns most at risk of collapse and target the capital investment in these areas to minimise the risk. Trials of initial testing are planned during 2022, with a full cycle of non-destructive structural testing scheduled to start by April 2023.

Removal of Permanently Switched Off Lights - Approximately 800 lighting units that have been permanently switched off remain on the network as a legacy from the 2016 Transformation project. These present a significant pressure on staff resource and budget to re-assess and arrange for their removal.

Lighting of New Developments - Recent changes made to street lighting policy allow for a more flexible approach to lighting on new developments. The changes enable new lighting to existing standards to continue; but now also allow for either no lighting or lighting that does not meet Highway standards to be installed. Where lighting is installed that does not meet Highway standards, we will adopt this provided a suitable commuted sum is paid. But this approach marks a change in the approach taken to new development lighting and will inevitably bring new challenges in both design and future maintenance operations.

EV charging / 5G internet attachments - The 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 on street lighting.

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.

14.6 Investment Requirements

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

The current £750,000 capital replacements budget is forecast to rise to £1 million from financial year 2024/25 onwards, to increase the annual number of column replacements. Further investment rises will be required in future years beyond 2026 and over the next decade to keep pace with the ageing street lighting stock. But a budget rise from April 2024 onwards will coincide the first results expected from the non-destructive testing programme where it is anticipated some urgent lighting column replacements will be required.

The non-destructive structural testing programme will follow the same 6-year inspection cycle currently operated for the cyclic routine maintenance. This additional testing is anticipated to begin from April 2023 and require an additional £100,000 annual budget.

Conversion of street lighting, illuminated signs and bollard assets from mercury based lamps to LED is anticipated to begin from April 2024 after completion of the SOX lantern replacements. Like the SOX lantern replacements, this conversion will be carried out as a part of 6-year cyclic routine maintenance and will require an additional £170,000 annual budget for replacement LED equipment until April 2030.

Removal of permanently switched off street light columns will follow the same 6-year inspection cycle currently operated for the cyclic routine maintenance. The column removals are anticipated to begin from April 2023 and requires an additional £75,000 annual budget until April 2029.

Ongoing volatility in Energy markets will lead to a significant increase in electricity price paid by us. Pressure on the annual street lighting energy budget is expected to exceed £1.5 million from October 2022, with further annual increases in electricity prices anticipated over the term of this strategy.

14.7 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:

Strategy Budget Category	**Projected Expenditure 2022 - 2023**	**Projected Expenditure 2023 - 24**	**Projected Expenditure 2024 - 25**
Capital Allocation	£0.788m	£0.750m	£1.000m
Revenue Allocation	£4.440m	£4.440m	£4.440m
Recharge Income	£0.280m	£0.280m	£0.280m
Electricity Cost Increases	£1.100m	£1.500m	£1.500m
Sox Lantern Replacements	£0.410m	£0.410m	-
Mercury-based Lamps to LED Conversion	-	-	£0.170m
Column Structural Testing	-	£0.100m	£0.100m
Column Switch Off Removals	-	£0.050m	£0.050m
TOTAL	**£7.018m**	**£7.530m**	**£7.540m**

14.8 Desired Outcomes

Along with delivering the day-to-day duties of the street lighting service, by effective use of the additional investment mentioned above the desired outcomes of meeting the current challenges will include:

- successful introduction of policy for flexible lighting requirements on new developments by October 2022
- non-Destructive column testing programme start by April 2023, with 50% completion by April 2026
- switched off column removal programme to start by April 2023, with 50% completion by April 2026
- SOX lantern replacement programme completion and start of mercury based lamp conversion to LED by April 2024
- increased capital budget column replacements, targeted at the anticipated NDT column testing results available from April 2024
- continued Delivery of street lighting design for major Highway schemes, eg, Hykeham Southern Relief Road etc
- routine maintenance and inspection completion of the current cycle and the start of the next cycle by April 2024
- Electric Vehicle on street charging initial trials completed and ongoing EV on street charge point installation by April 2025.

15. Traffic Signals

15.1 Introduction

The traffic signals asset continues to grow as more signalled controlled junctions and crossings are installed each year; in terms of highway improvements, signals are still seen as a cost effective and simpler solution to safety and capacity issues within the highway. The likes of A153 / A17 slip (Rugby Club) junction, Holdingham Roundabout and the new toucan on the A607 Harlaxton Road in Grantham are recent examples of new installations.

Our asset life cycle of a set of signals has been stretched from 20 years to 25 to lessen the impact on capital replacement costs of maintaining the asset in its current state. Whilst this does help spread the cost over a longer time span, it brings other challenges to the maintenance of the asset, especially around obsolescence of equipment and spare parts.

15.2 The Asset

Asset Type	Number	Data Confidence
Signals at Junctions	156	**High**
Signals at pedestrian crossings (Pelican / Puffin)	133	**High**
Signals at pedestrian and cycle crossings (Toucan)	46	**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, bus priority equipment, fixed and portable CCTV cameras and the Fire Service priority equipment.

15.3 Asset Valuation

Valuation	2022
Gross Replacement Cost (GRC)*	*£21.7m
Depreciated Replacement Cost (DRC)	£11.3m
Annualised Depreciation (AD)**	**£0.9m

*It should be noted that no allowance has been made for construction inflation from the 1st April 2022
***In theory the annualised depreciation represents the average amount of annual investment required in asset renewals in order to keep the asset in its current state.

15.4 Condition

The 25-year projected lifespan means that we have an asset that is ever increasing in age with the corresponding drop in overall condition. This has been borne out by the recent requests for additional funding to cover sites in Spalding and North Hykeham, as these sites had reached the end of their operational life and were subject to early warnings from the Term Maintenance Contractor that they were no longer maintainable.

The Periodic Inspection (PI) process carried out annually aims to highlight site condition and pinpoint those sites that are low on serviceability and/or in poor condition. Fault occurrences are also factored into this data so that sites with low operability can be specifically targeted. From this data, the yearly programme is drawn up and presented to the Term Maintenance Contractor.

15.5 Current Challenges

Sites operated by old Siemens T400, P500 and P700 controllers are long obsolete and difficult to source spare parts for. We have therefore targeted these sites through our Capital Asset Refurbishment Programme, but face pressures from other asset areas as to when we can physically utilise the highway space to carry out our works. We have, for example, postponed schemes in the last 3 years in order to tie in with resurfacing works, thus reducing the impact on the availability of the highway on everyday users. Although this is a sensible, joined-up approach to asset management, it has meant that we are pushing our traffic signal assets to the very ends of their operability and beyond. Good examples of this are the Carholme Road / Brayford Way junction in Lincoln and Market Hill crossroads in Holbeach. The next set of challenges will be presented by the Swarco TRX controller which has also been declared obsolete by the manufacturer. There are a very limited number of engineers available within Swarco that can configure this controller type, and so if we should wish to make changes to a site (however minor), we would probably end up having to replace the controller. We currently have 38 TRX controllers active on street (32 junctions and 6 crossings), some located at high profile critical sites such as Lindum Road / Broadgate in Lincoln and Haven Bridge / South Street in Boston.

Although many of our sites have been upgraded to LED standard, there are still 56 sites (30 junctions and 26 crossings) that use old HI halogen bulbs. These are running at 230V/60W, drawing a lot more energy than modern LED technology. These sites also have a much higher lamp failure rate and so it would be beneficial to upgrade the remainder of these older sites to LED ELV standard as quickly as possible. However, significant expenditure would be required to achieve this. The costs of the equipment alone (without labour, cabling, replacement poles etc would on average be £6,000 per crossing and £15,000 per junction).

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.

15.6 Investment Requirements

To keep the asset at its current state, we target the older, obsolete sites and continue our rolling programme of refurbishments in line with asset age/condition. For the next 5 years, the provisional investment profile is as follows:

- 7 schemes in 2023/24 including Market Hill Crossroads Holbeach (L); Newland Lucy Tower Street Lincoln (S) and Manthorpe Road (Longcliffe Rd) crossing Grantham
- 9 schemes in 2024/25 including A158 Gunby Road / Orby Lane Orby (S); Pinchbeck Road / King's Road Spalding (S) and A15 / Grantham Road Bracebridge Heath (S)
- 7 schemes in 2025/26 including Main Street / Sleaford Road Leadenham (S); High Street (St John Street) crossing Holbeach and A15 South Road (Tennyson Drive) crossing Bourne
- 9 schemes in 2026/27 including Ryhall Road / Drift Road Stamford (S); Lincoln Road / Moor Lane North Hykeham (L) and Queen Street (Union Street) crossing Market Rasen
- 9 schemes in 2027/28 including Sleaford Road / ASDA Boston (L); Richmond Drive / Tesco Skegness (L); Northgate (Market Street) crossing Sleaford

15.7 Projected Expenditure

Based on the maintenance spending profile at section 15.6, the envisaged spend for traffic signal refurbishments would be as follows;

Projected Maintenance Budgets

2023/24	2024/25	2025/26
£2.3m	£2.4m	£2.0m

15.8 Desired Outcome

Refurbishment of the most vulnerable sites within the traffic signal asset base and to help reduce the maintenance liability that these older sites bring to the Term Maintenance Contract.

16. Drainage

16.1 Introduction

Highway drainage is a key asset in maintaining the safety of our highway users during inclement weather, ensuring the continuity of our network during rainfall and its recovery during extreme events as well as being essential in supporting the structural integrity of the highway.

Highway drainage is an asset group where we will be seeking to improve service levels, above those that we currently apply.

Stakeholders have indicated that improving the condition of highway drainage is a priority and better management of flooding is an essential part of improving resilience and sustainability of the network.

We do not have a comprehensive inventory of some of our highway drainage assets but intend to extend this inventory to include them all. Apart from our carriageway gullies and offlets, we have limited data about the condition of our other drainage assets.

In addition, most of our maintenance interventions other than routine gully, offlet and chamber cleansing, swale grass cutting and weed spraying permeable pavements are currently reactive i.e., in response to reports of flooding, blockages, component failure or damage.

16.2 The Asset

Asset Type	Number or Length	Data Confidence
Gullies	148,292 No.	High
Offlets	28,855 No.	High
Chambers	13,163 No.	Medium
Rodding Eyes	100 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.

16.3 Asset Valuation

Valuation	2022
Gross Replacement Cost (GRC)	Unknown
Depreciated Replacement Cost (DRC)	Unknown
Annualised Depreciation (AD)	*£4.5m

*In theory the annualised depreciation represents the average amount of annual investment required in asset renewals in order to keep the asset in its current state.

16.4 Condition

Assets on existing cyclic cleansing regimes are, on the whole, in good condition. Due to their youth, the majority of SuDs systems should be in a good condition but will require intervention in the near future to maintain their serviceability and longevity. The condition of other drainage assets is uncertain due to lack of data.

16.5 Challenges

Challenge 1 - Obtaining the best possible data of our highway drainage assets

We have detailed data for our gullies, chambers and pipework but need to make significant progress in mapping highway SuDs and ancillary assets within our drainage systems that help reduce the risk of flooding and pollution. This includes, but not limited to, flow control devices, storage tanks, flap valves, outfalls and pollution control devices. There is limited data about the condition of many of our assets and this needs to be improved through routine inspection.

Challenge 2 – Developing cyclic maintenance regimes for all our highway drainage assets

Modern drainage systems need to be maintained to ensure they do not increase the risk of flooding and, in the case of SuDs, require different maintenance regimes to that of present, as they use ‘soft engineering’ eg, swales, grass channels, ponds. The majority of drainage systems we adopt or design 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 become overgrown with vegetation, blocked by debris and/or silt up reducing their performance and/or their life expectancy.

Challenge 3 – Sufficient budget

Insufficient budget will not support clearing the maintenance backlog resulting in an increase in the risk of flooding and decrease in highway user safety during inclement weather. Ineffective highway drainage systems also exacerbate the deterioration of the structural condition of the carriageway.

Challenge 4 – Understand how risks associated with climate change impact on highway drainage systems and develop a plan for adaption

Whilst highway drainage assets that have been adopted or improved in the last decade or so have been designed to accommodate the climate change scenarios applicable at the time, our older assets can struggle to cope with more extreme rainfall events resulting in flooding. We need to understand the magnitude of the issue to develop a long-term plan of adaption.

Challenge 5 – Resourcing

As we begin to further develop our understanding of our highway drainage systems there will be a need to resource additional staff to undertake the future forward programmes. Engineers and technicians who specialise. and have the relevant expertise, in drainage engineering 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.

Challenge 6 - 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.

16.6 Investment Requirements

Data on the all the highway drainage assets we own is limited and current maintenance comprises of the cleansing of gullies, offlets and chambers, swale grass cutting and weed spraying permeable pavements together with essential, but often reactive repairs.

Data gathering exercises have commenced to expand our current highway drainage asset data, this will take place over a number of years. As this data set develops cyclic maintenance regimes can be reviewed to encompass all highway drainage assets that allow our systems of operate effectively, efficiently and offer resilience. This expanded data set will also allow condition monitoring to be undertaken leading to more detailed planning, prioritisation of schemes and interactions, greater efficiency thereby enacting a move from a reactive to preventative maintenance regime.

The increasing number of sustainably focused highway drainage systems needs to lead a transition in the way these systems are maintained. Being comprised of soft engineering features such as swales (shallow grass lined ditches) and structures and devices that store and control the release of storm water, they require a different maintenance approach. Without maintenance these systems can quickly degrade, leading to failure, and can be costly to restore to a serviceable condition.

16.7 Projected Expenditure

Projected Maintenance Budgets

2022/23	2023/24	2024/25
£4.47m	£4.47m	£4.47m

16.8 Desired Outcomes

Tackling the challenges listed above will support the provision of a safe, resilient, and reliable drainage system that will reduce the risk of highway flooding caused by our assets, support the longevity of our highways through efficient and effective collection and disposal of highway runoff along with improving the safety of our highway users during inclement weather.

Improving and extending our highway drainage asset data will allow more detailed planning for maintenance regimes of all our assets, support evidence and risk-based decisions in investment, and lead to less reliance on reactive maintenance. As our asset data for highway drainage expands, condition monitoring can be developed allowing greater focus on timely, planned maintenance interventions.

Overall, the desire is to maintain the current condition to prevent further deterioration of our highway drainage assets.

17. Trees

17.1 Introduction

We are the owner of a significant tree stock across the county, much of which is on the highway.

Trees growing in the highway are managed and maintained just like any other element of highway infrastructure that requires maintenance or replacement from time to time.

However, trees are different from other highway assets because they do not remain static. They grow, enlarge over time both above and below ground, they shed leaves and branches and, in some situations, may fall over presenting a hazard to users of the highway. This growth and life cycle which may be perfectly benign in a natural setting is problematic when the tree interacts with the built infrastructure around it in a highway setting. Trees can cause maintenance issues for kerbs, footway paving, carriageway surfaces, adjacent shallowly founded structures (direct damage) and in certain conditions damage building foundations as well.

Despite all these issues trees provide immense environmental benefits: they store carbon, clean the air, collect rainwater, provide shade, reduce noise, protect soil from erosion and harbour wildlife. Furthermore, they provide amenity and functional benefits, eg, slowing vehicle speeds and providing shelter from wind.

17.2 The Asset

Asset Type	Number	Data Confidence
Trees – Highway owned over 30cm diameter	8,130 No.	**Medium**
Trees – LCC owned over 30cm diameter	2,170 No.	**Medium**
Trees - Privately owned	7,601 No.	**Medium**

17.3 Asset Valuation

Valuation	2022
Gross Replacement Cost (GRC)*	*£12.2m
Depreciated Replacement Cost (DRC)	£10.5m
Annualised Depreciation (AD)**	**£0.3m

*It should be noted that no allowance has been made for construction inflation from the 1st April 2022

**In theory the annualised depreciation represents the average amount of annual investment required in asset renewals in order to keep the asset in its current state.

17.4 Current Challenges

An accurate assessment of the highway tree stock in terms of quantity, species and condition and the identification and prioritised management of tree related hazards and problems is currently in the process of being carried out

Using a comprehensive range of values, Quantified Tree Risk Assessment (QTRA) enables the tree assessor to identify and analyse the risk from tree failure.

This assessment has shown that there are 325 trees on or adjacent to the public highway which have defects ranging from old pruning wounds and branch fractures to significant deadwood and ash dieback.

To retain the benefits of trees it is accepted that there will always remain some residual risk in return for the benefit. For members of the public who have a risk imposed on them 'in the wider public interest' HSE would set this limit at 1/10,000 (The HSE 1996). We also need to be able to demonstrate that the risks posed by its trees are 'As Low As Reasonably Practicable' (ALARP), taking into account the benefit provided by the individual tree.

17.5 Projected Expenditure

Projected Maintenance Budgets

2023/24	2024/25	2025/26
£0.41m	£0.41m	£0.41m

17.6 Desired Outcomes

We will continue to collect more information on the tree asset to better understand its value and contribution and allow proactive management.