Leicestershire County Council

Highways Asset Management Strategy

Document Control

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1. Background and context

Document purpose

1.1 This document sets out the broad objectives and the strategic direction that the County Council will adopt in support of the policies and supporting principles set out in our Highway Asset Management Policy.

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

Highway Asset Management Framework

1.3 **Figure 1.1** below shows how the Highway Asset Management Strategy document sits in the asset management document framework

1.4 This framework is guided by a wide range of national and local regulations, strategies, policies, guidance and best practice etc, including the Council's Strategic Plan. An illustration of some of these documents and their interaction with the Highway Asset Management framework are shown in **Figure 1.2** below.

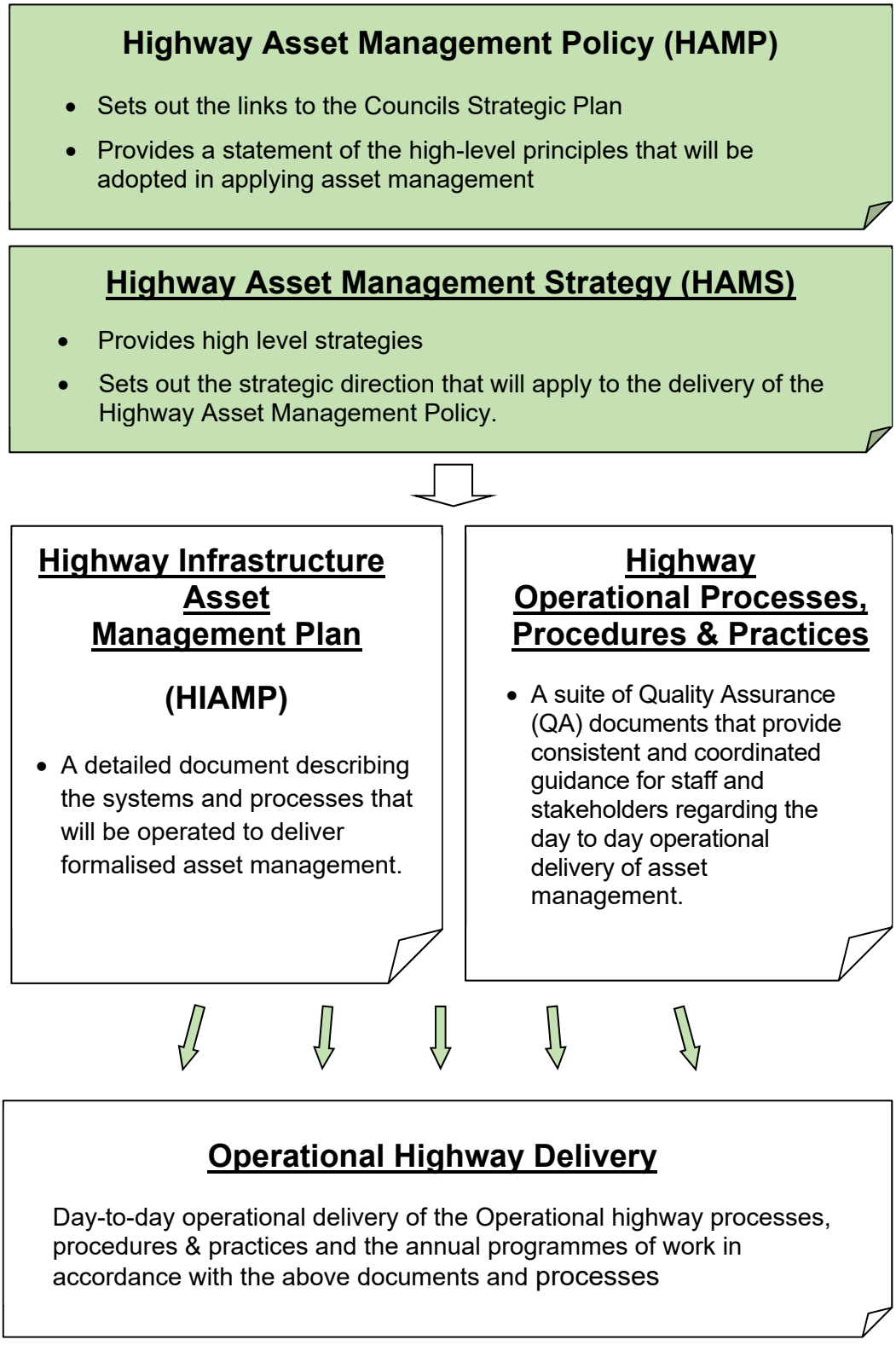


Figure 1.1. *Highway Asset Management document framework*

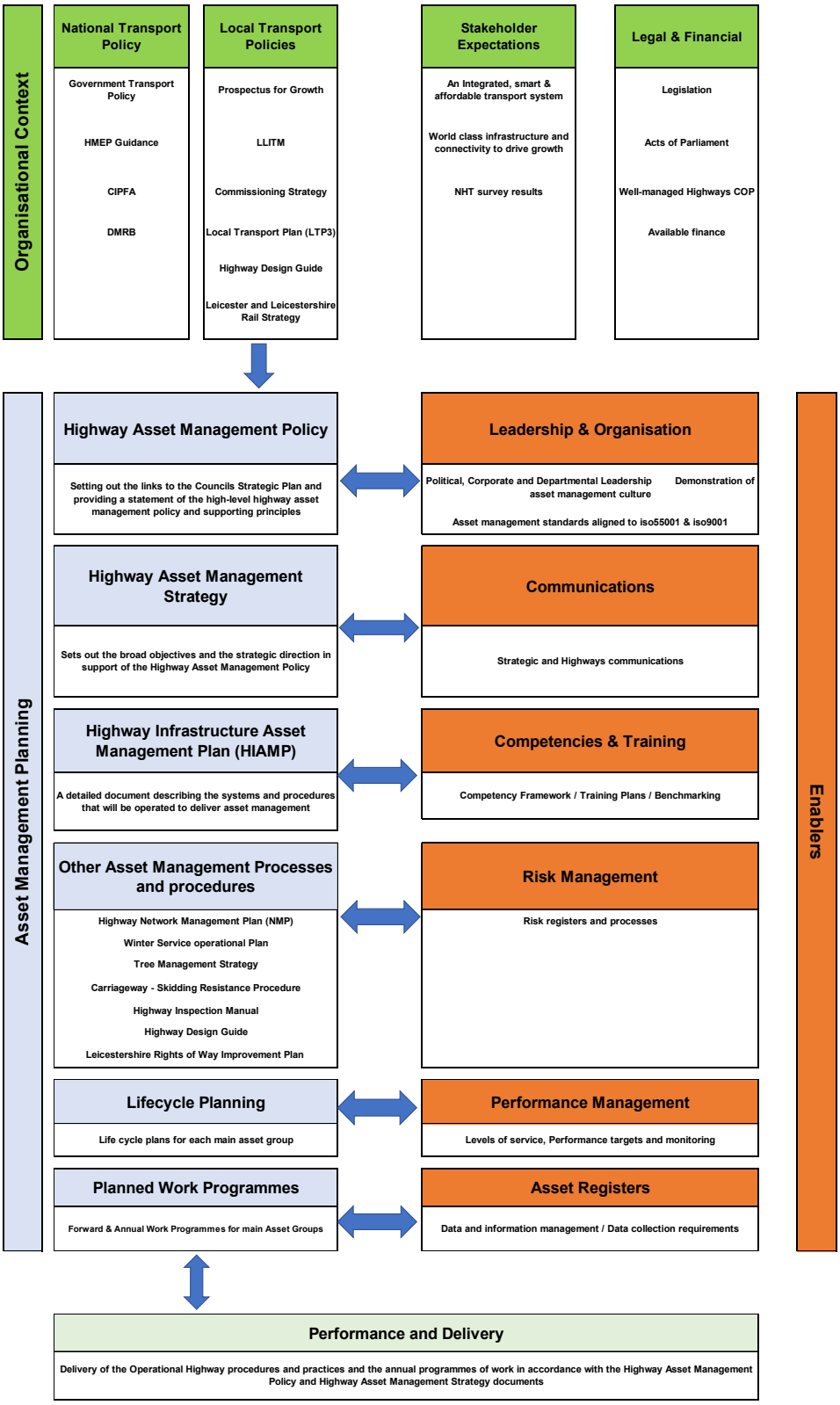


Figure 1.2. *Highway Asset Management framework*

2 The Challenge

2.1 Leicestershire's highway network is a functional asset. It is impacted by severe weather and ongoing and increasing pressure from traffic use.

2.2 Deterioration of the many elements of the network is an ongoing cycle and the County Council must continuously make decisions about when, how and where to intervene and undertake repairs or renew the assets.

2.3 These decisions are becoming increasingly difficult, due to the current national and international pandemic, as well as the challenging economic circumstances in which the County Council is currently operating, which has created more budget pressures that will become more difficult as the pandemic continues.

2.4 Formalising a strategic approach to maintaining highway assets is therefore essential, to ensure that appropriately informed, cost-effective decisions are made about the treatment strategies that we apply.

3 Core elements of the Strategy

3.1 This document considers the strategic approach to nine core elements of our Asset Management Plan. When considered together, these elements will ensure that we make the best possible treatment decisions and that the finite resources available to the County Council deliver the best possible outcomes for its stakeholders, consistent with the County Council's statutory duties as the Highway Authority. The core elements are shown in **Figure 3.1** below.

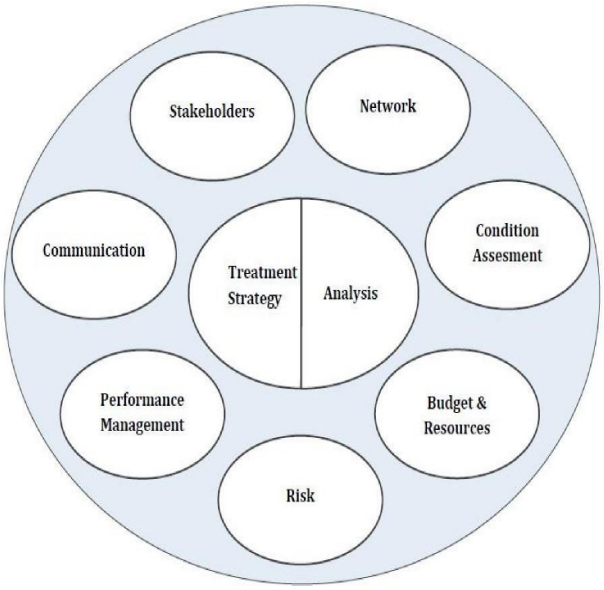
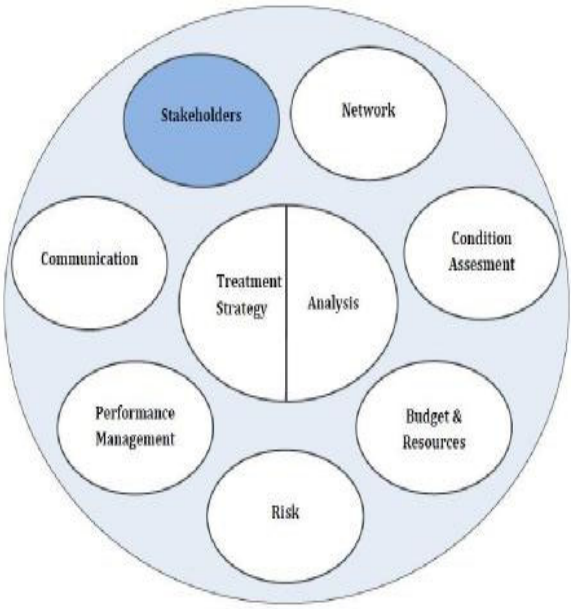


Figure 3.1. *Asset Management Strategy – core elements*

3.2 The Highway Infrastructure Asset Management Plan (HIAMP) will provide further operational details about how we will apply our strategy for each of these elements (see asset management framework figure 1.2 above).

4 Stakeholders

4.1 The principal purpose of asset management is to ensure that our network meets the needs and expectations of our stakeholders. It is therefore fundamental that the County Council listen to, and communicate with, stakeholders on an ongoing basis.



4.2 We want to ensure our stakeholders are at the heart of our service and recognise the improvements we need to make to continue to enhance the customer experience, keep our customers better informed and ensure our Members are briefed in a timely manner.

4.3 The County Council has subscribed to the annual National Highways & Transport (NHT) customer satisfaction survey since 2008 and it is our intention to continue this. We will also continue to assess the results of the survey and use this information to inform future decisions on highway maintenance.

4.4. We will make it easier for stakeholders to access information online, by phone and email. The County Council has been managing our day-to-day customer enquiries since 2005 through the “Confirm” Highway Management System (HMS). More recently we have developed “dashboard” style reports for particular service areas, which accumulate enquiries by type and area. We will extend this reporting to help us to identify both local and strategic weaknesses in the network or our service, for example by highlighting the levels of drainage related reports during a certain period or by locality.

4.5. We recognise the value of continuing to work with partner organisations and communities to achieve shared aspirations.

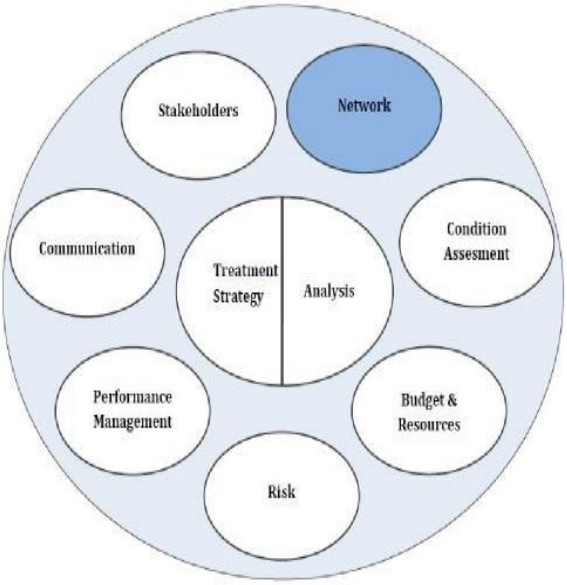
4.6 We will work closely with parish and town councils to help develop joint highway initiatives to undertake additional work on the highway within an agreed protocol.

4.7 We will continue to work closely with the Department for Transport and other National organisations on new approaches, innovations and industry leading initiatives.

5. The Network

5.1. Understanding our network is fundamental to the delivery of strategic asset management and this begins with an inventory of our assets.

5.2 The Council holds a substantial amount of inventory data, particularly about our key assets (carriageways, footways and cycleways, structures, street lighting and drainage). We continue to expand our knowledge, through our asset management approach.



5.2. We will continue to review our inventory and consolidate our Asset Register. We employ various hierarchies and network categorisations in the current management of our network. Sub-sets of road classification are used for reporting carriageway condition.

5.3. To support a clearer strategic approach and to conform to the *"Well-managed Highway Infrastructure: A code of Practice"*, the County Council is reviewing its local road hierarchy to ensure that it reflects stakeholder expectations, levels of use and strategic importance. In the future we will use this revised local road hierarchy to direct resources, to define our inspection frequencies, to support an assessment of risk, to reflect network condition, to prioritise our treatments and to develop a risk-based approach to managing our highway assets.

5.4. To develop treatment strategies and to monitor their effectiveness, the County Council is also developing a classification of its network. This takes account of the key characteristics that affect the deterioration of carriageways; commercial traffic volume, adequacy of foundation, carriageway width and the presence of edge restraint.

5.5. We have developed a 'Resilient Network' to help target works at critical assets, ensuring that traffic movements in and around Leicestershire are kept moving, regardless of severe weather events. During extreme weather, we currently focus resources on the 'Winter Service' network, which breaks the whole network down into four levels of priority. The new Code of Practice '*Well-managed Highway Infrastructure*' extends the function of the Resilient Network to cover all disruptive events, not just severe weather, helping to prioritise highway works.

5.6. We are working with our partner Midlands Connect, a Sub National Transport Body, to identify and define the Midlands 'Major Route Network' to coordinate maintenance and management strategies.

5.7. The revised hierarchies and categorisations, aligning to the latest code of practice, are shown in the table below. This table highlights the complexity of local road network classification, which is driven by different and varying legislation and purposes.

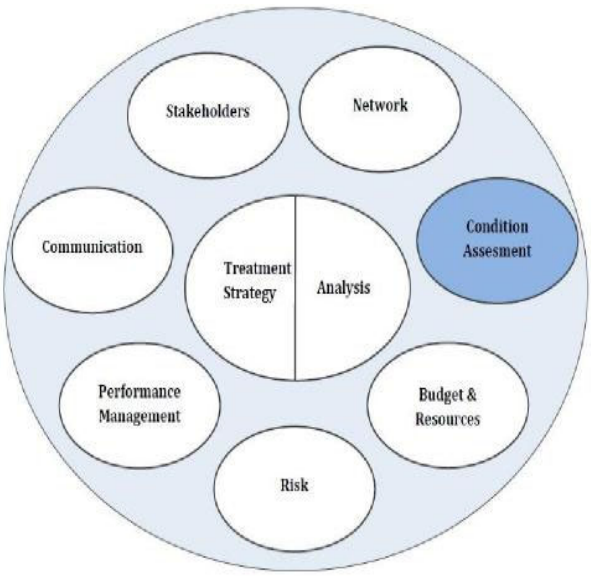
Network Family	Hierarchy / Classification	The Key Factors that contribute to the hierarchy / categorisation	How the Hierarchy or Categorisation will be used
Resilience	**Resilient Network**	High level strategic purpose. Links to major infrastructure and emergency services.	To ensure the network is resilient to severe weather and other major disruptive events.
		Connectivity with other key transport networks. Traffic volume and composition	To support the management of risk. To determine which parts of the network receives investment priorities
	Winter Service Network	Traffic volume. Road classification.	Will be used to determine the extent and priority of precautionary salting and snow ploughing across the highway network.
		Strategic purpose.	
Network Management	**Major Road Network**	Traffic volume.	Inform strategic funding decisions.
		Strategic purpose.	Likely to be key for supporting growth.
	Traffic-Sensitive Streets	New Roads and Street works Act (1991) designates '9' criteria that can be used for defining a street as 'traffic-sensitive'.	Used to help determine road space occupation as part of LCC. Highway works permit scheme
	Local Road Maintenance Network	Traffic Volume.	For prioritising treatments and managing risk.
		Strategic purpose.	To establish inspection frequencies.
		Stakeholder expectation.	To support our Network Management Plan objectives.
		"Well-managed Highway Infrastructure"- A Code of Practice.	

Asset Management	**Existing Road Classification Network**	Unchanged (based on the strategic level of the links destination).	For reporting and comparing condition data through national performance indicators and whole government accounting/asset valuation.
	Carriageway	Adequacy of structural foundation.	To develop, deliver and monitor treatment strategies
	Maintenance	Carriageway width.	appropriate to the characteristics of the network.
	Homogenous Road	Presence of edge restraint.	To support the management of risk.
	Group Categorisation		
	New Road and Street Works Act Reinstatement Categories	Road category based on the expected traffic to be carried over the next 20 years expressed in Millions Standard Axle (MSA).	Will be used to determine the price level for permitting as part of LCC's highway works permit scheme. To provide and inform utility companies what are suitable materials and layer thickness so that they can reinstate the road when they excavate trenches for their apparatus

Figure 5.1. *Highway Asset Management Hierarchies*

6. Condition Assessment

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



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

6.2. We undertake comprehensive annual surveys to collect condition data on our entire carriageway and footway asset (SCANNER, Grip Tester SCRIM and CVI), updating the data through a continuous annual cycle. This data is collected and analysed within the United Kingdom Pavement Management System (UKPMS) framework.

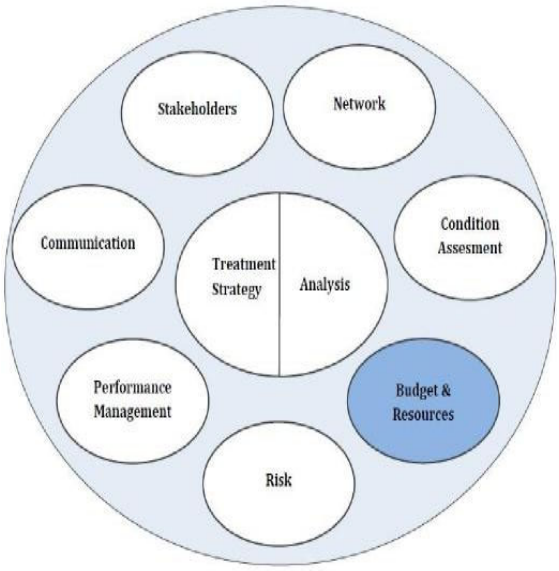
6.3. The council collects data across the full spectrum of its highway assets. This data is collected and recorded in centrally managed databases that provide condition data and other information. Through this asset management risk-based approach, we continue to maximise the investment available to improve the condition and longevity of the asset. We will continue to review the data recorded, as well as the frequency and the manner in which it is recorded.

6.4. The County Council undertakes scheduled safety inspections of all highways and some of our unsurfaced minor roads, to identify and respond to deterioration that is likely to cause a significant risk to users. Once we have implemented the strategy for revising our network hierarchies and in order to develop our risk-based approach in line with the latest guidance, we will revise and update the frequency of these inspections. Frequencies will be established in accordance with the level of risk associated with each level of the local network hierarchy (see section 5) and aligned with the level of available inspection resource. This will help us to identify and respond more effectively to the most critical defects on the network.

6.5 All highway bridges, subways and culverts that are the responsibility of the County Council are inspected every two years. Their condition is scored using the national Bridge Condition Index (BCI) method and recorded on the Highways Management System (HMS). This data, along with an understanding of the route importance, enables the identified maintenance works to be prioritised.

7. Budget and resources

7.1 Figure 7.1 shows a budget reduction from 2009/10 (when the level of funding was at its peak) in real terms of 78% in spending power when inflation is factored in. This level of budget reduction will require a significant change of approach and is unlikely to be accommodated without an impact on service levels.



7.2 The County Council continues to be pro-active in dealing with the budgetary pressures that it faces,

through the Medium-Term Financial Strategy (MTFS) process.

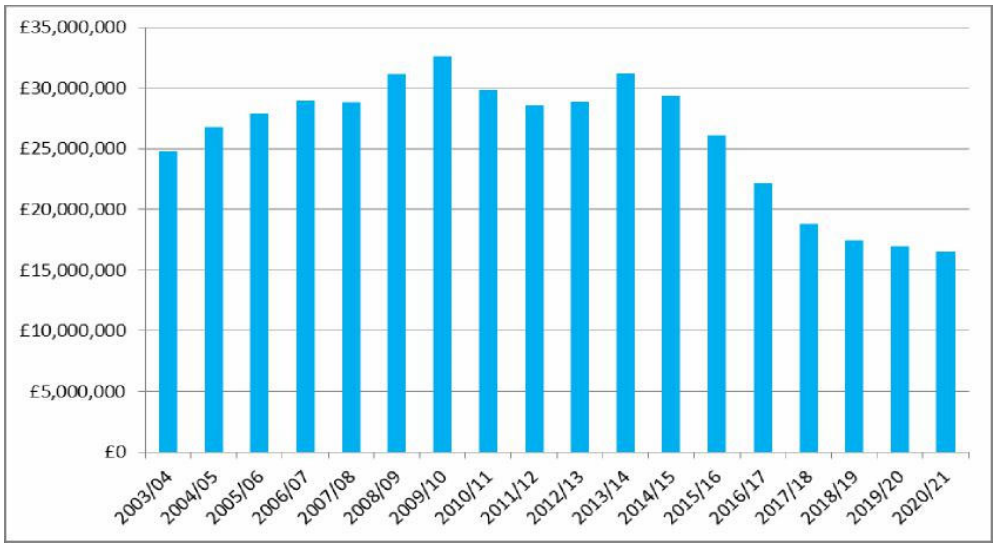


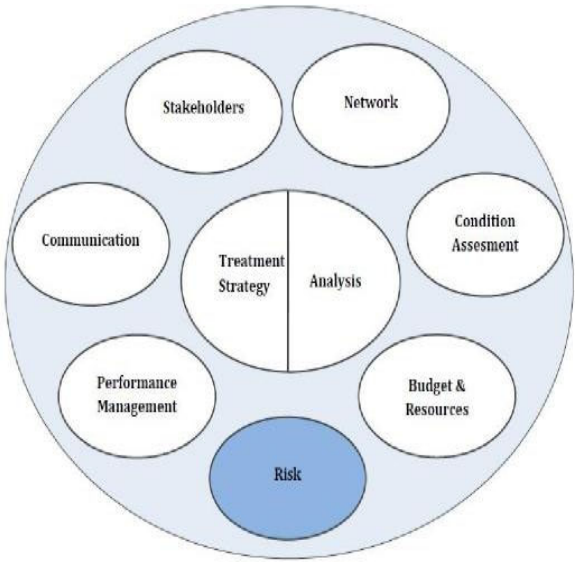
Figure 7.1. *Diagram showing the level of budget reduction in Asset Management since 2009/10*

7.3. The development of a revised approach to asset management, along with a future review of our staffing structure and services, are part of the County Council's response to budgetary pressures.

7.4. If additional funding is made available for asset management, it will be utilised using the principles outlined in this strategy, where appropriate.

8. Risk

8.1. The analysis of risk applies to asset management from a variety of different perspectives. These range from the broad strategic and corporate risks, such as the loss of the asset or a significant change in the corporate budget, to those affecting discrete processes or assets, such as the risk that an individual defect might present to stakeholders.



8.2. Risk is present throughout asset management because of the extensive treatment options possible with decisions, and how it will perform or the consequences of failure. Combined with a variety of

uncertain external factors influencing the performance of the network, including weather and changes in budget provision, risk is ever present.

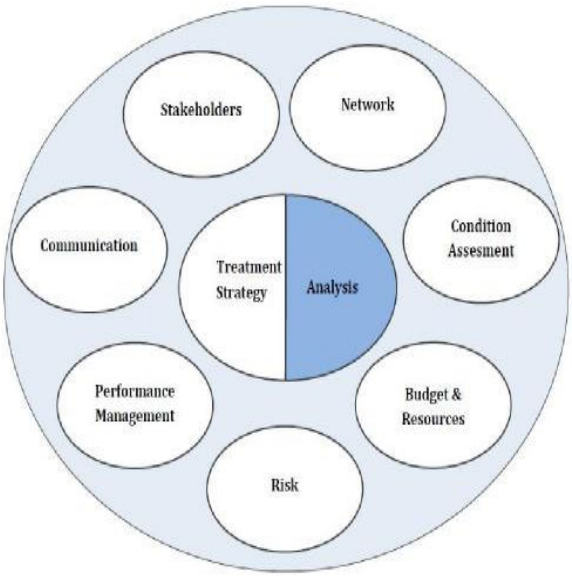
8.3. It is not possible to eliminate all risk from asset management. This means that while some mitigation is possible, the usual approach will be to understand the degree of risk and its possible consequences. This then needs to be balanced against the cost of reducing or eliminating the risk, as well as the benefits of accommodating the risk.

8.4. Risks affecting our strategic objectives are managed across different levels of the organization, involving monthly review and assessment. The risk likelihood and severity are factored to provide a score, which is subsequently converted to a traffic light (Red, Amber, Green or RAG) rating. Significant strategic or corporate risks are reported through the management chain and consideration given to further mitigation.

8.5. More specific risks, associated with the maintenance of highway assets, will be assessed against an understanding of the strategic importance of the asset or assets concerned. Fundamental to this will include consideration of the local road hierarchy and our Resilient Network. For example, an identical pothole on two different carriageways, both carrying the same volume of traffic would have the same impact if a vehicle collides with it. However, it will have a higher priority on one of the carriageways if it is part of a link with more strategic importance.

9. Analysis (Life-Cycle Modelling)

9.1. Life cycle planning comprises the approach to the maintenance of an asset from construction to disposal. It is the prediction of future performance of an asset or a group of assets based upon investment scenarios, usage and maintenance strategies.



The County Council has been developing life-cycle plans for all of its major assets (carriageways, footways, structures, street lighting and traffic signals).

All of these are static assessments of the typical lifecycle that would be applied to these assets in optimum steady-state (unchanging) conditions. They do not include an input of actual budget or consider how different treatments would be triggered by variations in condition. While these life-cycle plans will provide a perspective on network need, they do not reflect current budget levels or the frequency of treatment interventions.

They also do not include a dynamic assessment of the impact of treatments on condition.

9.2. The County Council will try to employ this straightforward but static analysis of life-cycle planning to many of its minor asset groups.

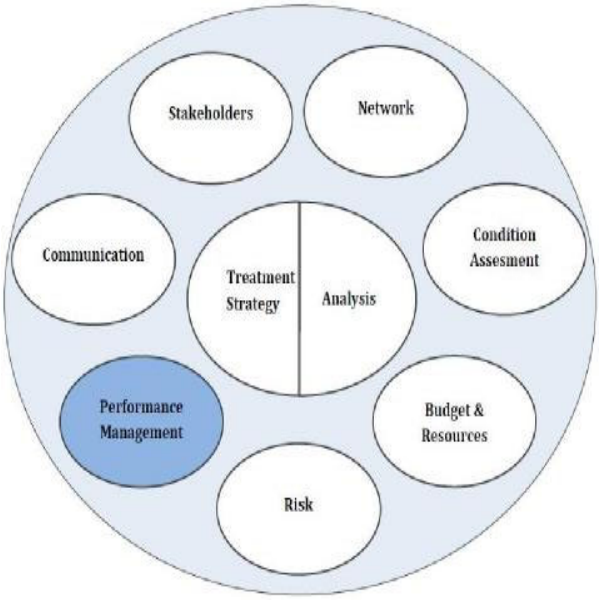
9.3. For all of our key assets, except drainage (where we currently do not have sufficient reliable data about inventory or condition), we will develop, validate and apply dynamic life-cycling modelling techniques.

9.4. These dynamic life-cycle models will allow us to model different scenarios in terms of the three-way relationship between condition, treatment and cost. For example, we might model the consequences on condition if current spend is continued and compare this with the impact on condition if we apply the anticipated reducing budget. This analysis will be used to support our treatment strategies and to make decisions about the distribution of our budgets.

9.5. Life-cycle models will not be used to identify specific schemes or programmes of work. Rather they are tools for testing and managing our treatment strategies and to provide evidence to support and make the case for the allocation of budgets.

10. Performance Management

10.1. Included within the Highway Infrastructure Asset Management Plan is a Performance Management Framework, which defines the indicators that we will use to monitor, inform and develop the performance of our asset management policy and strategy.



Many of these indicators are already measured, but we will group them in the following way to manage performance through consideration of levels and changes in asset condition, customer satisfaction, communication and asset management delivery.

10.2. Examples of the performance indicators that we will use in each of these categories are shown in table 10.1 below. Where appropriate, performance indicators will also be categorised to reflect performance in terms of maintaining safety, serviceability and sustainability.

Category	Performance indicator
Condition	Scanner and CVI Current Condition Indicators Bridge Condition Indicator (BCI) scores
	Number of Defect Reports (Flooding, Potholes, Blocked Gullies etc.)
	Depreciated Replacement Costs Number of Damage / injuries Claims Environmental PIs
Customer satisfaction	National Highways and Transport Network (NHT)
	Customer satisfaction survey PI's
	Customer enquiries (by category)
	Feedback Forms via letter drops
	Public consultation feedback
Communication	Response Times (to enquiries)
	Communication Log (documenting Parish Newsletter articles, press releases)
Delivery	Internal Asset Management Strategy/Delivery Profiles
	Climate Change adaptations/Carbon Reduction Strategy
	Budget/Spend Profiles
	Statutory Inspection Completion
	Decommissioning by type and quantity
	Productivity measures

Figure 10.1. *Example of performance indicators*

10.3 We are committed to sharing knowledge and experience in implementing asset management with other Highway Authorities across the country. We are active members of:

- The *Midlands Highway Alliance+*, which comprise a consortium of local authorities from our region and beyond. These groups also provide opportunities for sharing knowledge and innovation.
- The National Highways and Transport (NHT) survey and the CQC.

Efficiency Network bench marking provides a further opportunity to compare our performance with other authorities, as does the annual Asphalt Industry ALARM survey, the direct management group and the DfT's summary site showing the annual UKPMS condition returns.

- Local Council Roads Innovation Group (LCRIG)
- CIPFA HAMP Network

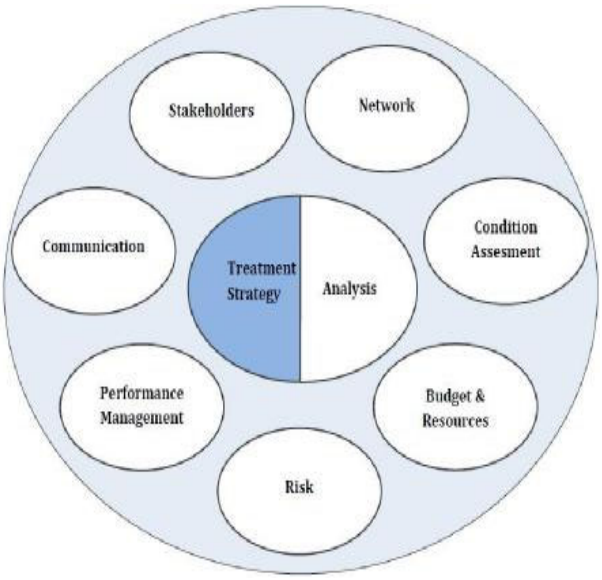
10.4 The most recent condition indicators for our Key Assets are shown in Figure 10.2 below.

PI	Description	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Carriageways (All)	% of the classified road network (A, B & C class road) where structural maintenance should be considered (SCANNER)	2%	2%	2%	2%	2%	3%
Carriageways (A Class Roads)	% of the principle road network (A class roads) where structural maintenance should be considered (SCANNER)	1%	1%	1%	1%	1%	2%
Carriageways (B Class Roads)	% of non-principle road network (B class roads) where structural maintenance should be considered (SCANNER)	2%	2%	1%	1%	1%	2%
Carriageways (C Class Roads)	% of non-principle road network (C class roads) where structural maintenance should be considered (SCANNER)	3%	2%	2%	2%	2%	2%
Carriageways (Unclassified Roads)	% of the unclassified road network where structural maintenance should be considered (visual inspection)	8%	7%	9%	12%	15%	16%
Footways	% of the footway network where structural maintenance should be considered (FNS enhanced Survey)	8.6%	3.8%	8.7%	30.4%	9.1%	29.4%
Street Lighting Columns	% of street lighting columns aged 40 years or more replaced		14%	12%	12%	10%	10%
Traffic Signals	% of traffic signal installations requiring complete renewal (age and fault history)	<4%	<4%	<4%	3.46%	4.32%	5.81%
Bridge Spans	% of bridge spans with a BCIcrit value below 75				9.1%	9.5%	11%

Figure 10.2: Key Asset Condition PI's Targets

11. Treatment Strategies

11.1. The significant reduction in the maintenance budget since 2009/10 requires the adoption of different treatment strategies from those previously applied to the network (see section 7). Examples could include no footway resurfacing, less carriageway schemes, no footway slurry sealing and an increase in reactive work. It is anticipated that some service levels will need to reduce.



It is important to recognise that the current condition of the network reflects the good level of preventative treatment and renewals undertaken over the last ten to twenty years and the good overall condition that Leicestershire's road network was in at the beginning of the period of austerity. The consequences of the current levels of investment are unlikely to therefore manifest themselves fully for several years.

We will continue to explore new technologies and materials, particularly the use of recycled materials.

We will also explore the inclusion of an infrastructure that supports more environmentally sustainable transport while delivering maintenance schemes (e.g. electrical charging points) and develop innovative techniques and greater use of technology to improve efficiency.

11.2. The County Council will seek to maximise the serviceable life of assets in order to reduce the frequency of asset renewals. We will do this by focusing on preventative treatments such as surface dressing for carriageways, re-waterproofing bridge decks and re-pointing brickwork on structures.

11.3. To achieve the optimum whole-life cost from our assets, the County Council will intervene with these treatments as late as possible, taking account of the risk and stakeholder tolerance of the decline in service level prior to treatment.

11.4. For our highway assets, the County Council will define its strategies for each road group by categorising the proposed treatments into five strategic types. This will allow us to communicate our strategies in a clear way, to validate delivery of the strategy and to analyse its effectiveness in

addressing the immediate safety and serviceability of the network, balanced with long-term sustainability.

- Treatment Type 1. **Reactive-Restorative** – Unavoidable, unplanned, immediate treatments necessary to restore a safe and serviceable condition. The repair is likely to be of limited life and have a poor whole life cost benefit e.g. pothole repairs. The County Council will aim to minimise this type of repair but, particularly on its unclassified network.
- Treatment Type 2. **Planned-Restorative** – Scheduled repairs, required to restore local deterioration of the asset to maintain a serviceable condition. Intended to extend the serviceable life and improve whole life cost e.g. planned patching which will be a cornerstone of our carriageway maintenance strategies in the foreseeable future.
- Treatment Type 3. **Preventative** - Intended to extend serviceable life and desirable to stop or delay further deterioration of the whole asset e.g. surface dressing. This has long been, and will continue to be, the primary treatment that will ensure we maintain network condition cost-effectively and with an appropriate balance between considerations of immediate safety, mid-term serviceability and long-term sustainability.
- Treatment Type 4. **Improvement –** Intended to bring the asset to an improved level that is fit-for-purpose e.g. strip-widening to manage overriding damage or deep reconstruction to ensure the foundation is fit for increasing traffic levels. This type of treatment usually has a high up-front cost but failing to upgrade carriageways that are no longer fit for purpose is likely to incur an even higher whole-life cost due to frequent requirements for Type 1 and Type 2 repairs.
- Treatment Type 5. **Renewal –** Full replacement of an asset deemed beyond a serviceable/maintainable condition and therefore at the end of its lifecycle e.g. full width resurfacing. The county Council will aim to avoid premature renewal of an asset by continuing to maintain it in a serviceable condition where it can be shown that Treatment Types 1, 2 and 3 remain cost-effective.

11.5. The list below provides a strategic overview of the broad approach that the County Council will apply to each of our asset groups.

Asset/Service Group with Outline Strategy and Service Levels

11.5.1. - Carriageways

- The County Council has maintained its carriageways to a high standard. Whilst the unclassified rural network is showing some signs of increased deterioration, the County Council still has a network that is in comparatively good condition. With reduced investment this standard will get worse.

- The pressures on the minor rural network and the limited budget for surface renewals will make it difficult to maintain existing condition on the rest of the network.
- The County Council will rely on carriageway patching and surface dressing to maintain serviceability and sustainability, applying treatments as late as possible, without seriously compromising the surface condition.
- The County Council will aim to reduce pothole numbers by looking to move away from reactive repairs and the costly operation of our mobile road-menders to more proactive repairs.
- Developing the risk-based approach may help us to focus only on those defects that represent a significant hazard, which may offset some of this concern. We have not yet quantified this benefit.
- A large part of our unclassified road network has no formal construction. These roads have simple “evolved” over the years from their previous stone-picked base through to their initial surfacing, probably bound with coal tar.
- Many of these roads are no longer fit for purpose, lacking the strength, width and edge restraint required to capably carry the traffic loads which they are subject to.
- Over time the County Council has addressed these problems by strengthening, widening and sometimes by providing passing bays and installing kerbs on the insides of bends.
- However, without an increase in the level of funding, there is little prospect that this type of work will be undertaken in the foreseeable future. These unclassified roads will therefore be particularly vulnerable to rapid failure.
- The County Council will consider carrying out additional inspections on these routes, where resources allow.
- If these roads suffer any catastrophic failure the County Council may have to consider temporary long-term closures or speed limits.

11.5.2. - Footways

- The County Council will review and develop a footway hierarchy (and cycle hierarchy), in line with the new code of practice and develop a risk-based approach to prioritising repairs and renewals, recognising that footways and cycleways are key assets in the sustainable transport agenda and enabling people to choose modes of transport that have positive health and minimal carbon impacts.
- Developing our current life-cycle plan, to more effectively model the performance of the county’s footways, is a key objective to inform future strategies and resource requirements.

- Our footway network is in reasonable overall condition but does show signs of age. It will continue to require an extensive programme of renewal to maintain a steady-state in the overall condition.

The County Council will:

- Continue to undertake appropriate preventative treatment, where possible.
- Review the use of a small number of remote rural footways which are in poor condition. However, due to extremely low levels of use, these are unlikely to be priorities for renewal.
- Designate an additional category within the hierarchy that reflects the low level of use and assigns maintenance standards comparable with our public rights of way network.

11.5.3. - Cycleways

- Cycleways are currently managed as an integral part of either our footway or carriageway assets;
- The County Council will develop a separate inventory of cycle routes. This will enable the Council to:
    - Understand the specific performance of the routes designated for cyclists,
    - Apply cyclist-specific risk assessments,
    - Develop service levels appropriate to cycling,
    - Monitor their condition and usage in relation to their location,
    - Develop lifecycle plans and plan for the future based on current usage,
    - Develop future programme of works for their maintenance,
    - Calculate the value of this asset.
- Subject to funding levels, the benefits of a more focused and risk-based approach will help to sustain the overall service level.

11.5.4. - Drainage

- Highway surface water 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.
- The County Council does not have a comprehensive inventory of all of its highway surface water drainage assets. A programme is in place to capture information about all of its culverts and the Council intends to extend this to include catchpit details.

- Apart from our carriageway gullies, where we have a comprehensive inventory and have been capturing data about detritus levels, the County Council has limited data about the condition of the drainage asset.
- In addition, most of our interventions other than routine gully cleansing, are reactive i.e. in response to reports of flooding or blockages.
- To support the risk-based approach promoted by "*Well-managed Highway Infrastructure*: *A Code of Practice* the County Council is in the process of applying such an approach to gully cleansing, where the knowledge we have acquired about detritus build up will contribute to the assessment of risk.
- A targeted approach to gully cleansing, rather than the current prescriptive fixed frequency, regardless of risk, will help to improve service levels. This is unlikely to provide cost savings in the short term, due to the current backlog of this work.

11.5.5. - Street Lighting and Electrical Assets

- The County Council faces a growing issue relating to the backlog of life-expired lighting columns in need of renewal. At the beginning of April 2020, approximately 16,000 lighting columns (23%) were 30 years old or more (the design life is 25 years).
- The County Council's strategy for managing the risk to highway users is to undertake a programme of structural testing of the lighting columns, to undertake reactive maintenance as required and to seek appropriate renewal funding to enable the high-risk columns to be replaced (ideally as part of a planned scheme).
- The other area of concern is the County Council's ageing network of buried electrical cables, most of which are laid directly in the ground. The cable networks supply the broader asset group (e.g. street lighting, illuminated signs and Variable Message Signs). There is an ever-increasing incidence of local cable faults which are becoming uneconomical to repair.
- The County Council's strategy for managing the electrical safety of this asset group is an annual programme of electrical testing that covers all assets over a 6-year period, to undertake reactive maintenance as required and to seek appropriate renewal funding to enable the high-profile networks (e.g. Fosse Park/Everard's roundabout) to be replaced.
- The other lighting components in this asset group comprise luminaires, LED lamps, control cells and other associated equipment which were installed as part of the *T5 Street Lighting Transformation Project (2014-19)* and are maintained on a reactive basis.

11.5.6. - Traffic Signals

(e.g. signal junctions, pedestrian crossings, school flashing lights)

- Traffic signals are a key asset in terms of network management. The County Council will continue to maintain service levels (subject to budget levels and demand), to ensure efficiency and reliability of the network.
- This will include completing a 3-year programme to upgrade the communications telemetry through which we control and receive system management data.

11.5.7. - Structures

(e.g. bridges, subways, culverts, retaining walls)

- Highway-related structures concentrate the greatest amount of asset value into very discrete parts of the network, with any failure likely to be disruptive and costly to address. These assets are vital to maintaining accessibility, helping connect communities and support the economy.
- For this reason, structures are designed as long-term assets and they require ongoing preventative maintenance to maximise their lifespan.
- The County Council's strategy is to undertake reactive and planned maintenance as required, based on the outcomes of the annual bridge inspection programme.
- The County Council will target bridge repairs using a risk-based approach that will consider safety, immediate serviceability, long-term viability of the structure, network resilience and commercial traffic volumes (initially based on network hierarchy).
- Treatments to prolong the life of a structure will include brickwork repointing, concrete repairs, painting of steel beams and deck re-waterproofing.
- Treatments that prolong the life of non-structural components include parapet repainting and general repointing.
- The renewal of life-expired major bridges is expensive, requiring specific funding beyond that ordinarily provided for routine maintenance and renewal of smaller structures.
- The County Council will continue to target that no more than 10% of our bridge stock has a Bridge Condition Index (BCI) score less than 75 (out of 100) – a score at this level represents a structure in 'Fair' condition. A lower score represents a structure in 'Poor' or 'Very Poor' condition.

11.5.8. - Safety Fencing / Vehicle Restraint System

- The County Council completed a 5-year comprehensive inspection programme in financial year 2018/19 for all of its vehicle restraint systems and is developing a future programme of renewal and inspection.
- The County Council also completed a 6-year schedule of re-tensioning in financial year 2019/20. Future year re-tensioning programmes are to be developed with restorative repairs being undertaken where accidents compromise the function of the restraint.

11.5.9. - Road Markings

- The County Council will continue to improve the inventory of its carriageway markings and condition.
- Safety inspections are now recording observations about condition. The County Council expects that these measures, coupled with the development of a risk-based approach, will enable it to improve the condition of those markings that support network safety.
- Safety critical and regulatory markings will be given priority.

11.5.10. - Traffic Signs (illuminated)

- The County Council will establish clear criteria for responding to sign damage using a risk-based approach and clarify the timescale for repairing or decommissioning low-risk signs.
- Priority will be given to safety critical and regulatory signing.
- With the exception of those damaged signs that the County Council determine require a quick response, all other sign damage will be dealt with on a risk-based approach.
- We will establish criteria for undertaking decluttering of redundant signs in parallel with scheduled sign maintenance.

11.5.11. - Traffic Signs (non-illuminated)

- The approach will be as for illuminated signs, plus we will update our inventory data for this asset group to help us manage their condition, type, maintenance, replacement programmes, decluttering and maintenance.

11.5.12. - Street Furniture

(e.g. guardrails, bollards)

- Over the years there has been an increasing proliferation of this type of feature throughout the network, often installed without a clear strategy.
- We have basic inventory data about these assets and we do not currently capture maintenance costs.
- We will consider collecting this data and adding it to our HMS system on an estimated basis, rather than developing an item by item record.
- These items will be reviewed using a case by case risk-based approach, leading to a register of locations where renewal is not required and making provision for subsequent decommissioning of the asset.
- The County Council will establish criteria for undertaking decluttering of redundant street furniture in parallel with scheduled street furniture maintenance.

11.5.13. - Trees

(maintained by LCC and within the adopted highway)

- Trees contribute significantly to the quality of the highway corridor. In particular they provide environmental, aesthetic, functional and economic benefits to the highway network and its users.
- Trees in the highway corridor have made a significant contribution to the Leicestershire landscape since the post war period.
- As such the County Council's highway trees should be considered as a valuable asset.
- Trees are large, dynamic living organisms which can be affected by a number of environmental factors and human activities.
- They can potentially become hazardous if they are not inspected and managed appropriately.
- Trees within the highway are managed in accordance with the County Council's Tree Management Strategy, which balances the value of the tree asset against the potential risk they present to road users. The Tree Management Strategy states that we will conserve and enhance our trees. This is supported by regular highway inspections and works to make safe or remove trees that pose significant health and safety risks.
- The County Council has appointed a dedicated, multi-disciplinary board and developed an action plan to address the emerging risks of Ash Dieback disease.

11.5.14. - Environment- Nature and Biodiversity

(e.g. grass verges, hedges, grip-cutting, flower and shrub beds)

- We have a duty to conserve biodiversity under section 40 of the Natural Environment and Rural Communities Act 2006. We do this by:
    - Undertaking environmental appraisals to identify any protected habitats and species, to ensure that our highway design takes account and avoids/minimise loss and/or achieves a net gain for biodiversity.
    - Aiming to integrate good practice to support species and habitat into the specifications relating to grass and hedge cutting maintenance.
    - Undertaking the treatment of weeds where they can cause damage to the highway and record and treat isolated, invasive and noxious weeds.
    - Our work around monitoring the spread of Ash Dieback within the county is providing valuable intelligence to help further understanding of the disease and its' impact on ecology and landscape.
    - When undertaking operational work on highway habitats we ensure that we are compliant with the Wildlife and Countryside Act 1981.
- Whilst maintenance of these assets contributes very little to the serviceability or sustainability of the network, the quality of life and biodiversity aspects are very important, as well as recognised health and well-being benefits and therefore need to be considered.
- Stakeholders acknowledge that these are not key assets, but nonetheless expect that they are maintained.
- We will work in partnership with others to help us promote species rich highway landscapes, as well as providing advice and support.

11.5.15. - Winter Treatment

- The County Council currently treats approximately 49% of the carriageway network with salt (including cycleways which form part of the carriageway) on a precautionary basis in advance of any forecast ice or snow.
- Footways are only treated when there is prolonged snow or ice.
- This service is highly valued by stakeholders.
- The County Council will annually review the winter service plans and network to ensure it is appropriate and meets statutory requirements

11.6. The County Council will develop and update a five-year schedule of works to allow its strategy to be monitored and understood and to reflect the outcomes of lifecycle modelling.

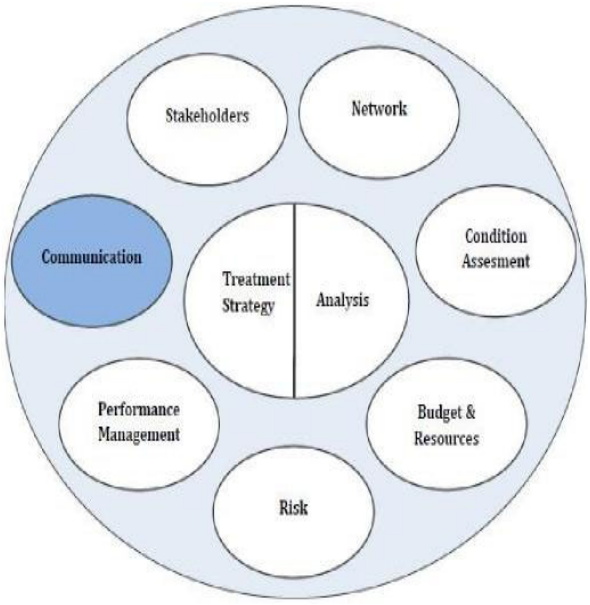
11.7. The County Council currently holds a database of potential major maintenance schemes. It identifies priorities from this list 18 months ahead of delivery.

11.8 We are in the process of adapting this to provide a risk-based and fully costed list of scheduled works for all key assets. Life-cycle modelling will confirm the broad strategy within which scheme schedules are developed.

12. Communication

12.1. The County Council recognises the importance of two-way communication with staff, elected member, senior officers and stakeholders to ensure that our asset management strategy is properly informed and that stakeholders understand our intentions and priorities.

12.2. The County Council will include an Asset Management Communication Plan in the HIAMP, which will describe how and what we will communicate with staff, stakeholders, members, other agencies, the media etc.



12.3. We will improve the information we provide to our customers in a more user-friendly format and we will seek feedback through satisfaction surveys on the improvements we implement, along with regular dashboard reporting on the overall performance of the service.

12.4 We will ensure that any information on programmed works being carried out is communicated in a timelier manner.

13 Alignment with the Network Management Plan

13.1. The Highway Asset Management Strategy (HAMS) and the supporting Highway Infrastructure Asset Management Plan (HIAMP) detail the

approach that the authority will take to managing and maintaining the fabric of the network.

13.2. These documents have been developed and operated in conjunction with the Network Management Plan (NMP), which details the County Council's approach to managing the operation of the network to ensure the expeditious movement of traffic. This delivers a co-ordinated approach to the overall management of the network.

13.3 Highway maintenance can improve network efficiency, through careful programming and coordination of maintenance works, especially on key routes, so as to minimise congestion and disruption. It can also reduce the likelihood of incidents on important routes and help encourage modal shift, by improving conditions for pedestrians and cyclists.

13.4 Activities within the highway resulting from highway maintenance can, however, affect how available and efficient the network functions.

13.5 When planning and undertaking maintenance works, the structural condition of the highway asset is first and foremost a major consideration, but prioritisation should also be informed by other factors, for instance our duty to keep traffic moving on the network.

13.6 In order to ensure that our network management duty is a key consideration when planning and delivering our highway maintenance functions, we will seek to:

- Make strategic decisions based on our understanding of both network condition and its function. Using common network hierarchies to ensure that the Highway Infrastructure Asset Management Plan (HIAMP) and the Network Management Plan apply a consistent approach to prioritisation and the consideration of risk and resilience.
- Make strategic decisions on treatment type. We will move decision making away from the imminent and the urgent to a planned regime, where the needs of the asset and network are better understood. This will enable appropriate '*preventative*' maintenance treatments to be planned within a wider whole-life approach. We will minimise the number of unplanned repetitive '*reactive restorative'* treatments by:
    - targeting '*preventative'* work in the right place and at the right time to extend the serviceable life of the network,
    - doing as much as possible in a planned and coordinated way to reduce the cost and create efficiencies (accepting that safety critical maintenance will take precedent).
- Considering network management factors into our decision making on treatment types. This may on occasions result in delaying maintenance works in order to coordinate with other planned works, or opting (subject to funding) to a different more costly treatment

type, for example a *renewal* treatment rather than *planned restorative*.

- Reduce our network occupation. Focusing on planning, coordination and scheduling of maintenance work. Considering the timing and duration of works to limit the impact or avoid peak time and aiming to carry out our works outside traffic sensitive periods, where possible.

13.7 Demonstrate parity. Adhering to the processes and procedures set out in the Highway Permit Scheme and the principles outlined in the Road and Street Works Framework Guide, with regards to our expectations of works promoters, planning and delivering work on the network.

14 Climate Change

14.1 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.

14.2 Consideration will be given to whole life carbon costs; appraisal of materials, products and treatments for maintenance for environmental impact, nature conservation and biodiversity; and risk assessment and mitigations for the effects of extreme weather on highway infrastructure assets (Climate Change Adaptation).

14.3 We will 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

14.4 Highway maintenance sustainability links to the wider environment and sustainability principles and outcomes of Leicestershire County Council, our stakeholders and partner contractors. Our key focus for responding to climate change includes the following:

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

15 Strategy Review

15.1. This Strategy is aligned to our Highway Asset Management Policy. Any changes in either document will be reflected across both.

15.2 This strategy will be continuously reviewed and will be updated when appropriate. It will be fully reviewed at least every three years, or earlier if there are significant changes in national policy or guidance that affects asset management.