North Somerset Council Decision

Decision Of: Councillor James Tonkin. The Executive Member for

Decision No: 20/21 DP 372

Subject: Highway Asset Management Strategy and Policy

Key Decision: No

Reason: The decision is less than £500,000 and is not significant in terms of its effects on communities living in two or more wards.

Background:
The Highway Asset Management Policy & Strategy sets out how the Council will best manage the Highway Network taking into consideration customer needs, local priorities, asset condition and best use of available resources. North Somerset has had a Policy & Strategy since 2015 which needs regular review to take account of previous year's outcomes and other factors. This decision is to accept the 2020 Policy and Strategy.

Decision:
To adopt the Highway Asset Management Policy & Strategy 2020

Reasons:

This decision is to adopt a refreshed version of the existing Policy & Strategy. The existing strategy has been working because road condition data shows we have managed to broadly achieve the aims of maintaining steady state on A and B roads whilst allowing and mitigating the decline of C and U roads.

The new version includes minor changes to wording and details to bring it up to date with the main themes for changes made being:

- New corporate plan
- New code of practice
- EV chargers
- Cycleways
- New Joint Local Transport Plan (JLTP4)

This strategy is based on a continuation of funding at similar levels as seen in recent years. This year the government has only given a 1-year funding settlement but we expect

a multi-year funding allocation will be set out over the course of the next year. When we have sight of longer-term funding we will need to undertake a more in-depth review of the strategy that sets out objectives and the funding required over the coming years.

The Department for Transport require that we have an up-to-date Highway Asset Management Strategy. This is to ensure that we are achieving value for money when we spend grant funding monies to maintain the highway asset. Having an up-to-date strategy is part of the requirement to secure the "Incentive fund" element of the grant funding that we get each year. The amount does vary each year and for 2021/22 the incentive funding we could receive would be £557k. As the strategy is considered an essential requirement, if we cannot state that we have updated our strategy within the past 24 months, this amount reduces to zero.

https://www.gov.uk/government/publications/highways-maintenance-funding-incentive-element

https://www.gov.uk/government/publications/roads-funding-information-pack/roads-funding-information-pack

Options Considered:
No other options considered as outcomes are being delivered.

Financial Implications:
We have come to the end of a multi-year funding award and the single year government grant settlement for 2021/22 has just been announced. Funding levels are reduced compared with prior year but with the proposed NSC capital contribution are enough to continue with the current strategy. In 2021/22 the proposed NSC capital contribution is £1.25m.

Costs:
Beyond the £1.25m capital contribution that is provisionally in the budget, there is no new in-year cost implication associated with the strategy. However the strategy acknowledges there is not enough funding to maintain steady state across all road types which leaves an increasing backlog of maintenance to be dealt with in future years on C and U roads. The revenue costs of repairing those roads will increase as they deteriorate.

Funding:
Funding varies annually from the following key categories:

- Local Transport Plan grant funding settlement
- Pothole action fund
- Incentive fund
- NSC additional capital
- NSC revenue funding

Legal Powers and Implications:
The Highways Act places a statutory obligation on North Somerset Council as Highway Authority to maintain the highway.

Climate Change and Environmental Implications:

The strategy has been amended to highlight the need for investment in cycleways and footways, including linking routes rather than simply those adjacent to roads/carriageways.

Consultation:
Input was invited from chair of the Strategic Planning Economic Development and Regeneration Policy and Scrutiny panel.

Risk Management:
Failure to adequately maintain the highway leaves the council open to damages claims in respect of injury or damage due to poorly maintained highway. The strategy is based on recent and expected funding levels which are not sufficient to maintain highway assets in a steady state. The strategy is risk-based in that it aims to maintain steady state on A and B roads as they are likely to carry higher volumes of traffic and higher speeds. The strategy will allow C & U roads to decline which leaves an increasing risk to the costs of making reactive repairs (e.g. filling potholes) and costs of claims for damages or injury. This is the same approach that has been taken for a number of years.

Demonstrating that we have an up to date strategy & policy will help us secure incentive funding element again for 2021/22 financial year. Failure to have an updated policy in place puts that funding at risk which will deepen the ongoing liability risks to the council unless that funding can be replaced with additional NSC funding.

Equality Implications:
Have you undertaken an Equality Impact Assessment? ~~Yes~~ / No

Corporate Implications:
There are KCPI's for the maintenance of principal and non-principal highway network. The strategy supports maintaining steady state on principal road network but allows managed decline of the non-principal road network. Going forward KCPI targets will need to continue to reflect this.

Appendices:
Highway Asset Management Policy – Revision 2020
Highway Asset Management Strategy – Revision 2020

Background Papers:
1. Highway Asset Management Policy – Revision 2018
https://www.n-somerset.gov.uk/sites/default/files/2020-02/highways%20asset%20management%20policy.pdf

2. Highway Asset Management Strategy – Revision 2018
https://www.n-somerset.gov.uk/sites/default/files/2020-02/highways%20asset%20management%20strategy.pdf

Signatories:

Decision Maker(s):

Signed: Executive Member for Neighbourhoods and Community Services as new portfolio holder following changes to Executive roles confirmed at 20 April 2021 Council.

Date: 4 May 2021.

With Advice From:

Signed: Director of Place

Date: 20 April 2021

Highway Asset Management Policy

Revision 2020

Directorate: Place

North Somerset COUNCIL

Executive summary

A good Highway network is essential for a successful economy and society. It provides access to jobs, services and schools, gets goods to the shops and allows us to make the most of our free time. In North Somerset the gross replacement cost of the highway asset has been estimated to be over £2.4 billion.

We have one of the lowest highway spends in the country, yet surveys show our carriageway condition is good compared to other authorities. This position has been achieved by revising our approach to highways maintenance to maximise value:

- Moving from reactive to proactive work
- Continuing to move away from "worst first" towards a "whole life" approach

The asset management whole life approach we already use has had the same effect as an additional £2.6m investment compared to using the worst first approach since 2013/14.

Our changed approach was validated by the May 2011 Audit Commission report *"Going the Distance"*, the Highways Management Efficiency Programme report in April 2012 *"Prevention and a Better Cure"* and the May 2013 Highways Management Efficiency Programme document *"Highway Infrastructure Asset Management Guidance"*.

At North Somerset Council part of the vision is for this to be, "a thriving and sustainable place" with, *"Welcoming, safe, and clean neighbourhoods"*. Effective highway maintenance is key to achieving the vision and the way we do that also needs to acknowledge the aim of having, *"A transport network which promotes active, accessible and low carbon travel"*.

The Transport and Infrastructure service have identified our overall purpose as *"To effectively plan, manage and enhance North Somerset's infrastructure to support growth and create great places to live, work and visit."* In a wide-ranging service, asset management is at the core.

To support this priority we aim to proactively manage our highway assets in a safe, efficient and sustainable way. We will deliver a service which treats all road users in a consistent, fair and transparent manner in accordance with published strategies and plans. **Our key objective is to *arrest the deterioration of the A and B road network* whilst implementing an asset management approach.**

This in turn is supported by our Joint Local Transport Plan which sets out the need to *"Develop and improve network resilience through an ongoing commitment to highway maintenance".*

Introduction

The highway network is almost certainly the most valuable asset managed by any local authority, and the asset used most extensively by the whole community. The replacement cost of our highway asset has been estimated at over £2.4 billion (This is to completely replace rather than repair the existing highway asset).

A good transport network is essential for a successful economy and society. 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 (All of the A, B, C and unclassified roads that are maintained by local authorities which does not include motorways or trunk roads)[1] are the primary element of the transport network and play a key role in delivering the services people want and need. The total length of local network that North Somerset Council maintains is 1111km (this is the carriageway length), the length of maintained footways is 1027km). Cycleways and footways are also key to supporting the aim of becoming a carbon neutral council and area by 2030. In order to fulfil its potential, it is crucial that our local highway network, including footways and cycleways, is adequately maintained.

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 and this is exacerbated by ongoing budget reduction.

Current status

We have one of the lowest highway spends in the country, yet condition surveys indicate our carriageway condition is good compared to other West of England authorities and authorities nationally. We have achieved this position by revising our approach to highways maintenance to maximise value:

[1] This is in contrast to:-
- The Strategic Road Network (SRN) which is made up of motorways and trunk roads (the most significant 'A' roads) and are administered by Highways England
- The Major Road Network (MRN) - a proposed classification of local authority roads in England. This would incorporate the existing Highways England-controlled Strategic Road Network (SRN) and the more major local authority controlled A roads.

- moving from reactive to proactive work, spending money on preventative repairs rather than repairing assets when they have reached the end of their life
- continuing to move away from a "worst first" towards a "whole life" approach

Our approach has been validated by the May 2011 Audit Commission report *"Going the Distance"*, the Highways Management Efficiency Programme report in April 2012 *"Prevention and a Better Cure"* and the May 2013 Highways Management Efficiency Programme document *"Highway Infrastructure Asset Management Guidance"*.

Despite this good work, above average expectations from residents in North Somerset have meant that satisfaction rates recorded by the NHT surveys have been historically low but have improved considerably in recent years. In 2020 our overall satisfaction rating was just below the national average and had improved since 2019[2]. We currently spend £9,273 per kilometre on highway maintenance[3] which is well below average for an authority of our size and profile[4]. This figure includes reactive and planned repairs.

Background

Policy

North Somerset Council recognises that a good transport network is essential for an attractive and vibrant place for business investment and sustainable growth. Our roads, cycleways and footways are a key element of this network and provide access for local residents and businesses, and visitors to jobs, services, schools and shops. Well maintained roads, cycleways and footways are important for all users including private and public transport, pedestrians and cyclists.

Our Joint Local Transport Plan sets out the need to, *"Develop and improve network resilience through an ongoing commitment to highway maintenance"* taking into account the impact of climate change. The plan also says that we will, *"Continue our firm commitment to maintain the network to the best standard possible, in light of increasingly constrained budgets for highway maintenance. This includes the 'whole-life' approach where we identify and repair roads before they are visibly damaged on the surface, wherever there is a financial or a maintenance benefit to do so.*

[2] **2020 NHT Survey Executive Highlights Report: Key Benchmark Indicator 00 - Overall Satisfaction.** North Somerset scored 50% and the National average was 52%. This represents an improvement of 4% since 2019.
[3] From our most recent APSE submission based on 2019-20 data
[4] From our APSE 2019-20 DMG PIG Report

The JLTP4 also retains a commitment to maintain , manage and ensure best use of transport assets through a Joint Transport Asset Management Plan (JTAMP)

In 2008 we joined with Bristol City (BCC), South Gloucestershire (SGC) and Bath and North East Somerset (BaNES) Council's to create a JTAMP. This built on our previous relationships creating a Joint LTP and sharing resources with BaNES when re-issuing the term maintenance contract.

The JTAMP team produced the last revision in December 2011. Since the formation of the West of England Combined Authority we continue to work together to deliver transport investment through the JTAMP and the JLTP4.

South West Highways Alliance

We regularly work with colleagues across the south west via a group setup to share best practice and innovation and also to communicate with the Department for Transport about funding needs and other issues.

Investment strategy

We use lifecycle modelling based on condition survey data to quantify the funding needed to achieve a variety of outcomes: from managed decline to reducing the backlog within a year. In 2019/20 we re-based this work to take account of inflation and new contract rates, the headlines from this showed that:

- to maintain a steady state of network condition will require annual funding of approximately £9.8m, a £3.6m increase over 2015/16 levels
- the current backlog is approximately £39.9m . This is how much it would cost to fix all the roads in need of repair within one year.
- current funding levels will see a significant decline in measured condition of C and U roads over 5 years

Using this information we recognise that aiming to reduce the backlog remains unrealistic, so we set the objective to *arrest the deterioration of the network on A and B roads and slow down the deterioration of C and U roads* and continue our strategy to achieve this objective. While developing this strategy we identified that the asset management principles of early intervention and a whole life approach were critical in achieving this.

We developed the original investment strategy during 2012/13, this built on the work already done to justify targeted investment into the network. The efficiency savings as a result of the whole life approach are assessed each year which reflect real improvements that have been made without loss of quality or that result in higher quality for the same spend. In 2019/20 the efficiency savings were £186,000, adding to the cumulative total efficiency savings since 2013/14 of £2.6m[5]. This means the strategy to adopt an asset management whole life approach has had the same effect as an additional £2.6m investment since 2013/14 compared to the worst first approach that we previously used.

Looking ahead, we need to build on the success of our asset management approach which means not necessarily fixing the worst roads first but instead extending the life of roads that appear in good condition but need sealing to avoid a more rapid deterioration. This can sometimes be a difficult message but it does mean that we maximise value for money.

Since 2013 we have worked to increase understanding and acceptance of the investment strategy and the asset management approach throughout the council. Moving away from a worst first approach can be counterintuitive, but we received good support from Senior Managers and Local Members. Further work is now needed to engage with new members and then build further on improving public understanding.

In 2021 the Council has further demonstrated its support of an asset management approach to highway maintenance by extending its planned capital expenditure in the MTFP by £1.25M for a further year.

Network Hierarchy

A network hierarchy identifies the relative importance of all roads based on a range of factors including traffic levels and the role they play in the network, for example bus routes, popular cycle routes, access to schools or other key infrastructure. Previously our network was only broken down into A, B, C class and unclassified with the only other distinction being those roads which are part of the Primary Route Network and those which are not. This was reviewed to increase the number of levels within the hierarchy to allow systematic prioritisation within and between each class. This is particularly useful with c-class and unclassified roads where some quiet

[5] NHT National Highways & Transport Network 2020 CQC Annual Report

rural c-class roads are seen as requiring less priority than other busy urban unclassified roads. It enables c-class routes with a functional importance to be given more priority than less significant routes. This new hierarchy was introduced during 2015 and will be developed further to support active travel routes in line with the new Corporate Plan. The network hierarchy will play a pivotal role in our migration to the new highway maintenance Code of Practice which advocates a risk-based approach.

Corporate Plan

North Somerset believes that an effective asset management strategy is core to making the best use of its highway maintenance budget and help deliver the best long-term outcomes for its local communities by contributing to the delivery of the aims in the corporate plan:-

- A thriving and sustainable place
- A council which empowers and cares about people
- An open and enabling organisation

These aims link to key shared priorities in North Somerset Partnership's Sustainable Community Strategy.

The Council's Asset Management Strategy will seek to:-

Make this a great place for people to live, work and visit

We aspire to all our residents being satisfied with their local area and having access to a full range of essential facilities and services. A comprehensive asset management strategy will allow us to continue to understand the needs of our communities and maintain our roads in a cost-effective manner whilst maintaining an affordable council tax.

Make an attractive place for business investment and sustainable growth

North Somerset considers that a comprehensive transport network is essential to support economic vitality and thereby increase employment in the area. It allows businesses to thrive encouraging further investment and contributes to North Somerset being a place where people want to live or visit. We will identify the need for new infrastructure to achieve this and our asset management strategy is essential to help make well-informed, long-term, sustainable decisions for an effectively maintained highway network.

Make welcoming, safe and clean neighbourhoods

An effective asset management strategy will support our road safety programme and help reduce the number of road traffic accidents. A well-maintained highway network will assist vulnerable users accessing services and encourage residents to walk and cycle more, leading to healthier living.

Be a carbon neutral council by 2030 & have a transport network which promotes active, accessible and low carbon travel

North Somerset recognises the need to minimise waste and reduce the amount of material taken to landfill. An asset management strategy will help achieve this by making the most appropriate and sustainable intervention at the right time and making the most efficient use of our assets. Maintaining our highways in a more effective manner will make the best use of constrained budgets and will support the use of more sustainable forms of transport, such as walking, cycling and public transport. Options for more sustainable methods and materials will be sought and opportunities for recycling materials maximised.

Approach

To deliver the asset management approach we have developed an asset management strategy to document our existing good practice and provide a structure for areas where we need to improve.

Carriageway condition surveys

Highway authorities are required to carry out condition surveys on the classified network at set frequencies. We have taken the decision to increase the required frequency such that every A, B or C road is surveyed every year with directions reversed on alternate years to ensure no data is greater than two years old.

We have taken a further step to, where possible, carry out mechanised surveys on all carriageways that are part of the adopted highway so that each unclassified road is surveyed in at least one direction at least every other year. Where it is not practical to undertake these surveys using SCANNER or MRM, visual surveys are used; this is currently only on 20% of the network and we are trying to reduce this further.

The decision has been made to move away from visual surveys towards mechanised surveys to maximise consistency and repeatability. With slightly lower costs there is also efficiency in using mechanised surveys. Working with other southwest highway authorities we have developed a weighting set for this revised approach (see section 3.2). This weighting set is used to produce plots of the network condition based on condition survey data.

Scheme identification

Following the asset management approach we have moved away from worst first scheme selection and now use a more refined approach. While the initial phase does indeed look for sections which are above a threshold condition (higher score = worse condition), this threshold is now set much lower than previously, generating a much larger number of potential schemes to include those for early intervention.

Each potential scheme is automatically given a suggested maintenance treatment based on the survey data; we then verify this through site investigation and make changes where necessary. Having verified the maintenance treatment we add budget estimates and are ready to prioritise the list.

Scheme prioritisation

Our prioritisation uses a variety of factors, and the range of data sources used will be increased to take account of further factors such as corporate priorities identified by the Executive, customer feedback, recent maintenance costs and rate of deterioration.

At present our prioritisation looks at:

- The extent of the road which is at or below a threshold condition. This increases the priority of schemes which have a greater proportion in poor condition and is the historic worst first approach.
- The range of condition within an identified scheme. This adds weight for schemes which aren't below the threshold condition, but which are nearing this condition.
- The breakdown of the condition, looking at rutting, cracking, longitudinal profile and texture individually. The weighting attributed to each measure is different on different road classifications and is varied to match our service objectives.
- On A and B Roads the skid resistance as measured by SCRIM surveys. This introduces a measure to prioritise schemes which have safety defects. We cannot use this weighting on other roads as we do not collect the data.

- A calculated benefit cost ratio. This includes scheme costs and life expectancy in a manner which will prioritise low cost intervention over high cost intervention and long-life intervention over short life intervention.
- Balancing priorities across different road classes

Our prioritisation weighting sets are not static and will be refined through use to maximise effectiveness and value for money. Further refinements will also be made as the hierarchy project is implemented.

Scheme selection

Having prioritised the list we select schemes for the three-year programme based on that prioritisation. However, there are further refinements to be made to ensure that our draft programme is effective, deliverable and meets the objectives of asset management.

- We coordinate with other transport priorities in the area, such as corporate priorities identified by the Executive, casualty reduction or cycle improvements to deliver multiple or coordinated schemes in the same location together (this is being moved to an earlier phase in the prioritisation process).
- We coordinate with utilities through HAUC to manage the disruption to road users.
- We ensure that our contractors are capable of delivering the programme, this is specifically important with an increase in the quantity of weather dependant work.

Reactive maintenance

While reducing the need for reactive works through proactive intervention, improvements are still being made to reactive processes. Materials, maintenance techniques and works management are all areas where improvements are being investigated. For example the use of Smart Gangs to carry out permanent pothole repairs on the first visit has been a change in approach that achieves the repair in a more efficient and long lasting way.

Asset management data

In addition to the extensive history of condition data used to identify, select and prioritise schemes we have a significant quantity of other data and are working to realise the potential of that data to support our asset management objectives.

- In addition to the commissioned condition surveys Area Officers carry out regular routine safety inspections on the network. The results of these inspections are recorded within our asset management database, including a history of maintenance activities.
- One of the main reasons for the public to contact us is to raise concerns about the condition of the highway. The records of these contacts and resulting actions contain a wealth of information which we can access. Whilst relying too heavily on this data can lead back to the historic worst first approach, carefully managed, the data can be used to verify and fine tune our prioritisation process.
- Our Pavement Management System (PMS) holds records of carriageway assets. This must be kept up to date with changes in the network and the off-carriageway footways and cycleways need to be added.

Highways laboratory

We have an in-house highways laboratory which manages site investigation coring and material testing. The capacity of the laboratory is being developed with accreditation for new tests achieved and further plans for greater integration into our core highway service. This will increase the quality control of new surfacing for others as well as our own works and technical knowledge readily available during all stages of scheme identification and implementation.

Review

This policy will be reviewed regularly in light of previous year outcomes, national funding and national policy changes.

Highway Asset Management Strategy

Revision 2020

Directorate: Place

North Somerset COUNCIL

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.

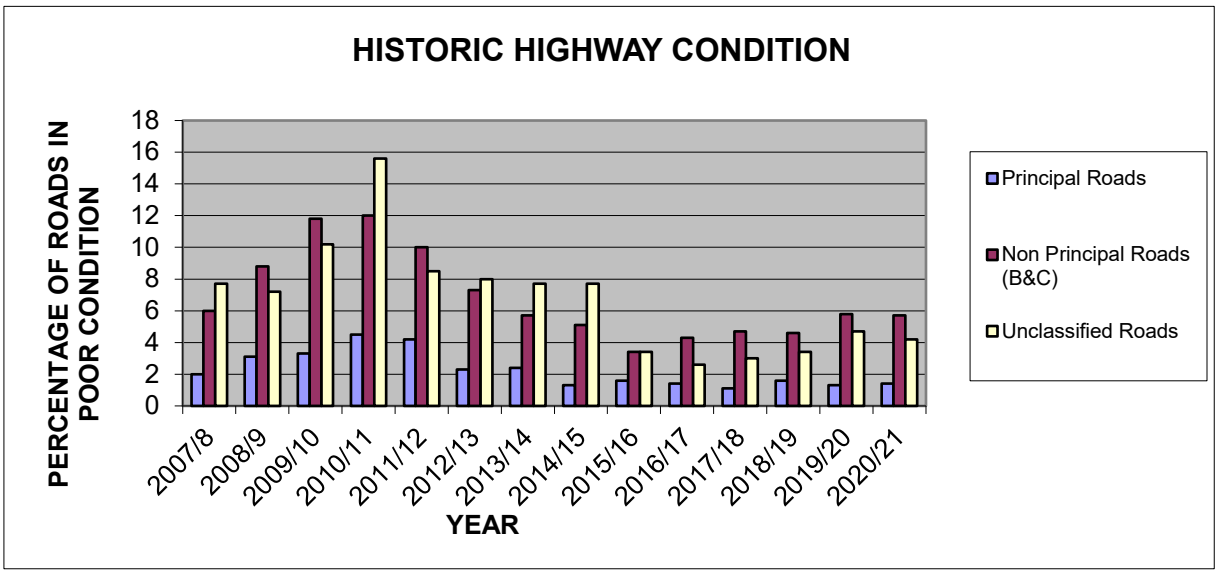
A good transport network is essential for a successful economy and society in North Somerset. It provides access to jobs, services and schools, gets goods to the shops and allows us to make the most of our free time. Local roads are the primary element of the transport network and play a key role in 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 state[1] (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 priortisation 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.

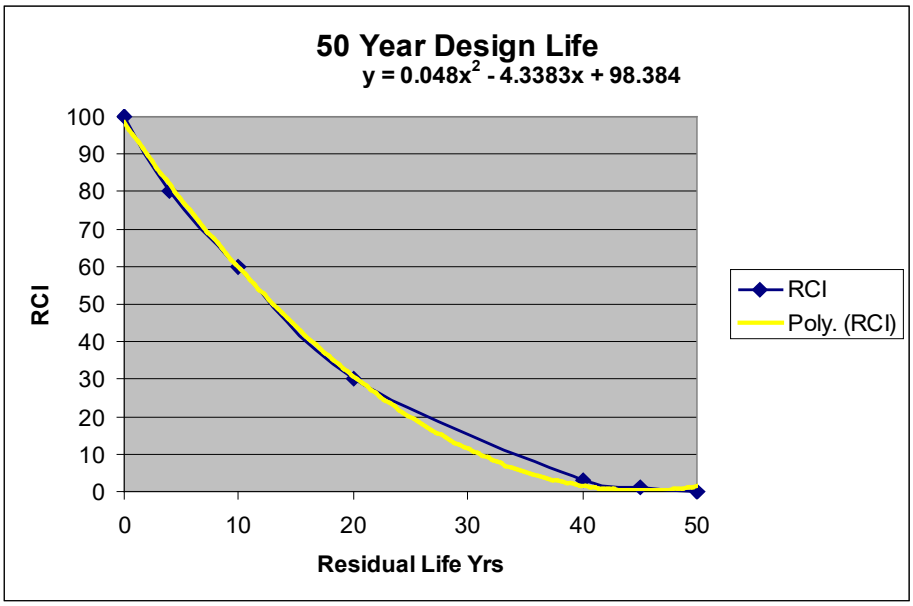
The condition of the classified network is defined from SCANNER surveys which provide the data for the calculation of the National Indicators 130-01 & 130-02 (formally NI168 and NI169). The threshold levels from SCANNER surveys are defined in terms of a Road Condition Indicator (RCI) that combines the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

	Well maintained highways general recommendation				*Refinement for NSC*		
Cat	**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 *urban rural*	Hierarchy	Description
		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 *rural*	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 *urban*	Minor Link Road	secondary distributor through estate
					4br *rural*	Minor Link Road	principal connector road between small village and main roads secondary connector road between village and main roads
					4cu *urban*	Estate Road	smallest through routes with side roads cul-de-sac serving multiple cat 5 roads
					4cr *rural*	Rural Through Route	other roads to, between and within small villages
				5a	5a *both*	Busy Access Road	cul-de-sac or crescent > 12 properties* other rural through route serving > 12 properties*
				5b	5b *both*	Access Road	cul-de-sac or crescent ≤ 12, > 3 properties* other rural through route serving ≤ 12 properties*
					6a *both*	Minor Access Road	cul-de-sac or crescent ≤ 3 properties*
					6b *both*	Lane	cul-de-sac or crescent ≤ 1 properties*

Cat	Hierarchy	Type of Road	Description	Code	Cat *urban rural*	Hierarchy	Description
				6	*both*	Non carriage-way	subject to separate hierarchies