

Highway Asset Management Strategy

Revision 2020

Directorate: Place



1.0 Executive summary

Our Highways Asset Management Strategy describes the process of asset management and sets out a strategy for managing and maintaining the council's highway infrastructure to deliver operational efficiencies and value for money.

This Document sets out the fundamental principles for investment in the next year on our major asset types subject to confirmation of government funding settlement.

Carriageways: To maintain the existing standard of our A and B roads whilst investing in our Unclassified and C class roads to allow decline to occur as slowly as possible.

Street lighting and Traffic management: To ensure the safety of the public, reduce the risk to maintenance operatives, reduce energy consumption, reduce the cost of maintenance and halt deterioration of the asset.

Highway Structures: To increase knowledge of our structures asset to inform life cycle planning, investment strategy and risk-based inspection regimes.

This Document also explains the process of establishing maintenance schemes on an early intervention basis with only some of our worst areas being included rather than a purely worst-first approach. This document finally explains how the council will approach the fundamentals of asset management to achieve better management to improve value for money.

2.0 Foreword

The transport assets are almost certainly the most valuable managed by any local authority, and the assets used most extensively by the whole community. In North Somerset the gross replacement cost (GRC) of the assets, namely, Carriageway, Footway, Cycleway, Street Lighting, Traffic Signals, Electric Vehicle (EV) chargers, Structures and Street furniture is estimated to be in excess of £2.4 billion.

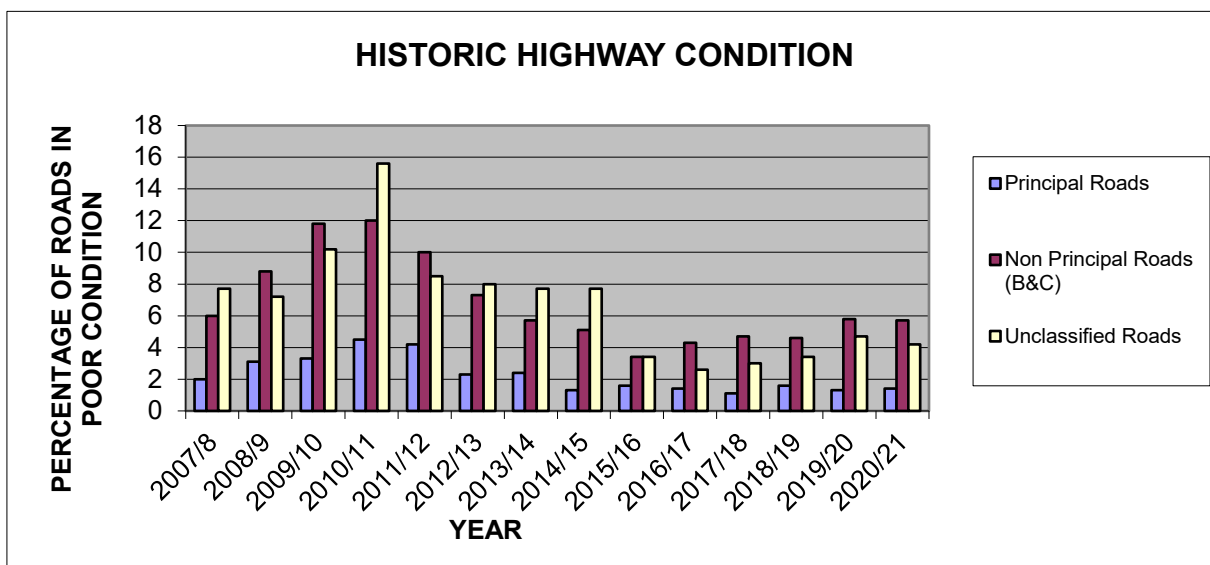
A good transport network is essential for a successful economy and society in North Somerset. It provides access to jobs, services and schools, gets goods to the shops and allows us to make the most of our free time. Local roads are the primary element of the transport network and play a key role in delivering the services people want and need.

In order to fulfil its potential, it is crucial that the local highway network is adequately maintained. This strategy has been written to include not just carriageways, footways and cycleways but all transport assets.

Continuing growth in traffic and its attendant problems has brought an increasingly widespread recognition of the importance of highway maintenance, and the high value placed on it both by users and the wider community. Conversely, public concern is increasing about the failure to invest adequately and effectively in highway maintenance and the implications for safety and journey reliability which can be seen from recent National Highways & Transport (NHT) public satisfaction surveys.

Carriageways: North Somerset Council produces, on a yearly basis, Road Condition Indicators (RCI) for the Principal (primarily A roads), Non-Principal (B&C roads), and Unclassified road network. This is an audited figure that is provided to the Department for Transport, who collect the RCI from all Highway Authorities. Currently (2020/21) our RCI is 1.4%, 5.7% and 4.2% for each road category respectively. In practice what this relates to is the percentage in each category where the road is in poor condition and is likely to require maintenance soon.

North Somerset’s historic road condition can be seen in the Graph below. Whilst overall the condition has been improving since 2011, the investment has had an emphasis on maintaining the quality of our major routes. North Somerset’s strategy is now to maintain the standards of these improved A & B roads at steady state and invest the remaining financial allocations into the C class and unclassified roads. Funding Pressures however will make improvements to the overall condition of the network increasingly challenging.



In line with national standards, North Somerset Council's annual road survey criteria is:

Road Class	Annual Survey Requirement
A	100% both directions
B&C	100% in one direction (opposite direction the following year to provide both directions over two years)
U	50% in one direction (50% in one direction in second year thus providing a total of 100% in one direction and 100% in both directions over 4 years)

Structures: Includes a range of assets at different scales such as bridges, tunnels, subways, retaining walls, culverts and special structures. Our aspiration is that all Highway structures are to be routinely inspected. The frequency is to be on a risk basis dependent on the structure type. The data from these inspections will be entered into a computerised Asset Management system which will inform maintenance priorities and populate the Structures toolkit for life cycle modelling; this will ultimately inform the generation of forward capital programming. Current financial modelling in highway structures is underway and we are in the process of recruiting staff which will help us to perform this. It is our aim to gradually improve the data so as to make smarter Asset Management investment decisions.

Street lighting: With rising electricity costs, a move to more efficient LED lanterns and equipment is now underway. The project which commenced December 2019 with an expected completion date of November 2021 seeks to implement a cost-effective modern system of street lighting which includes for the replacement and upgrade of the council's out dated and inefficient non-LED street lighting luminaires, with lamp production being phased out by manufacturers late 2019 and superseded with energy efficient LED luminaires.

The ongoing project also includes for the replacement of the authority's remaining corroded and at-risk concrete lighting columns and steel pole brackets with new galvanised steel units throughout the district which will require replacement to support the new LED luminaires.

Light sources (as of 11/02/2021)

Light Source	Detail	Quantity
Mercury MBFU	Mercury vapor	0
Fluorescent PL	Linear fluorescent	300
SON	High pressure sodium	1600
SOX	Low pressure sodium	1052
COSMO	Cosmopolis	1648
CDM	Ceramic discharge	445
Streetwise	CMH Ceramic discharge metal-halide	163
Metal Halide	Ceramic discharge metal-halide	21
LED	Light emitting diode	16208
Total		21437

Across the Authority there are a number of columns which have exceeded their design life. Capital investment in street lighting will target the replacement of life-expired steel and concrete columns, prioritised on a risk basis. The quantities of life expired columns in north Somerset is in the table below.

Column asset:

Column Material	Age in years	4m or less	5m	6m	8m	10m	12m	Total columns
Concrete	0-20	0	1	0	0	0	0	1
	21-30	0	112	0	0	0	0	112
	31-40	0	539	14	0	0	0	553
	Over 40	0	893	1	3	9	0	1706
	Total	0	2345	15	3	9	0	2372
Mild steel	0-20	0	1976	1239	81	172	1	2669
	21-30	2	1553	366	322	677	41	2961
	31-40	0	627	272	93	234	0	1226

	Over 40	0	69	103	13	120	11	316
	Total	2	4225	1180	509	1203	53	7172
Stainless steel	0-20	0	413	537	227	570	0	1747
	21-30	0	0	1	0	1	0	2
	31-40	0	2	2	0	2	0	6
	Over 40	0	0	0	0	1	0	1
	Total	0	415	540	227	574	0	1756
Aluminium	0-20	0	105	4637	648	1561	61	7012
	21-30	7	12	2	1	9	0	31
	31-40	0	189	13	21	11	0	234
	Over 40	0	704	2	2	15	0	723
	Total	7	1010	4654	672	1596	61	8000
brackets mounted on transmission poles	0-20	0	112	217	26	2	0	357
	21-30	0	193	245	4	0	0	442
	31-40	0	308	215	4	0	0	527
	Over 40	0	88	57	1	12	0	158
	Total	0	701	734	35	14	0	1484
Other (wall brackets)	0-20	0	20	0	18	0	0	38
	21-30	0	13	1	7	0	0	21
	31-40	0	15	0	0	1	0	16
	Over 40	0	5	0	8	0	0	13
	Total	0	53	1	33	1	0	88

TOTAL

20872

North Somerset Council has adopted the recommendations outlined in the Institution of Lighting Professionals “Technical Report no. 22 (TR22) - Managing a Vital Asset: Lighting Supports” which aims to provide highway lighting authorities with guidance in the management of their lighting supports through the creation of strong

management cycles, foundation of positive and consistent condition assessments and the application of a risk assessment strategy”.

Whilst the council has had a continued capital investment strategy for replacement street lighting columns, in recent years it has been well below steady state levels. This has led to a backlog where 37% of the existing street lighting stock will have significantly passed its design life and will require replacement in the forthcoming years.

Highway lighting is routinely inspected to identify mechanical and electrical defects. These defects are entered into a computerised asset data base so works can be prioritised both, in year, and for future years. In addition structural inspection of steel columns is carried out periodically to determine risk of failure from below ground corrosion.

Funding and prioritisation:

North Somerset Council is aware from recent and ongoing public feedback that the condition of the carriageway is a particular cause of concern and is high on the list of council priorities. Our aim is to arrest the deterioration and maintain the condition at least where it currently is for A and B roads and slow down the decline of C and U roads.

In the current climate of financial austerity it is difficult just to standstill and financial modeling of road condition, deterioration rates, and maintenance techniques, reveal that we have a backlog of £39.9m and we need to spend, over the next five years, an average of £9.8m each year to maintain steady state¹ (this figure applies to the carriageway and footway asset only). Historically, central government funding has not been enough to maintain steady state and North Somerset Council previously made a multi-year commitment to help bridge the gap. With current funding commitments and with current forecasts this is becoming increasingly challenging but the NSC capital contribution has been extended into 2020/21 and 2021/22 at a slightly reduced level.

The financial modeling includes an assumption about the budget being spent on schemes that appropriately deal with the condition. This relies upon a process of scheme identification and prioritisation based on condition data. North Somerset have

¹ This is based on work done by WDM (a survey company that have also perform Lifecycle Modelling). Please see 'Highway Maintenance Investment Strategy 2021' (a document produced by NSC) and supporting information

applied a process of prioritising schemes based on condition for a number of years which should help ensure that model assumptions are being delivered.

What this means in practice is that the roads in the very worst condition are not necessarily the ones that receive a maintenance intervention first. These roads will be maintained in terms of basic safety requirements, but first considerations are likely to be given to roads where the survey results reveal signs of deterioration that if not arrested will lead to a more costly maintenance requirement in the future. This approach provides the best value for money.

If just the very worst roads are maintained, that are inevitably more expensive, the budget will not stretch far enough, and the condition of our roads will over the next ten years become much worse.

This process is described as asset management, considering the life of the highway throughout its whole life rather than waiting to intervene at the end of life stage. All highway authorities now work to these principles, to a greater or lesser extent and a large portion of Department for Transport funding is based on demonstrating the development and implementation of asset management techniques in highway maintenance.

3.0 Statement of Purpose

The purpose of this document is to describe the overall Asset Management Strategy for North Somerset Council's highway maintenance and is aligned to the requirements contained within the 'Highway Infrastructure Asset Management' (HIAMP) guidance document produced by the UK Roads Liaison Group. It explains how key performance indicators and levels of service are used to measure the success of the strategy and the processes required in delivering a comprehensive Asset Management system. The Asset Strategy is reviewed annually to ensure that it remains relevant and consistent with the Asset Management Policy.

This strategy forms the primary link from the Asset Policy, to facilitate delivery of the objectives of the Highway & Transport Asset Management aspirations and directs Highways Maintenance in executing the operational requirements.

The document is owned by the Executive member with portfolio responsibility, and forms part of the Joint Local Transport Plan (JLTP) and HIAMP suite of documents.

The Executive Member shall review and approve the asset strategy, ideally on an annual basis to ensure it remains relevant and consistent with the organisational policy, and to test its appropriateness in the current climate of obligations.

The impact of changes to asset management or other functional policies and their interaction is reviewed and managed by officers.

4.0 Asset Management Objectives

Specific Asset Management objectives are detailed in the Highway Asset Management Policy and are published in the annual Asset Plan (please see section 5). The Head of Transport & Infrastructure is responsible for developing asset plans to achieve the objectives and has delegated authority to implement and modify objectives to ensure they remain relevant to business needs.

The Highway & Transport Asset Management Policy directs asset management to achieve the organisational Business Plan and to balance and satisfy the needs of stakeholders in respect of:-

- Public and employee safety
- Sustainable, long term serviceability of the assets
- Optimum whole life cycle cost of providing the service
- A satisfactory efficiency gain
- Environmental impact and minimal public nuisance
- Regulatory performance

5.0 Asset Plans

Asset plans are constructed to reflect the principle asset groupings in the final West of England Joint Transport Asset Management Plan (JTAMP), which are:

- Carriageways
- Footways & Cycleways
- Public Lighting & Electric Vehicle (EV) chargers
- Bridges & Structures
- Road Markings & Traffic Signs
- Drainage
- Traffic Management Systems
- Public Transport Infrastructure
- Street Furniture

Plans are divided into two distinct streams and the principles outlined in the following pages equally apply to all highway categories as they describe the management and operational processes which underpin the tactical alliances for each maintenance section of the Highways & Transport group.

Against this, however, stakeholder requirements for each grouping need to be fully understood and the requirements linked into the asset planning process. The planning aims, at a tactical level, are to take account of capital and revenue spending set against the asset life, serviceability and condition, which in turn match performance, risk and cost.

5.1 Programme of Works

This describes the elements or packages that tactically relate most directly to the operation and maintenance of the physical assets.

Similarly, for convenience and packaging of the whole, this can be broken down into distinct work parcels, which also show the work categories that are to be considered and can be categorised as:

- Data capture of work
 - Information assets

- Condition monitoring & long-term maintenance planning
 - Information assets
 - Financial assets

- Priority project selection
 - Information assets
 - Financial assets
 - Intangible assets

- Budget – asset deterioration
 - Information assets
 - Financial assets
 - Intangible assets

In completing this analysis, it can be seen that information is important in all four areas and is key to understanding the assets and the long term stewardship requirements and so will be considered first.

5.1.1 Information Assets

From a service perspective information is organised, integrated and analysed, and is vital to set priorities and make decisions about assets.

An asset management database holds the highway inventory and integrates with other databases that provide safety inspections, customer enquiries, work ordering as well as linking to a Geographic information system (GIS).

Inventory is held in a hierarchical structure, based on which 'paternal' group it belongs to within the highway network, i.e. carriageway, footway, signs & road markings etc. and each group has a feature type allied with key attributes and measurements.

Unique identifiers are used to locate a particular feature within the street, making it possible at any time to list all events applicable to it starting from the commissioning date or go live. So that over time a flexible and comprehensive data bank is accessible providing the opportunity to analyse all or any particular asset group, feature, item or function. With the distinct aim that decisions are fully informed, quantified and defensible.

The database is United Kingdom Pavement Management System (UKPMS) compliant, which ensures data is compatible and consistent across the authority and is interchangeable within the wider highway authority community.

Statistically the aim is to attain and maintain the database at a level that gives an accuracy in excess of 90%. It is therefore important to capture any changes, additions and deletions of the asset groups and features.

For new works all as-built information will be copied to the Highway Asset Management Officer who will ensure that the inventory is appropriately updated.

A similar process will be implemented for works ordered by area officers and highway maintenance staff, who will provide as built drawings or specific details of work done complete with spatial reference.

A cross check of details received will be counted off against raised work orders and actual work completed by our Term maintenance contractor Skanska and associated contractors used by structures, street lighting and drainage sections.

New adoptions will be received and entered in the same way, with developers etc. being advised that they will be required to provide detailed as-built drawings as a pre-requirement.

Safety inspections also need to be captured and works recorded, providing evidence in discharging our statutory duty to maintain safe passage of the highway as well as providing an audit trail.

All carriageway and footway records will be held in the asset management database, providing the prime source of accurate data required for Management Information that links into all aspects of highway management. This alone is expected to drive efficiency savings, negating the need to manually 'trawl' for information, leading to timely, informed decision making. Structures, street lighting & traffic management however, use their own statutory compliant, dedicated asset databases.

It is further intended that, in time, revenue and capital highway maintenance schemes will be issued and work read back into the database, providing electronic issue, recording, management information and exception reports, automatically updating the inventory and Geographic information system (GIS) details.

5.1.2 Financial Assets

North Somerset Council has modelled the investment required for the maintenance of the highway assets to achieve the core objectives of safety, serviceability and sustainability in line with desired service levels and affordability.

Asset management principles imply that maintenance requirements will focus on reducing whole life costs rather than carrying out short term fixes. Each year's needs-based financial forecast should be dependent on works which are required to maintain agreed service levels and measured to gauge value for money. Continuous improvement is expected.

This is not to say that maintenance costs will reduce in the short term as the introduction of whole network condition monitoring and published service levels will identify a maintenance backlog which will need to be managed in line with Highway Asset Management Policy.

Some asset management goals which are linked to financial considerations are:-

- To consider the whole life of the entire asset and look at the most cost-effective method of maintaining it.
- Cost of repairs are dependent on road condition and innovation and labour efficiencies will be sought to maximise value for money.
- To identify early intervention treatments and carry out repairs, which will lead to a cost saving in the long term.
- Cheaper repairs mean greater lengths of carriageway can be repaired for the same budget, which is important when council financial resources are particularly stretched.
- Whilst this is the most cost-effective strategy there will have to be a balance and some of the worst roads will also be included.

Highway condition is not the only consideration, as there will always be an overarching need to consider other factors relevant to the people and communities we serve.

A balanced consideration will be given to:-

- Customer enquiries - Where there are a large number of sites in similar condition customer enquiries are used to further assist prioritisation.
- Area Officer reports - Where there are a large number of sites in similar condition area officer reports are used to further assist prioritisation.
- Corporate priorities - Will influence changing emphasis on asset types or network locations
- Importance to the network and risk management

Where there are a large number of sites in similar condition the location's importance is considered in a road hierarchy sense rather than its road classification. For instance, a principal access road would be chosen over a secondary link. Sites will be chosen in order to mitigate the risk of injury to people and damage to vehicles. For example, a road with a school or bus route would be chosen over one that did not have one (all other factors being equal). Network hierarchy is discussed further under its own heading.

- Network resilience - Where known issues are recorded on major routes, consideration would be given to mitigating these so as to add resilience in exceptional events e.g. extreme weather.

- Insurance claims - If a road has a higher number of insurance claims this could be used to assist prioritisation.
- Joint schemes e.g. Drainage or Active Travel schemes

If there is a scheme proposed within the next 3 years to carry out repairs to the Drainage or new works like Active Travel schemes at same location where carriageway or footway/cycleway maintenance is also proposed, consideration should be given to delaying or bringing forward one element so that work takes place at the same time to minimise disruption and maximise efficiency.

Project submissions will need to include anticipated costs across the whole life expectancy of the carriageway. This allows for evaluation of more expensive materials and processes which will offer a favorable life time return with less short-term maintenance interventions required.

6.0 Qualitative factors

This includes aspects such as reputation, public perception of the council, stakeholder morale, social impact and customer feedback. It is important that these factors are considered at all stages of maintenance and improvement projects in order to achieve non-cashable efficiencies.

Changes to strategies and procedures which affect non-cashable efficiencies will therefore need to be carefully considered. Any adverse impact which is made on qualitative factors may be difficult to rectify.

7.0 Condition Monitoring

Historically condition monitoring has essentially been limited to condition surveys such as:

- Coarse Visual Inspections (CVI)
- Detailed Visual Inspections (DVI)
- Machine surveys (SCANNER)
- Skid resistance (SCRIM)

Where possible and in liaison with our accredited condition survey suppliers, every opportunity will be taken to automate the collection of raw data and the subsequent processing, so that eventually there is very little reliance on visual interpretation of condition. As the historic effects of visual results become less important being superseded by automated collection, the comparison across the road classifications and hierarchy will become consistent, as by and large, the same condition collection method has been utilised.

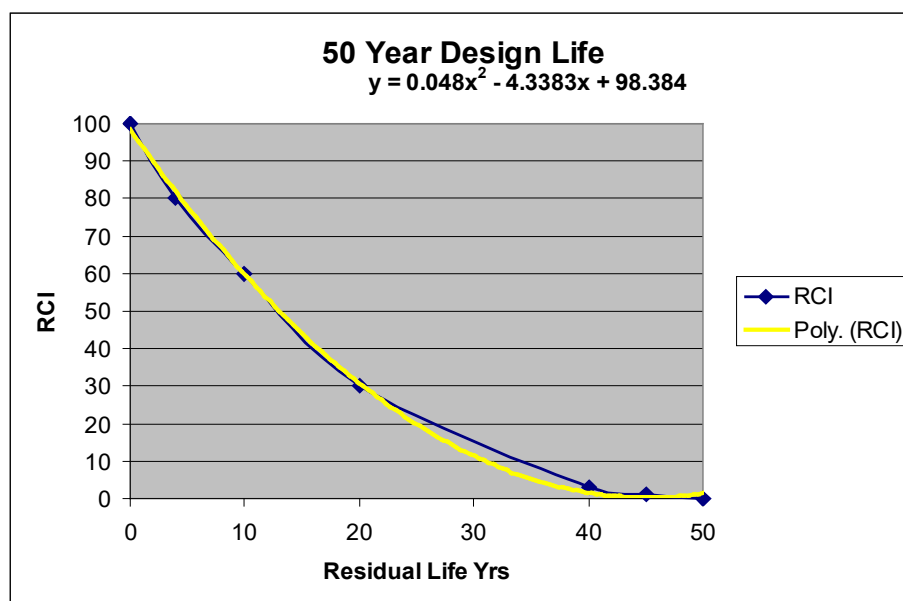
The condition of the classified network is defined from SCANNER surveys which provide the data for the calculation of the National Indicators 130-01 & 130-02 (formally NI168 and NI169). The threshold levels from SCANNER surveys are defined in terms of a Road Condition Indicator (RCI) that combines the defects together into a composite measure.

An RCI greater than 100 indicates that the section “should be considered for planned maintenance soon” and is considered to be in **Red** condition. An RCI of greater than 40 but less than 100 indicates “should be investigated to determine the optimum time for maintenance” and is described as **Amber** condition. An RCI of less than 40 indicates that the section “is in a good/ideal condition” and is described as **Green** condition.

In order to manage the network effectively, the lengths of the road in Red and Amber condition must be considered for treatment. Locally the treatment threshold has been set to an RCI of greater than 60 to identify ‘potential’ lengths for treatment, which are then subject to a value management process to assess the potential benefits of proposals.

Skid resistance (SCRIM) data is also used to assess the proportion of the A and B road networks where the SCRIM coefficient is below the relevant Investigatory Level.

The graph and associated table below indicate the expected deterioration rate for a typical carriageway with a 50 year design life. In its simplest form this is used to determine the remaining or consumed life.



RCI	100	80	60	30	3	1	0
RL	0	4	10	20	40	45	50

In the table above RCI stands for Road Condition Indicator. This is a rating produced from machine survey data of the carriageway condition. A brand new carriageway starts at an RCI rating of 0 and Residual Life of 50 years (the life expectancy of a standard carriageway). The Residual Life is the remaining life of the road before it fails i.e. becomes unusable. As one would expect, the RCI score and the remaining Residual Life follow a negative correlation, with a carriageway which has failed having an RCI of 100. In the above graph the blue line indicates the actual RCI scores for a standard road and the yellow line shows the polynomial trendline.

Our aspiration when selecting schemes (in addition to meeting our Highway Asset Management Policy), set against budgetary constraints, is to restore and prolong carriageway life in accordance with the above deterioration model.

8.0 Network Hierarchy

We are aware of the latest code of practice (*Well Managed Highway Infrastructure: A Code of Practice* – published by the UKRLG) and are in the process of migrating our approach to highway maintenance to be in line with this. We have carried out a gap analysis and produced an action plan in this regard. These documents include actions relating to updating the HAMS. However, for the purposes of developing the HAMS we will continue to make reference to the previous Code of Practice hereafter.

The *Code of Practice* considers that a network hierarchy is the foundation of a coherent, consistent, and auditable maintenance strategy.' An outline hierarchy is set out in Section 8 of *Well Maintained Highways*, which clearly distinguishes more strategic routes, but does not clearly distinguish lower hierarchies.

A maintenance hierarchy can be utilised in network condition reporting, scheme identification, setting levels of service including setting inspection regimes and response times, etc. By splitting the network into hierarchy tiers prioritisation with different interventions for different hierarchies becomes a much stronger tool that can be developed to support our Active Travel Strategy. This approach will also lead to maintenance strategies which are more resilient to challenge, from insurance claims and other factors. With the right parameters in the service standards this will lead to a much clearer approach to scheme selection and response management.

The hierarchy has been split into 10 tiers plus motorways and the definitions in *Well Maintained Highways* have been refined. With an urban/rural split on 3 tiers this allows 13 different categories for North Somerset's network (see Appendix 1).

Following the revised structure roads have been allocated a category starting from the top down and bottom up to clearly identify roads within categories 2, 3a, 3b, 5a, 5b, 6a and 6b; these having the clearest definitions. The remaining roads have then been considered to identify the most appropriate category within tier 4.

The general principles applied to hierarchy are:

- hierarchy will be assessed for entire sections of roads between junctions, including significant junctions with unadopted highway
- where road character significantly changes between junctions, hierarchy will be assessed for sub-sections with a minimum 50m length
- higher tier roads cannot be isolated in an area surrounded by lower tier roads
- urban is defined as roads within settlement boundary layer on earthlight, except where the road character is clearly different
- bus routes should be at least category 4a
- we should not be gritting routes lower than category 4a except in exceptional circumstances

- the distribution of roads (by length) within each category should be relatively consistent (with the exception of 6a and 6b which should be grouped together as 6b is purely a tool to identify roads serving the lowest number of people)
- exceptional changes to these general principles may be included, but only with specific justification

9.0 Scheme Selection

Using a refined process for interpreting condition data potential schemes are collated and tabulated allowing for many different possibilities of ranking, such as RCI reduction, effect on national indicators, SCRIM deficiency. Allowing for corporate priorities identified by the Executive, and other stakeholder considerations where possible Benefit Cost Ratio most closely aligns with asset management principles. This is under continuous review in order to ensure that the methodology is achieving the aims of the HAMP and hence providing best value solutions for all stakeholders.

10.0 Asset Management Planning

In the context of effective stewardship of the whole range of transport assets, Asset Management places customers at the core of Asset Planning.

The strategy sets out full Asset Management Planning by:

- Involving stakeholders in cultural change including elected members, staff and contractors
- Involving the communities and users of the highway network to better deliver their needs
- Implementing a clear and focused Highway Asset Management Plan
- demonstrating compliance with statutory obligations including Whole of Government Accounts and The Chartered Institute of Public Finance and accountancy (CIPFA) reporting
- Defining clear highway maintenance objectives and outcomes
- Promote the Councils highway maintenance, priorities and programmes
- Establishing inventory systems and procedures to collect and collate
- asset characteristics and conditions
- Ensuring asset information is accessible by the public
- Identifying maintenance implications arising from new and improved infrastructure projects and plan future maintenance
- Implementing an effective process of risk management
- Delivering an effective system of inspection

11.0 Stakeholder Considerations

NSC primarily exists to satisfy the needs of its stakeholders. In constructing asset plans, a key consideration is to identify the relevant stakeholders and key influences, from which an assessment of need can be made and long-term direction determined.

The recognised stakeholders (but not exclusively so) are:-

1. Government, via the Department for Transport
2. The Executive
3. Council members who represent individual constituents and ward concerns
4. User groups who lobby for their particular issue to be heard
5. Residents, who expect their wellbeing, prosperity and living standards to be improved.

Engagement with stakeholders to understand their needs has been done in the past. This has been via public satisfaction surveys and member briefings. More engagement will be planned and information will continue to be made available to the public to convey and outline asset management principles which advocate lifetime maintenance rather than the conventional worst first approach.

12.0 Defining Risk

Clearly, there are risks that stakeholder requirements will not be met or will not be maintained. In order to establish those risks, prioritise them and manage the mitigating actions, North Somerset Council has implemented a risk management strategy, which will be managed down to Highway & Transport management level. This commences with an annual business level risk categorisation process, which is reviewed and updated on a quarterly basis. From this overall Highway & Transport level categorisation, a number of operational level risks and mitigation processes will be developed and maintained. The likelihood and severity of impact of assets falling short of stakeholder requirements is identified as a high-level business risk. From there, each of the asset groups is subject to an individual analysis to identify and prioritise actions to mitigate this risk. These actions may result in a change to strategy and policy.

13.0 Dealing with Risk

Based on corporate strategy, risks are managed using the following hierarchy:

- Risk avoidance – process or actions avoid the creation of risk
- Risk Retention – cannot be avoided and the risk is acceptable

- Risk Transfer – re-profile the risk into a form that is acceptable
- Risk Reduction – the level of risk is unacceptable and requires action

A risk analysis will be carried out resulting in an action plan applicable to all highway assets.

Typical risk mitigation measures, in relation to the highway infrastructure, that may be taken are:-

- Increase the availability of the highway assets to deal with potential growth
- Increase the capacity of highway assets
- Replace or refurbish highway assets to deal with:-
 - Condition – where the condition will negatively affect qualitative factors
 - Serviceability – where the performance of the asset leads or will lead to poor levels of service
 - Integrity – where the integrity of the asset may lead to an unacceptable societal impact
 - Obsolescence – where the asset is no longer maintainable or where replacement is a viable option
 - Legislation – where changes to the assets are required to enable us to comply with new legislation
 - Safety – where the performance or failure of an asset may lead to an unacceptable risk to users

Stewardship of the assets will incorporate whole life costing to minimise the financial impact on stakeholders over the long-term asset life.

The risk mitigation processes will result in annual plans at asset group level, detailing the programmes of work to be carried out, and the mechanisms for delivery of those programmes.

The continued collection of data will enable and support risk analysis and mitigation measures through the development of support tools, management information and safety indices.

14.0 A formal Risk Based approach

Well-managed highway infrastructure a code of practice was released in October 2016 for implementation by October 2018. This new code of Practice takes a more risk-based approach to managing the highway network. We have not carried out sufficient data based analysis to change our approach to maintaining the highway asset. We therefore have decided to continue with our current practices which have complied with the previous code of Practice, the Highways Act and case law. We

have carried out a gap analysis on the new code and intend to gradually migrate to the new code of practice and do the necessary analysis and modelling.

15.0 Performance

In the context of this strategy, performance is a function of business efficiency, both qualitative and quantitative when set against a range of key performance indicators (KPI's). This is more aligned to organizational function, of which service level measurement is just one element. It is a demonstration of a formal structured process that takes a long-term view of operations and investment to achieve an optimal balance between safety, reliability and cost.

Business performance relates to elements such as:

Policy, key hazards, focused risk assessments, Health Safety & Environment plans, guides and procedures, training plan, coaching and supervision, leadership, risk-based inspection, measurement, audit, reporting, planning (short, medium and long term) and collectively provides the context by which the assets are operated, inspected and maintained within the internal investment controls and constraints.

16.0 Service Levels

These are an indicator of how well the business performs in delivering stakeholder expectations and should reflect stakeholder aspirations in terms that can be measured, evaluated and improved. The results of the regular National Highways & Transport (NHT) public satisfaction surveys will assist in the formation of monitoring measures and systems.

This methodology of measurement forms part of the Asset Management System. Asset performance and monitoring will encompass the physical assets (asset groups) and asset management systems (process and procedure). This requires a set of informative, measurable and reliable service level indicators that can be used for the purpose of ensuring asset plan delivery and identifying where improvements may be necessary. Service level indicators are based upon measurable data (both quantitative and qualitative).

Service level and Key Performance Indicators will be used to effectively monitor the implementation of the HAMS. Service performance in relation to asset management considerations will be reported in a manner that is meaningful to senior management and written in a clear and concise manner.

17.0 Review

This strategy will be reviewed regularly as part of our commitment to continuous improvement.

Appendix 1: Network Hierarchy

Cat	Well maintained highways general recommendation			Refinement for NSC			
	Hierarchy	Type of Road	Description	Code	Cat urban rural	Hierarchy	Description
1	Motorway	Limited access motorway regulations apply	Routes for fast moving long distance traffic. Fully grade separated and restrictions on use.		1 both	Motorway	M5
2	Strategic Route	Trunk and some Principal 'A' roads between Primary Destinations	Routes for fast moving long distance traffic with little frontage access or pedestrian traffic. Speed limits are usually in excess of 40 mph and there are few junctions. Pedestrian crossings are either segregated or controlled and parked vehicles are generally prohibited.	2	2 both	Strategic	heavily trafficked roads between primary destinations
3a	Main Distributor	Major Urban Network and Inter-Primary Links. Short - medium distance traffic	Routes between Strategic Routes and linking urban centres to the strategic network with limited frontage access. In urban areas speed limits are usually 40 mph or less, parking is restricted at peak times and there are positive measures for pedestrian safety.	3a	3a both	Main Distributor	routes between strategic routes and secondary destinations, main routes within urban areas
3b	Secondary Distributor	Classified Road (B and C class) and unclassified urban bus routes carrying local traffic with frontage access and frequent junctions	In rural areas these roads link the larger villages and HGV generators to the Strategic and Main Distributor Network. In built up areas these roads have 30 mph speed limits and very high levels of pedestrian activity with some crossing facilities including zebra crossings. On-street parking is generally unrestricted except for safety reasons	3b	3b both	Secondary Distributor	routes between strategic routes or secondary destinations and other traffic centres, secondary routes within urban areas
4a	Link Road	Roads linking between the Main and Secondary	In rural areas these roads link the smaller villages to the distributor roads. They are of varying width and	4a	4au urban	Link Road	principal distributor through estate

Cat	Hierarchy	Type of Road	Description	Code	Cat	Hierarchy	Description
					<i>urban</i> <i>rural</i>		
		Distributor Network with frontage access and frequent junctions	not always capable of carrying two way traffic. In urban areas they are residential or industrial interconnecting roads with 30 mph speed limits random pedestrian movements and uncontrolled parking		4ar <i>rural</i>	Link Road	principal connector road between village and main roads
4b	Local Access Road	Roads serving limited numbers of properties carrying only access traffic	In rural areas these roads serve small settlements and provide access to individual properties and land. They are often only single lane width and unsuitable for HGVs. In urban areas they are often residential loop roads or cul-de-sacs.	4b	4bu <i>urban</i>	Minor Link Road	secondary distributor through estate
					4br <i>rural</i>	Minor Link Road	principal connector road between small village and main roads secondary connector road between village and main roads
					4cu <i>urban</i>	Estate Road	smallest through routes with side roads cul-de-sac serving multiple cat 5 roads
					4cr <i>rural</i>	Rural Through Route	other roads to, between and within small villages
					5a <i>both</i>	Busy Access Road	cul-de-sac or crescent > 12 properties* other rural through route serving > 12 properties*
					5b <i>both</i>	Access Road	cul-de-sac or crescent ≤ 12, > 3 properties* other rural through route serving ≤ 12 properties*
					6a <i>both</i>	Minor Access Road	cul-de-sac or crescent ≤ 3 properties*
6b <i>both</i>	Lane	cul-de-sac or crescent ≤ 1 properties*					

Cat	Hierarchy	Type of Road	Description	Code	Cat <i>urban</i> <i>rural</i>	Hierarchy	Description
				6	<i>both</i>	Non carriage- way	subject to separate hierarchies