Nottingham City - Highway Infrastructure Asset Management Strategy

October 2019

Foreword

The purpose of this **Highway Asset Management Strategy** is to describe how our combined highway infrastructure in Nottingham is managed.

By bringing together all goals, objectives and policies with existing information, we intend to show how the principles of asset management will be used to ensure our combined service provides best value for money in meeting the requirements of its citizens and not just to keep the highway safe to use, but also to assist in regeneration, social inclusion and protecting the health and safety of the community and the environment.

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Contents

Purpose of this Strategy

This document provides an overview of the asset management framework and strategic approach to the management of the highway infrastructure assets in the Council's stewardship.

As Local Highway Authority, the Council has a duty of care to maintain the safety and accessibility of highway infrastructure maintained at public expense and the Highways Act 1980 requires that the Council has made reasonable provision for its upkeep and safety.

This strategy defines the commitment of all highway asset owners to deliver that outcome against the Council's key objectives, plans and priorities. It:

- employs the principles of asset management;
- sets out the pre-requisites for an effective delivery of an asset management approach to the maintenance and management of the highway infrastructure assets;
- provides the high-level understanding of the processes required to deliver an effective service;
- provides a value-for-money outcome by considering whole life costs, associated risks and
- aligns with the Council's objectives, strategies and vision for its citizens.

1. Introduction

The **Nottingham City Highway Infrastructure Asset Management Policy** endorses an asset management approach to the management and maintenance of the highway infrastructure asset and how this approach aligns with and delivers the Council's aims, goals, objectives and vision.

The strategy will cover a five-year period from 2019 to 2024 and reviews of both the policy and strategy will be undertaken annually, to reflect changes in legislation, practice and ongoing work in partnership with our stakeholders.

The strategy outlines how the **Highway Infrastructure Asset Management Plans, Processes and Procedures** will ensure a safe, reliable and sustainable highway infrastructure by the optimal allocation of resources for the management, operation, preservation and enhancement of the highway infrastructure to meet the needs of current and future customers.

Highway Infrastructure Asset Management Plans will set out the aims and objectives for each of the main asset groups comprising:

- carriageways and footways
- structures
- traffic management and management of electronic traffic equipment
- street lighting
- street furniture and Winter service

The Importance of the Highway Infrastructure

The local highway infrastructure network is the largest and most visible asset the Council is responsible for, with a replacement value of approximately £1.8 billion, and is used every day by residents, businesses and visitors, providing a vital contribution towards the economic, social and environmental well-being of the area. Carriageways and footways provide key links across the City and connect to areas both within and outside the City's boundaries.

It comprises:

- 767km of road and 1,442 footway networks
- 210 key bridges and structures
- 33,329 streetlights
- 144 traffic signalled junctions and 162 pedestrian signals
- 37,349 road gullies

In many places within the City, the highway infrastructure is a part of the character and quality of the local areas it serves and is key to the delivery of wider Council goals and objectives including economy, regeneration, social inclusion, education, employment, recreation and health.
In order to continue to deliver these aims and support local communities, it is essential the highway infrastructure assets are maintained and managed effectively to deliver a safe, reliable and sustainable network for the user.

The Case for Asset Management

Asset management has been widely accepted by central and local government as a means to deliver a more efficient and effective approach to the management of highway infrastructure assets through longer term planning using better risk management and allocation of resources. It also supports the case for greater funding and better communication with stakeholders, facilitating a greater understanding of the contribution highway infrastructure assets make to economic growth and the needs of local communities.

Asset management comprises a series of logical and co-ordinated activities monitoring performance, the risks associated with the asset and expenditure required to maintain them to maximise their value throughout their lifespan. Informed decisions are made on investment, focussed on long-term planned activities, which will reduce the need for costly and reactive short-term repairs.

This approach provides the best value for money and provides a highway environment that is safe, secure and accessible for all our customers.

The Council's approach to asset management has been developed using the recommendations set out in the **HMEP Highway Infrastructure Asset Management Guidance (2013)** and aligns with the best practice recommendations set out in the **Code of Practice – Well-managed Highway Infrastructure (2016)** which requires local highway authorities to adopt a risk-based / integrated asset management approach to maintaining highway infrastructure.

These approaches are supported by incentivised approaches to highway maintenance funding, including the Department of Transport Challenge and Incentive Funds.

Highway Infrastructure Asset Management Framework

It is important to understand how the strategy is supported by the plans, processes and procedures that define the activities required to manage and maintain the extensive range of highway infrastructure assets that comprise the highway network.

The Highway Infrastructure Asset Management Framework establishes the context for highway infrastructure asset management and the following diagram illustrates the framework as a whole and provides context and an overview of the dependency of interrelated areas of work in delivering the strategic approach.

	Nottingham City Council Vision **Local Transport Plan**	
Asset Management Planning Network - Hierarchy and Resilience Safety and Service Inspections Data Levels of Service Performance Risk Lifecycle Planning Asset Prioritisation	**Highway Infrastructure Asset Management Policy** **Highway Infrastructure Asset Management Strategy** Carriageways and Footways Structures Traffic Management Street Lighting Street Furniture Drainage	**Asset Management Strategies** Leadership and Organisation Competencies Communications Systems Environment Road Safety Audit Skid Resistance
	Reactive Maintenance Planned Maintenance	
	Annual Highway Service Delivery	

Key Drivers for Highway Infrastructure Asset Management

- supporting Council vision / delivering Council goals and objectives
- providing a safe and reliable network
    - complying with legal duties including Highways Act 1980, Traffic Management Act 2004 and Equalities Act 2010
    - meeting national policy, guidance and codes of practice
- managing stakeholder expectations
- long-term improvements to the condition of the network
- understanding future demands on the highway infrastructure assets
- making the best of financial constraints
- delivering efficiency and value for money
- enabling whole government accounts and local financial reporting

Strategy outcomes

The strategy promotes an integrated asset management approach to highway infrastructure and provides:

- long term improvements to the condition of the network
- a case to support funding opportunities
- better communication with stakeholders

However, the delivery of the strategy will be dependent on funding and consequently strategy outcomes will be based on the following headline approaches:

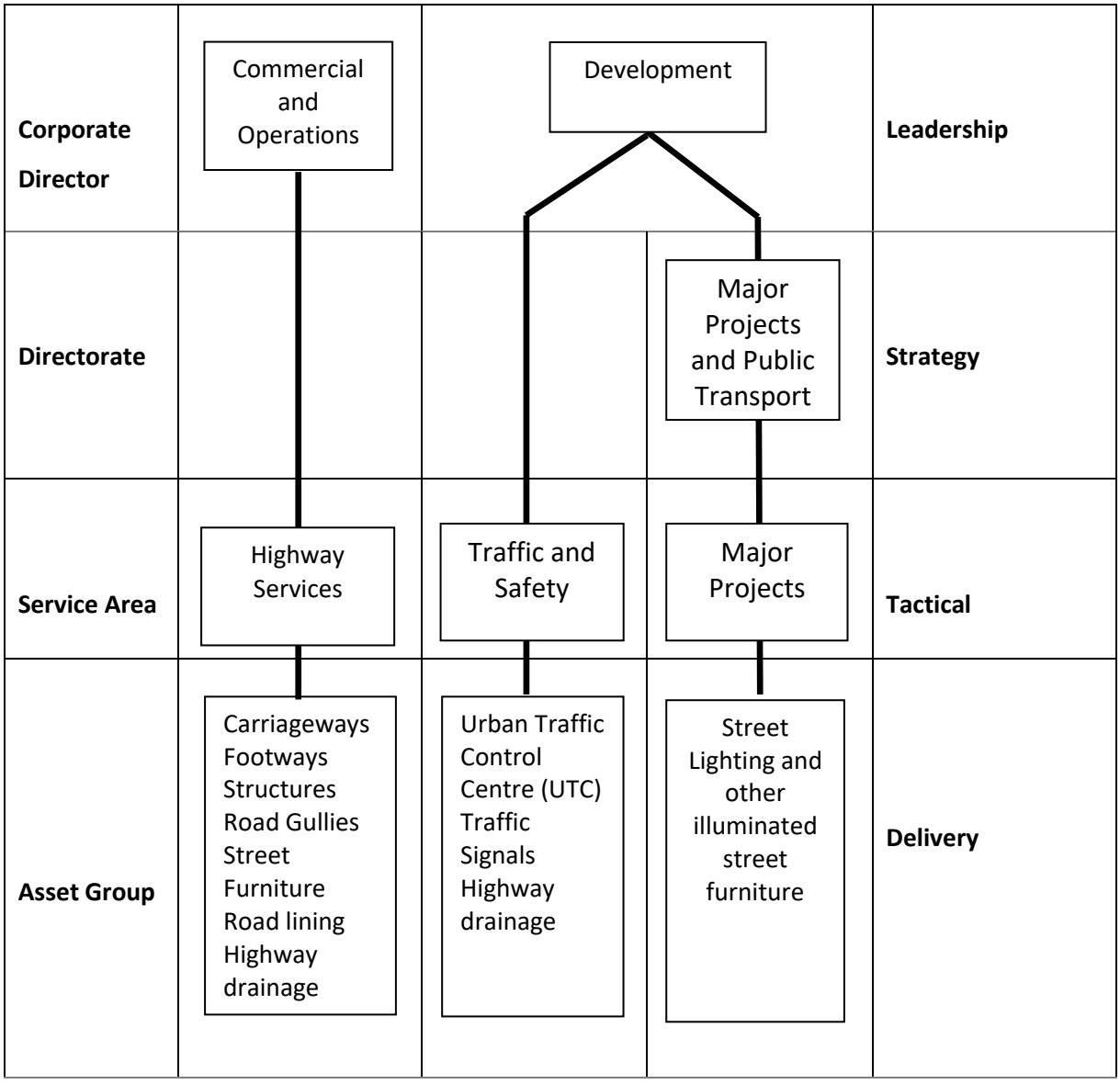
- **Preventative** - management of the infrastructure assets to prevent further deterioration through a combination of planned and reactive maintenance, whilst maintaining a safe and reliable network. This strategy often relies on a more reactive approach.
- **Restorative** - management of the infrastructure assets to prevent further deterioration and where possible restoring assets their original condition
- **Resilience** - management and maintenance of the infrastructure assets, returning all assets to their original condition and increasing the resilience of assets where there are clear lifecycle and network reasons. This strategy relies on a more planned approach and significantly reduces the need for reactive maintenance.

2. A Strategic Approach to Asset Management

Leadership and Organisation

Leadership has a strong influence on the culture and behaviour of all organisations. Clear direction and priorities will ensure that both significant and relatively minor decisions taken across the organisation support a consistent approach to delivery of the business objectives. Such decisions will include appropriate investment decisions to meet the asset management strategy.

Strong leadership is embedded within the highway division and is led and supported by the following key positions within the Highway Management Structure.



A cross-cutting role to support the development and delivery of asset management across highway infrastructure support services is based within the Highway and Energy service area.

It is the responsibility of the asset owners to ensure that plans, processes and procedures are implemented in line with the **Asset Management Policy and Strategy**.

Risk Management

Risk Management is the cornerstone of delivering the Council's risk-based approach. It promotes a full risk assessment to be undertaken on all facets of the highway service delivery, assessing the risk, the likelihood of it occurring and the potential consequence. This enables the optimal allocation of resources for the management, operation, preservation and enhancement of the highway infrastructure to be determined to meet the needs of current / future customers and tempers the potential to increase costly reactive solutions.

The active use of risk management in the assessment of safety defects undertaken during safety inspections of the highway assets makes use of a real-time 'on site' assessment. This approach prioritises those with the most serious consequences with the remaining defects being scheduled for rectification through planned works, reducing costs and ensuring a more effective and managed repair. Safety inspection risk assessments are based on:

- correct evaluation of the risk posed to highway user by defects or deficiencies in the highway asset
- ability or effectiveness to manage the risk within available resources
- value for money

Highway Safety Inspectors are currently provided with additional training in Risk Management
A risk register has been developed and populated for the delivery of all highway services and has prioritised the risks for management, mitigation and / or resolution in the **Highway Infrastructure Asset Risk Strategy**.

Further work is in hand to assess the risks associated with key asset groups and assets to identify a programme of risk-based maintenance and will be a key factor in determining the most effective programme of planned maintenance.

Competency, Skills and Training

Competent, well-trained staff will be responsible for delivering an asset management-led delivery of the strategy and the Council will ensure that they have the appropriate skills and that relevant training and accreditation are in place. Generic asset management and more bespoke attributes and skills required will be identified in competency frameworks for both individuals and disciplines and assessed using a skills matrix, reviewed during the annual review process. Support and / or training requirements will be identified and prioritised through the review process.

The Council operates a training plan for its operational staff which provides clear guidelines as to the qualifications and toolbox talks required for the safety and effectiveness of the operational workforce. It also provides an annual appraisal for all staff to discuss targets and training opportunities. The development of a more framework-based approach to assessing the competencies, skills and training requirements of those responsible for the strategic and tactical management of the highway infrastructure assets is currently being developed. These strategies, plans, processes and competency frameworks are set out in the **Highway Infrastructure Asset Competency and Training Strategy**.

Asset Management Systems

Given the diversity of highway infrastructure assets and their individual maintenance requirements, the Council's current asset management systems comprise a number of separate systems that effectively manage asset groups, i.e. structures, highway and footway, street lighting, traffic signals. These individual systems will be linked through common referencing of asset and association with a common highway network allowing enabling an integrated approach.

Data relevant to the highway network and its Asset Register is held in the Confirm / UKPMS Asset Management System used by many local councils to manage highway and transport assets, customer services, maintenance and performance. Confirm and other performance management systems are used to manage and monitor performance across the Highway division**.**

Asset Inventory

Good asset management relies on an understanding of the extent, location, condition, value and maintenance requirements of its highway infrastructure assets. Asset inventory and attributes providing data to assist in:

- the management of the asset
- the programming of planned and reactive maintenance
- asset history, (including interventions, service history, costs, inspections and customer enquiries)

The Council has completed a gap analysis of the accuracy, completeness and currency of its asset inventory and, as referenced in the risk register established within the **Highway Infrastructure Asset Risk Strategy**, established a programme of data audit, capture and update as set out in the **Highway Infrastructure Data Management and Asset Inventory Strategy**.

Current data associated with:

- carriageway & footway - location / condition Annual Engineers Inspection Survey, SCRIM (skid resistance survey) carriageway and footway widths
- street lighting - location / condition
- structures - location / condition
- improvement and resurfacing schemes (digital / paper)
- common survey network

is held in the City's asset management systems and is regularly audited and updated using video, service inspections and a rolling programme of asset capture surveys.

Data Management

Good asset management relies on accurate, appropriate and current data in order to inform effective decision making. The Council has developed a **Highway Infrastructure Data Management and Asset Inventory Strategy** which outlines the approach to managing all data associated with the highway infrastructure assets and network and the importance of regular data audits and cleansing to ensure data reliability. It sets out a hierarchy for data using a risk management approach to identify business need (importance). It also sets out processes to be followed by data owners with

regards to accessibility and currency, data collection, frequency of collection and updating, data management and disposal.

Environmental Management

Managing an asset as diverse and extensive as highway infrastructure assets, particularly where the assets often reside in both urban and rural areas and conservation areas, requires a sound environmental management system which regularly audits the environmental risks posed by the asset. At present the Council has an ISO14001 Environmental management accreditation to manage their environmental responsibilities although many of the environmental issues where linked to the health and well-being of the citizens of Nottingham City and the Council's workforce are included in regular health and safety inspections.

Communications

For this strategy to succeed it needs to be communicated clearly both internally to ensure maximum value and externally to ensure a shared understanding of the approach and where works are planned

The Council's **Highway Infrastructure Communications Strategy** sets out the Council's stakeholders, how dissemination and receipt of information will be managed and includes a matrix defining levels of communication informing stakeholders of planned and reactive work relevant to the network hierarchy.

Network Hierarchy

The network hierarchy recognises that maintenance and management of the highway infrastructure assets based on the current classification of A, B, C and non-classified roads fails to recognise:

- the volume of traffic using particular roads
- their importance in delivering the Council's aims and objectives
- the consequences of failure of certain routes or items of infrastructure
- the impact on the economy and communities

The Council has developed a **Network Maintenance Hierarchy and Resilience Strategy** based on both network usage and the importance and limitations of particular routes and assets across the network. It allows differing levels of service and maintenance strategies to be applied to the hierarchy of the network ensuring the most effective treatments are employed appropriate to the use and importance of the roads in question and allows for the integrity of routes used by greater volumes or goods vehicles to be maintained to ensure the long-term resilience of those parts of the network.

At its highest level the network hierarchy identifies a resilient network of key routes serving the businesses, communities, services and forming links both nationally and between adjoining authorities. These routes will be given priority in planned and reactive maintenance and will be maintained in the event of adverse weather or other emergent events. The resilient network includes a number of assets where failure would result in significant impact to the local economy, and these have been identified and prioritised in the **Highway Infrastructure Asset Risk Strategy**.

Service Levels

Levels of Service provide a simple means of describing the standard to which highway infrastructure assets will be managed and maintained. Service Levels can identify what the service might look like, what might be expected in terms of performance, safety and reliability and will provide the Council a standard to measure delivery against, helping promote a more efficient and effective delivery of the service. Levels of Service must take account of statutory duties and requirements, national and regional guidance, the volume and type of traffic using the network and the risk to the service user and the authority.

Levels of Service will also consider the Council's objectives in ensuring safety, serviceability and sustainability and these are set out in the table below:

Key Principle	Aim	Level of Service	Outcomes	Measures
Network Safety	Managing risks to users of the City's infrastructure assets	All highway assets are in a safe condition and contribute to the reduction of	Meeting statutory obligations	SCRIM (Skid Resistance)
			Meeting users' safety needs	Accidents Near Misses Claims

		associated road / traffic casualties		
Network Serviceability	A network that meets local, regional and national needs	Current network accessibility and condition maintained and improved where necessary so as to meet the Council's goals and objectives	Availability and reliability	Roadworks Congestion
			Network integrity	Condition Resilience
			Maintaining reliability	Claims
			Resilience to adverse weather	Closures
			Accessibility	Pedestrians Cyclists Disabilities
Network Sustainability	An affordable, and effectively managed network	A value for money maintenance service that supports the environment and local communities	Minimising cost over time	Treatment lives
			Maximising effectiveness of the Council's maintenance processes	Claims £££'s / m^2 Reactive £££ / km
			Maximising value to the community and economic prosperity	Business development House building
			Maximising environmental contribution	Bio diversity
Customer	High level of customer satisfaction	Ensure appropriate, informed and timely customer responses to network enquiries	Customer satisfaction through: communication, consultation and information	Satisfaction Surveys Claims Enquiries / Defect Reports

The Council will assess the delivery of the Levels of Service based on the following table:

Excellent	Good	Fair	Poor
Meets or exceeds aims, Levels of Service and outcomes.	Meets current aims, Levels of Service and outcomes.	Does not meet all reasonable aims, Levels of Service and outcomes.	Does not meet aims, Levels of Service and outcomes.

More detail of the Levels of Service associated with each of the highway infrastructure asset groups and the associated performance targets can be found in the **Highway Infrastructure Levels of Service and Performance Management Strategy**.

Performance Management and Monitoring

The measurement of performance is key to the efficient, effective and value for money management of the highway infrastructure assets.

The Council already measures performance and has a number of KPIs associated with the safety inspection of its assets. An **Asset Management Performance Management Framework** is used to ensure all highway infrastructure assets are managed efficiently and effectively. Progress is continually reviewed against this framework daily, weekly, monthly and annually to ensure that performance is at the forefront of the Council's stewardship of the highway network.

The Council will be developing further performance measures targets and KPIs to monitor the effectiveness of this **Highway Infrastructure Asset Management Strategy**.

The Council will ensure frequent performance reviews are undertaken with the asset managers and that strategies are put in place to ensure performance targets are met and these will be set out in the **Highway Infrastructure Levels of Service and Performance Management Strategy**.

The Council also participates in national highway and transport satisfaction surveys to understand the levels of satisfaction with the Council's service delivery, the factors of importance to them and the key issues of users. The Council makes active use of the information returned through citizens surveys, satisfaction surveys and focus groups as well as customer enquiries linked to the reporting

of defects to actively challenge and amend its processes to be more effective and meet stakeholder expectations.

Survey responses also help in the targeting and publishing of information clearly ensuring customers are well informed about the performance and processes of services and influence the Council's Levels of Service and priorities.

Performance Measures and Targets

Performance measures, targets and the current performance data are used at different levels to ensure that appropriate action is taken to ensure an environment of continuing improvement. The Council already has leadership and management-led performance measures and targets used to manage the performance of the service. Measures and targets are set at three levels to ensure that they are most appropriate to the strategic, tactical and operational delivery of the service

- **Strategic** (Council / Department) - high level understanding of the performance of the network audits highway infrastructure assets. Members, Department Directors and Department management teams, much more about general direction and trends
- **Tactical** (Department / Division) - an understanding of infrastructure asset group and key service delivery area performance for discussion at highway management team meeting**s**
- **Operational** (Division / Group / Team) - a granular and more specific understanding of the performance data which affects the daily outputs of staff, reasons for poor performance and look to make improvements through training support, changes to delivery processes or mechanisms

Measures and performance targets will be considered not only in terms of quantities, i.e. "*no of km / m^2 of roads"* resurfaced, but also in terms of performance coefficients, i.e. *"no of km / m^2 of roads resurfaced / £ spent"* and this begins to look at the effectiveness of the Council's strategies.

Understanding performance is key to the management of the highway infrastructure asset and a value for money approach. Levels of Service, Performance Measures and Targets will be set out in the Performance Management Frameworks appendices to the **Highway Infrastructure Levels of Service and Performance Management Strategy**.

Best Practice - Collaboration and Knowledge Sharing

The Midland Service Improvement Group (MSIG) is a useful forum for adjacent / peer authorities and risk management authorities to share knowledge and good practice. The Council has been an active member and many of the processes that ensure the implementation of this strategy have been developed in conjunction with other local authorities within the Group.

The Council also benchmarks its services against the delivery of similar services in the city of Derby and meets regularly to discuss and share good practice.

3. A Strategic Approach to Ensuring a Safe and Reliable Network

Safety Inspections

Safety inspections provide a method of frequently assessing the safety of highway infrastructure assets and in particular, the risk of a defect associated with a highway infrastructure asset affecting network users. Safety inspections differ from service inspections which assess the condition of highway infrastructure assets so as to understand the network condition, its financial needs and to inform planned maintenance programmes.

Safety inspections are undertaken for highway infrastructure assets within the following main asset groups:

- carriageways including on-road cycleways
- footways including shared use
- structures
- drainage
- street lighting
- traffic management and management of electronic traffic equipment
- street furniture including pedestrian barrier / restraint system and traffic signs
- trees and verges

The Council is the Local Highway Authority and as such has a statutory duty to maintain highways maintainable at public expense under Section 41 of the Highways Act 1980.

Safety inspections identify, assess, record and prioritise the repair of defects which may present an immediate danger or significant inconvenience to users of the highway and include the condition of all highway infrastructure assets. Safety inspections also identify defects of a lesser risk for potential inclusion in the identification of future planned maintenance or to promote a more detailed investigation.

The Council's response to defects identified during safety inspections are risk assessed in terms of their significance, i.e. the likely impact and the probability of an incident arising from the defect.

The Council's network hierarchy, based on importance and usage of routes and not dependent on the current road classification system, is key to the delivery of the Council's risk-based approach to safety inspections. The Council has set its own standards for the frequency of highway safety inspections and these have been determined using the network hierarchy, with the most used having the highest inspection frequency.

Footway and cycleway hierarchies often differ from adjacent carriageway hierarchies and therefore safety inspection frequencies for carriageways, footways and cycleways may vary and are specified in the **Nottingham City Highway Safety Inspection Manual**.

Reactive Management Repairs

Reactive repairs will be carried out by the Council's 'in house' contractor and are generally undertaken in response to instructions from:

- the highway / safety inspector
- the maintenance manager / asset owners of the asset groups
- public enquiries / reports

However, there are occasions when repairs are undertaken on a programmed find-and-fix basis, often after particularly adverse weather events.

Reactive patching and minor repairs will be undertaken to ensure that surfaces are maintained in a safe condition.

In conservation areas, or where there is a need to protect and retain historic surfaces and features, temporary repairs will be programmed for a permanent repair on a 'like-for-like' basis.
Key to the management of reactive repairs will be the completion of records that identify:

- the gang which undertook the repair
- how the repair was effected
- date and time of repair
- a photograph of the completed works
- GPS location
- The extent of reactive work undertaken

The Council is working towards closer monitoring of reactive maintenance repairs to provide information to support planned maintenance as well as to reduce in the long term.

Skid Management

There is an established relationship between wet-road skid resistance and the frequency of skid related accidents and significant reductions in accidents can be achieved by improving skid resistance at some wet-road accident locations.

Skid surveys are carried out using a Sideways-force Coefficient Routine Investigation Machine (SCRIM) and are referenced to the Council's survey network providing an assessment of skid resistance on wet roads. The skid resistance of the road surface is then compared with minimum investigatory levels assigned to the road network.

All 'A' classified roads are surveyed, the remaining 'Classified / Unclassified' will be investigated where accident clusters are identified.

The Council's approach to skid resistance is set out in the **Highway Infrastructure Skid Management Strategy**.

Winter Service

In the event of severe weather warnings, the Council will identify appropriate resources to ensure an efficient and timely response.

Should weather forecasts or ice monitoring stations indicate the potential for ice forming on the cycle, footway and / or road surfaces, then precautionary salting will be carried out on a pre-consulted network to prevent ice forming or light falls of snow settling.

- Primary highway infrastructure network - pre salting
- Secondary highway infrastructure network - post salting

The amount of salt used will be the minimum possible to achieve adequate treatment so as to minimise the effects on the environment.

Salt bins, where provided, will be maintained as set out in the **Nottingham City Winter Service Plan**

Adverse Weather

In recognition of climate change, in particular the increased risk of flood, heavy rain or strong winds, winter and increasingly hot summers and in view of the role of the Council as both Highway and Lead Local Flood Authority, the Council is developing processes to ensure the availability, reliability and safety of the highway infrastructure network during:

- Intense / prolonged rainfall
- Winter ice and snow
- Groundwater, surface water (pluvial) and river (fluvial) flooding

4. A Strategic Approach to Delivering a Sustainable Network

Service Inspections

In addition to safety inspections the Council has a programme of service inspections that assess the condition of highway infrastructure assets to:

- understand the asset condition
- identify assets requiring maintenance

- plan potential interventions / treatments required to:
    - prevent further deterioration or
    - restore the asset's functionality
- identify the required finance
- inform planned maintenance programmes.

Service inspections are undertaken for infrastructure assets within the following main asset groups:

- carriageways (including on-road cycleways)
- footways (including shared use)
- structures
- street lighting
- trees

The Council's programme of service inspections, assessment and recording of asset condition provides a framework for identifying planned maintenance of the highway so as to maintain it in a safe and serviceable condition.

Service inspections are undertaken using the network maintenance hierarchy, based on importance and usage of routes and not dependent on the current road classification system.

The Council has set its own frequency of service inspections and these have been determined using a risk-based approach based on the network maintenance hierarchy, with the most used routes having the highest inspection frequency.

Lifecycle Planning

As recommended by current national guidance and good practice, the Council makes use of lifecycle planning to identify:

- the likely maintenance requirements of highway infrastructure assets
- the budgetary requirements to achieve this

Lifecycle planning considers the whole life of the asset and the costs of maintenance interventions over that period, taking account of:

- the treatment lives of maintenance interventions
- the relative cost of treatments
- the Levels of Service required

This approach enables alternative maintenance strategies to be evaluated based on:

- meeting Levels of Service
- fully funded and available budgets
- required service lives

so as to ensure the maintenance undertaken is the most effective and timely for the asset, asset group and the users of the highway network within the available budget. The Council's approach to lifecycle planning is set out in the **Highway Infrastructure Asset Lifecycle Planning Strategy**.

Design

All designs will be undertaken based on an outcome specified by the maintenance manager / asset owners. They will include an assessment of the options to deliver the required outcomes based on the risk of each improvement option / treatment. Those responsible for the designs will liaise with those responsible for construction to ensure the most effective designs and contractual arrangements are in place to secure the maximum effectiveness, longevity and value for money of design solutions.

Works Programme

This strategy will support the development of a 1, 3, 5, and 10 year forward works plan / 'strategic' budget to be identified for all transport assets.

It will also provide clear indications as to the nature of planned maintenance required to maintain the network, i.e. preventative, restorative, resilient by considering asset condition and lifecycle costs against the provision of the desired Levels of Service, and ultimately the available budget, and ability to deliver the required maintenance.

The **Forward Works Plan** is currently focused on the carriageway asset group, with a developing footway, road gullies, structures and traffic signals programme. The remaining assets comprising, pedestrian barriers and vehicle restraint systems are being identified and surveyed to incorporate in time.

The **Forward Works Plan** will:

- provide a work bank that can be prioritised in the Council's annual service / works plan within the available budget
- show the individual asset group and collective works required over the 1, 3, 5 and 10 year forward works plan
    - identify the levels of backlog present
    - how these will continue to grow if expenditure does not meet the plan requirements
- and enable the timescale of the plan to be adjusted to best tackle the maintenance required to reduce the backlog and provide the agreed Levels of Service.

The prioritisation of the schemes identified within the forward programme will be determined annually by available budget, condition and risk.

5. Making the Best of Finance and Delivery

Asset / Cross-Asset Prioritisation and Budgeting

The Council recognise that the current budget allocation is insufficient to manage the existing and growing level of backlog and the demands of a lifecycle planned approach to the maintenance of the highway infrastructure assets.

It has reviewed the existing classified network and created a more manageable maintenance hierarchy which reflects the importance of routes and their use and takes a risk-based approach to the allocation of Levels of Service and associated performance.

However, despite taking these actions it remains impractical to rely on individual asset group prioritisation which effectively delivers a bit of everything but not necessarily what is required, i.e.

prioritising carriageway maintenance by reducing maintenance to structures where the need may be greater but the individual costs higher.

As a consequence, cross-asset prioritisation will be utilised to understand the budgetary and maintenance requirements of all highway infrastructure assets and how best to maintain the network in a safe, reliable and sustainable manner.

Cross-asset prioritisation relies on each asset owner understanding the maintenance needs of their asset stock and planning how this can be managed as budgets rise and fall to meet the needs of other asset groups.

For e.g. hilst carriageway and footway maintenance accounts for the largest annual expenditure requirements, the replacement of bridge decks, bearings, parapets and supports often represents a significant single asset expenditure requirement in a year.

Works Delivery

Whilst a significant level of work is delivered ‘in house’, procurement frameworks are available to assist in achieving economies of scale for delivery of design and construction services. This approach and the use of outcome-led / negotiated contracts ensures that annual budgets for highway infrastructure assets can be delivered ‘in year’ in the most efficient, effective way and offer value for money.

6. Improving the Environment

Safety Audit

The Council has an active approach to the safety audit of highway works, both those improvements promoted by the Council and those to facilitate development, often developer funded. Safety audits will be undertaken based on a risk assessment of the location, usage and the likely effects of the improvements proposed.

Decluttering

The Council has an active decluttering policy to ensure that highway infrastructure assets are either removed or scheduled for non-replacement where they are no longer required or have been superseded.

Opportunities will be taken where highway improvements, maintenance interventions / treatments or service inspections are undertaken to assess highway infrastructure assets and remove them where they are not required for safety reasons or to reduce the long-term maintenance liability.

Highway infrastructure assets in areas of Outstanding National Beauty, National Parks and Conservation Areas will be reviewed in association with those responsible for the environmental management of the immediate area.

Carbon

Measures will be employed to reduce the Council's carbon footprint in the maintenance of the highway infrastructure assets employing measures to:

- make use of cold mix carriageway and footway treatments
- recycled and recyclable materials
- fuel efficient fleet and tools
- efficient routing of services, including reactive management repairs, inspections and monitoring, winter service, etc.

Air Quality

Nottingham is one of five cities in England required to introduce Clean Air Zones and was the first to have its air quality plan approved by the Government. As a result of achieving its early targets, the Council has now elected to pursue a 'Go Ultra Low' project converting buses, taxis and refuse vehicles to low emission models.

7. Meeting Government requirements

Infrastructure Valuation

The Council is required to make an annual return of its year end accounts. This should include an assessment of the replacement cost of its assets and the current depreciated cost of the assets. The Council will ensure it has sufficient knowledge of its highway infrastructure asset to be able to identify the extent of each asset group and its replacement cost so as to provide a gross replacement cost.

By regular inspection, survey and employing lifecycle planning to understand the backlog, condition and cost of maintenance treatments it will be possible to identify a depreciated replacement cost, understand annual and accumulated depreciation and compare this with the annual spend on highway infrastructure maintenance providing a more accurate reflection of the trend in deterioration or improvement and the real cost of re-establishing a well-managed highway network.

National Data Set

The Council is required to return particular data sets to central government for benchmarking purposes and to identify the effectiveness of the Council's highways maintenance grant expenditure.

Using a systematic approach to the processes required to support the strategy supplemented by more granular performance management information detailing efficiency and effectiveness, data can be provided to support national data sets for condition, efficiency, value for money and customer satisfaction.

Incentive Fund

The Department for Transport have introduced an incentive element to highway maintenance funding requiring each local highway authority to make a self-assessment of its performance level in delivering against 22 questions related to asset management, data, customer, delivery, etc.

This strategy sets how the Council will manage its highway infrastructure assets and provides confidence that it is addressing all of the Incentive questions at the highest level.

Code of Practice

This strategy sets out Nottingham City Council's approach to meeting the new **Code of Practice – Well-managed Highway Infrastructure (2016)**. It references a number of documents, which will complete the framework and processes enabling the highway infrastructure assets to be maintained using a risk-based lifecycle approach to future maintenance.