BEDFORD BOROUGH COUNCIL

Highway Infrastructure

Asset Management Plan

Visualising our Highway Assets

Appendix C

Contents

Amendments

Amendment Number	Date	Brief Description of Amendments made	Name and Job Title

1. Introduction

1.1 Overview

We have highway network approximately 1000km of carriageway and an estimated value of around £3 billion.

Our network is a significant asset that connects people and places across the Borough, contributing to the wellbeing of residents, thriving communities with a population of 174,687 residents 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 plan sets out how we will maintain the 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.

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 is key in the development of the Borough'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

This Highways Infrastructure Asset Management Plan reflects upon:

- current financial constraints
- local and political aspirations
- the changing road network and associated conditions
- 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 Plan

1.2 Purpose

In conjunction with the Highways Infrastructure Asset Management - Policy and Strategy this 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 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

1.3 1.3 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 will be reviewed by Council members and Senior Managers.

Performance Reporting – (NHT) National Highways and Transport reports
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.

Works Programme - https://www.bedford.gov.uk/parking-roads-and-travel/roads-and-pavements/highway-network-management

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.

2. 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.

2.1 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 2009, 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 authority.

The results shown below from 2024 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.

Bedford's bottom 20 satisfaction trend results over the last 5 years (only negative results shown)

Theme	Description	5 Year Change	Change vs Others
Public Transport	KBI 08 - Public transport information	-21%	-11%
Public Transport	KBI 07 - Local bus services (aspects)	-20%	-10%
Public Transport	PTBI 01 - Frequency of bus services	-17%	-7%
Public Transport	PTBI 04 - Whether buses arrive on time	-17%	-7%
Public Transport	PTBI 06 - The local bus service overall	-14%	-6%
Public Transport	PTBI 17 - Information about accessible buses	-14%	-7%
Tackling Congestion	TCBI 13 - Good park and ride schemes	-14%	-10%
Public Transport	PTBI 20 - Provision of public transport information	-13%	-6%
Public Transport	PTBI 03 - The state of bus stops	-13%	-8%
Highway Maintenance	HMBI 03 - Condition of road markings	-13%	-1%
Highway Maintenance	HMBI 09 - Maintenance of highway verges/trees/shrub	-13%	-2%
Highway Maintenance	HMBI 12 - Keeping drains clear and working	-13%	-4%
Public Transport	KBI 06 - Local bus services (overall)	-12%	-6%
Highway Maintenance	HMBI 32 - Weed killing on roads	-12%	-3%
Highway Maintenance	HMBI 31 - Quality of repair to damaged roads	-11%	1%
Highway Maintenance	HMBI 11 - Provision of drains	-11%	-2%

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 the second most important issue with 95% of the public

Participation and Response Details

Participation since 2008: **13** times Sample size (2024): **3,316** Response rate (2024): **18.9%**	Total responses (2024): **625** Online responses (2024): **122** Postal responses (2024): **503**

Perceptions of Key Services

Most important	Most Satisfied	Most Improved	Highest Priority
Condition of roads	Local taxi services	Local taxi services	Condition of roads

Least Important	Least Satisfied	Most Reduced	Lowest Priority
Demand responsive transport	Condition of roads	Condition of Roads	Local taxi services

2.2 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:

i - NHT Survey
ii - close review of any complaints and compliments received
iii - engagement with Councillors
iv - Customer Service Centre
v - direct contact with customers
vi - Report it online
vii - social media

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.

2.3 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.

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 Facebook, to relay information regarding our highway service.

During the period of this Plan, 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.

3. 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, which are supplemented with a number of alternative delivery routes to ensure operational success and value for money. The model is designed to follow the asset management principles and to ensure that the service delivers in the most effective manner.

Our current highway resurfacing contract delivered via Engineering Services is currently out to tender. A series of asset management outcomes linked to service outcomes have been created that are directly aligned to the achievement of our Council Plan.

Other highway service contracts delivered through a highway maintenance (Highways HUB) for which a series of service delivery and contract outcomes have been established respectively are delivered via DJT Surfacing Ltd. The highways work programmes are established on an asset management basis for delivery through the Engineering Services contracts. This will ensure the works remain aligned to this asset management strategy and our priority outcomes. It will also support advance planning of key investment decisions for us.

3.1 Service Delivery Outcomes

Improve asset condition

- e.g. carriageway and footway condition indicators, drainage performance, safety barrier maintenance and inspections

Improve customer satisfaction

- e.g. annual NHT survey and level of complaints

Reduce third party claims

- e.g. level of claims by value and volume

Provide value for money

- e.g. fixed costs per kilometre of network and schemes within budget

Local engagement and service delivery

- e.g. number of local employees working on the contract and number of local Subject Matter Expert's

Promote economic growth

- e.g. measure of network availability and value of network improvements

3.2 Contract Delivery Outcomes

Safety
- e.g. to ensure a safe network is provided, safely maintained and that safety incidents on the network are reduced

Sustainability
- e.g. 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
- e.g. to ensure we listen to stakeholders, disruption to road users is minimised and stakeholders are satisfied

Operational Delivery
- e.g. 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
- e.g. to ensure information is available in a timely manner to support effective decision making

4. 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

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
We are 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

Inventory Register
We hold our infrastructure inventory and asset data in a Symology Cloud managed system called Insight as well as Esri ArcGIS

4.1 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, and accuracy of data held.

Data Confidence:
Green: High standard of accurate data
Amber: Medium standard. Aware of asset but records held are not complete
Red: Low standard. Insufficient asset information

Carriageway

Type	Quantity	Data Confidence	Improve
A Roads	86 km	High	In managing the List of Streets we are attaining platinum level and will continue to maintain this
B Roads	29 km	High	
C Roads	228 km	High	
Unclassified Roads	520 km	High	
Unclassified Roads - Unmetalled	7 km	High	

Footways and Cycleways

Type	Quantity	Data Confidence	Improve
Footways (including combined Cycleways)	90 km	Med	Keep up to date with Integrated Transport schemes to record shared use
Dedicated Cycleways	38 km	Med	Validate the NCR51 via Sustrans and record on List of Streets

Structures

Type	Quantity	Data Confidence	Improve
Bridges	241	High	Continue to maintain good data but record on Insight
Embankments		Low	Data to be recorded on Insight
Culverts >0.6m diameter		Low	Data to be recorded on Insight
Retaining walls		Low	Data to be recorded on Insight
Subways (including submersible pumps)	13	High	Continue to maintain

Street Lighting

Element	Quantity	Data Confidence	Improve
Lighting columns	14790	High	Continue to maintain
Illuminated signs and posts	No data	Low	Consider survey
Illuminated bollards	tbc	High	Continue to maintain
Feeder pillars	tbc	Med	Survey underway
Vehicle activated signs	117	Med	Data recording on Insight underway
Zebra crossings	267	High	Continue to maintain
Underground Cables	No data	Low	Utilise cat scanners

Traffic Management Systems

Element	Quantity	Data Confidence	Improve
Signals at junctions	52	High	Continue to maintain
Signals at pedestrian crossings	35	High	Continue to maintain
Signals at pedestrian and cycle crossings	35	High	Continue to maintain
Signals at pedestrian and cycle/ horse crossings	1	High	Continue to maintain
CCTV cameras (traffic control)	10	High	Continue to maintain

Drainage

Element	Quantity	Data Confidence	Improve
Gully	22,000	Medium	Surveys underway
Chambes	No data	Low	Build on underground assets
Pipes (exc. Gully laterals	No data	Low	Build on underground assets

Street Furniture

Element	Quantity	Data Confidence	Improve
Vehicle safety fences	tbc	High	Continue to maintain
Pedestrian Guard rails	No Data	Low	Consider survey
Lines Yellow and White	No Data	Low	Routine and Reactive inspections
Weather stations	13	High	Continue to maintain
Trees – Highway owned over 30cm diameter	23972	Medium	Improve data updates with tree team
Average Speed Safety Cameras	tbc	Medium	Data recording on Insight underway

4.2 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).

4.3 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.

4.4 Data Collection

A programme of carriageway and footway 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.

5. Future Demands

The population of Bedford Borough Council has increased, from 185,761 into 2021 to 187,466 in 2022 a 0.9% which will continue to grow.

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.

5.1 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 over ten years 2014-2024	Due to be adopted via S38
Carriageway	854- 871km	159km
Footway	84km -93km	Not known yet
Street Lighting Columns	14790-17093	Not known yet
Gully	9946-22000	Not known yet

There has also been a corresponding growth in associated assets such as street furniture, signs, traffic signals, grass cutting and much more which will all require inspection and maintenance.

5.2 Traffic Growth

Traffic growth needs to be monitored regularly and analysed to determine rising trends to enable us to keep up with demands on the network. Examples include but are not exhaustive

- Population
- Economic
- Employment
- Household numbers
- Social attitudes

6. Environmental Conditions and Climate Change

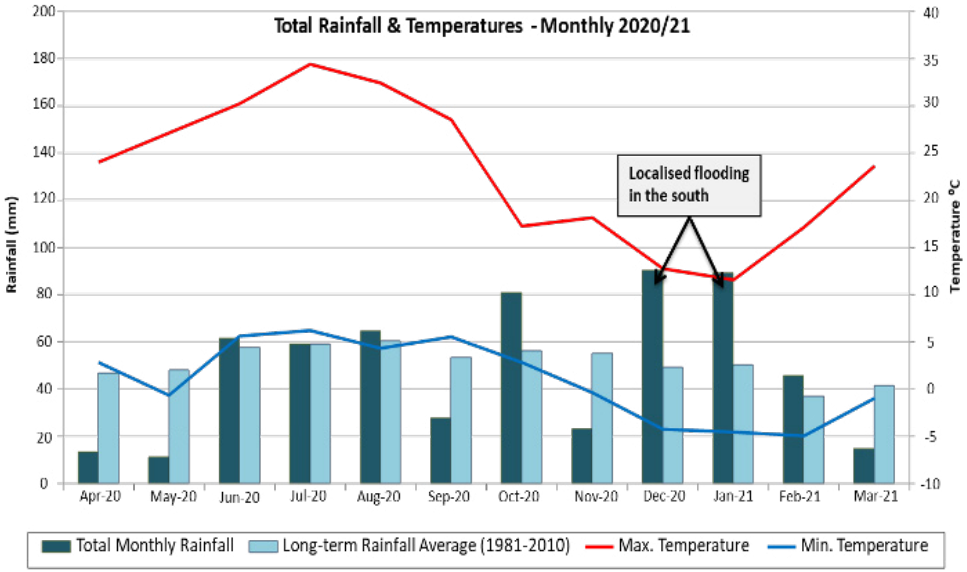
6.1 Environmental Conditions

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.

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 2024 for new developments and SuDS should also be 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.



6.2 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

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 reduce carbon footprint
- increase usage of more environmentally friendly and recycled materials.

7. 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.

7.1 Asset Valuation

The following table outlines the value of our highway assets for BBC at 2018 as submitted for the WGA (Whole of Government Accounts). Valuation was previously undertaken using toolkits provided by CIPFA and Highways Asset Management Financial Information Group (HAMFIG). Carriageway and Structures rates were provided centrally to ensure national consistency, whereas other asset groups have been generated from local contract costs.

To note for financial years 2021/2022 to year 2024/2025 Local Authorities are not required to report the below values. This is a temporary relief to report whilst CIPFA look at what will be required and in what format from 2025.

Asset Type	Gross Replacement Cost (GRC) million	Depreciated Replacement Cost (DRC) million
Carriageways	836,709	736,263
Structures	141,892	141,733
Footways	114,733	114,733
Street Lighting	16,570	15,449
Traffic Signals	18,684	16,742
Drainage	Unknown	Unknown
Street Furniture	9,038	3,532
Total	1,137,626	1,028,452

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.

Also to take into consideration the above figures are representative of 2018 figures. In terms of what the figures would look like in 2024, due to inflation, cost of living crisis, cost of building materials the totals are likely to have escalated to 3 billion. As drainage is unknown it is plausible to consider this may be up to 1 billion.

7.2 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 also 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 10 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.

7.3 Investment Scenarios

To better inform our position over the lifecycle of this plan, 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 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 each year, eliminating all the backlog over 10 years.

Investment Scenario	Funding Need Estimate	Description
Accelerated improvement: Accelerate backlog reduction and condition improvement	Consistent High capital funding	**Backlog** – reduced annually, 10 year backlog removed Evident improvement to all asset condition and network performance
Gradual improvement: Start to address backlog and gradually improve network	Increase capital funding/ revenue	**Backlog** – reduce 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	Increase capital funding only	**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	Current Consistent low capital funding	**Backlog** – unsustainable and growing per annum Network condition will slowly decline leading to a reactive management strategy
Decline: Investment levels significantly below required level	Reduced low capital funding/ revenue	**Backlog** – unsustainable and growing per annum Network condition will decline, will be evident through bridge restrictions, flooding, more footway and carriageway defects; and a reactive management strategy, burden on revenue

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 we currently have and what we will need to be available for the future 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.

Highway Budgets

Asset Type	2024/25	2025/26
Carriageways	3,480,000	*
Footways	1,455,000	*
Structures	600,000	*
Street Lighting	510,000	*
Traffic Signals	771,000	*
Drainage	560,000	*
Total	7,376,000	*

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

8. 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.

8.1 Risk Context

This risk applied to managing our highway assets and the highest rated risks that were considered when compiling this plan are set out below:

- 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
- 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

8.2 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.

8.3 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.”

9. Carriageways

9.1 Introduction

Carriageways are the most valuable highway asset and should 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.

9.2 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.

9.3 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.

9.4 Investment Requirements

It is estimated that to maintain the carriageway asset in a steady state will require investment of up to £5 million per annum in planned maintenance works (reconstruction, resurfacing and surface treatment). This plan 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 condition surveys along with other measurable criteria
- aiming to maintain the condition of the network
- a focus on continued investment in determining the most appropriate treatment
- a continuing reviewing of reactive maintenance works to determine if greater efficiency can be achieved
- 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.

9.5 Expenditure

Maintenance Budgets

Asset Type	2024/25
Carriageway A	1,084,604.62
Carriageway B/C	1,563,134.10
Carriageway U	3,828,390.57
Total	6,856,641.73

9.6 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.

10. Footways

10.1 Introduction

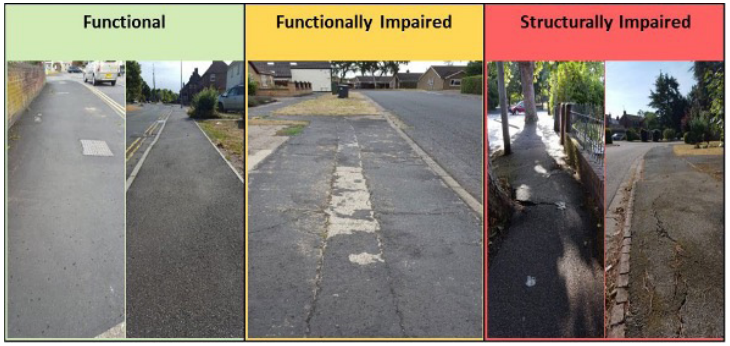
Footways and cycleways are critical assets supporting access and mobility for people. Securing continuous improvement in the safety and serviceability of footways and cycleways is necessary to encourage alternatives to cars, particularly for journeys in urban areas. Well maintained footways aid social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

10.2 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:

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

Examples of each of the condition categories are shown below:



Footway Network Condition Surveys (FNS) have been undertaken on the whole of the footway adjacent to the carriageway over a four year programme. The current performance indicators show that the footways are deteriorating overall. The maintenance programme will need to emphasis the most appropriate treatments 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 plan 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 condition surveys and other measurable criteria.
- aiming to maintain the overall condition of the network in a steady state up to 2027 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.

10.3 Current Challenges

There are a variety of footway surfaces within the Borough, 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 consider replacing flags with a flexible surfacing and, 2) town centre where flags are 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.

10.4 Investment Requirements

For maintenance purposes and the reporting of GRC and DRC it has been assumed that bituminous footways have a lifecycle of 15 to 20 years before resurfacing is required with a single surface treatment.

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. Also to include the Borough have many off street footways that have not been subject to FNS surveys making for an additional Investment need.

10.5 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.

Maintenance Budgets

2024/25
£1.455 million

10.6 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.

11. Structures

Introduction

In Bedford Borough the highway structures asset totals approximately 380 highway structures. This number includes 165 bridges, 190 culverts, 12 retaining walls and 3 flood plain pedestrian causeways. The bridge stock comprises mainly of masonry, reinforced concrete, and composite structures.

Many of the larger structures span the Great River Ouse which traverses the Borough and passes through the Town Centre. This includes 3 multi span steel concrete composite viaducts and 12 multi span masonry arches. The viaducts came into service in the late 90's whilst most of the masonry structures were constructed in the 18th and 19th Century. Several of the masonry structures are classed as Grade 2 Listed Buildings and Scheduled Monuments.

The Bedford Borough Structures asset is managed in house team by the Engineering Services Structures Team.

11.1 Condition

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

Year	20/21	21/22	22/23	23/24
BSCI AVE	Not avail	Not avail	Not avail	Not avail
BSCI CRIT	Not avail	Not avail	Not avail	Not avail
Good cond	Not avail	Not avail	40%	55%
Fair cond	Not avail	Not avail	55%	45%
Poor cond	Not avail	Not avail	5%	0

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 Bedford Borough 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.

11.2 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.

11.3 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 are not made.

11.4 Expenditure

Maintenance Budgets

2024/25
600,000

11.5 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.
- investment required for a 10 year programme is projected in the region of £12 million, not including inflationary increases, so whilst it might not be required year on year, the way in which Structures projects are delivered, we are looking at £1.2 million a year plus inflation

12. Street Lighting

12.1 Introduction

Street lighting and the associated illuminated signs and bollard equipment form an essential part of the overall highway asset.

Street Lighting contributes to road and community safety as well as lighting public spaces. Maintenance is key to allowing these units to function safely and in accordance with industry standards. The majority of Street Lighting units in the Borough are now LED or similar energy saving technology controlled via a central management system. Continuous improvement is being made to replace conventional equipment to energy saving technology and replace historic equipment where required.

12.2 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.

Lighting Lanterns - Since 2015 new lanterns installed have been specified with an LED light source.

Illuminated Signs - The illuminated sign asset group is managed almost entirely through the reactive maintenance service.

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.

Engineering utilise ATOMS a toolkit designed to analyse structural and electrical testing to determine the condition of the equipment.

12.3 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.

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.

12.4 Investment Requirements

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

- All lamp columns to be electrically tested by way of cyclic programmes in accordance with BS7671
- All lamp columns will be structurally tested in accordance with GN22 Asset management toolkit (ATOMS)

12.5 Expenditure

Maintenance Budget

Expenditure 2024 - 25
510,000

12.6 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:

- Reduced road casualties through local safety schemes
- lantern replacement programme
- increased capital budget column replacements
- continued Delivery of street lighting design for Highway schemes/ developments
- routine maintenance and inspection

13. Traffic Signals

13.1 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 simply solution to safety and capacity issues within the highway.

13.2 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.

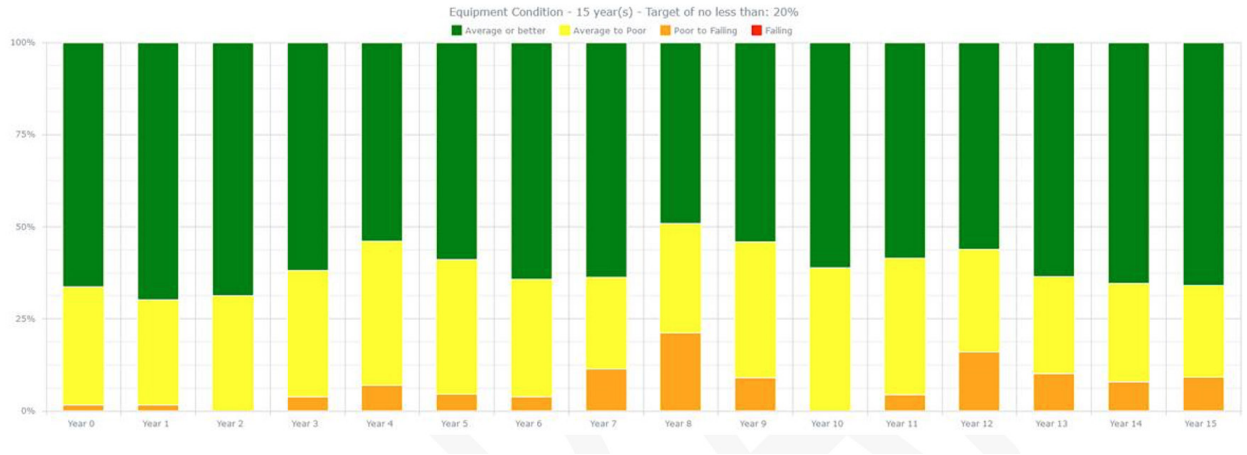
The Periodic Inspection (PI) process carried out annually aims to highlight site condition and pinpoint those sites that are low on serviceability and/or in poor condition. Fault occurrences are also factored into this data so that sites with low operability can be specifically targeted.

13.3 Current Challenges

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.

13.4 Investment Requirements

To keep the asset at its current state, we target the older, obsolete sites and continue rolling programmes of refurbishment in line with asset age/condition.



13.5 Expenditure

Maintenance - what the last 10 years have cost

Year 1 9 sites	Year 2 8 sites	Year 3 7 sites	Year 4 17 sites	Year 5 17 sites	Year 6 6 sites	Year 7 5 sites	Year 8 19 sites	Year 9 11 sites	Year 10 9 sites
537,127.56	489,173.55	616,068.84	1,262,113.98	1,557,944.14	500,624.00	491,730.08	1,776,870.17	719,433.80	771,829.10

13.6 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.

14. Drainage

14.1 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, 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.

14.2 Condition

Currently cyclic cleansing regime has not been thoroughly instigated due to operational support and kit failure.
Due to their youth, the majority of SuDs systems on new developments 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.

14.3 Challenges

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

We have detailed data for our gullies 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’ e.g., 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.

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.

14.4 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.

14.5 Expenditure

Maintenance Budgets

2024/25
560,000

14.6 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.

Finding out more

If you would like further copies, a large-print copy or information about us and our services, please contact us at our address below.

Për Informacion معلومات کے لئی برای اطلاع Za Informacije

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