North Somerset Council

Open, Fairer, Greener

North Somerset Council

Highway Asset Management Strategy 2022-2025

Foreword by the Executive Member of Highways and Transport

The highway network assets are the most used and valuable items managed by local authorities.

The replacement cost of the assets such as the carriageway, footway, cycleway, street lighting, traffic signals, electric vehicle chargers, structures and street furniture is estimated to be in excess of £2.4 billion.

It's crucial the local highway network as a whole is adequately maintained. To carry this out effectively, our highway officers carry out early investigations and surveys to provide sufficient information to design our maintenance schemes. We combine this data with recommendations from industry bodies and the best knowledge and technology within our means to manage the carbon footprint.

Centrally managed roads include:

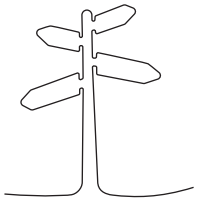
- Major roads
- Motorways
- Trunk 'A' roads

The motorway and trunk road network receives approximately £171 per mile per year

Locally managed roads include:

- Major roads
- Principal motorways
- Principal 'A' roads

Minor roads:



- 'B' roads
- 'C' roads
- 'U' roads

The North Somerset road network receives approximately £14 per mile per year

Executive summary

The council's Highways Asset Management Strategy describes how we manage and maintain the council's highway infrastructure in regard to our legal responsibilities under The Highways Act with the funding and capacity that we have as a Unitary Authority.

This strategy sets out the fundamental principles for investment in our asset management plans. The plans will be based on:

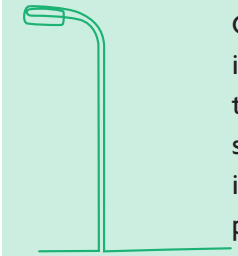
- best value
- asset management principles
- reduction in the use of carbon through early intervention
- design and prioritisation of our major asset types with the funding that we have available through central and local government funding

Carriageways

To target the A and B roads so that the amount of good roads increases by using lower cost preventative treatments and use the savings to make investments in our classified and unclassified roads.

Street lighting and traffic management:

To ensure the safety of the public, reduce the risk to maintenance operatives, energy consumption and minimise the cost of maintenance and deterioration.



Good progress has been made in reducing our use of electricity through the replacement of streetlights to LED units. We have invested in 150 public charging points for electric vehicles.

Highway structures:

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

Purpose

The Highway Asset Management Strategy outlines the strategic approach and processes that will enable us to deliver against our corporate objectives and priorities for North Somerset. The document summarises the planning and implementation of how we will manage these assets, in line with:

- delivery
- changing corporate priorities
- available budgets
- resources
- environmental and carbon considerations
- the principles of continuous improvement

This will be reviewed annually to ensure it remains relevant and consistent with the organisational policy, and to test its appropriateness in the current climate of obligations.

Objectives

North Somerset has many interlinked policies and strategic plans. The objective of the Highways Asset Management strategy is to create a link the corporate needs of our residents and service users whilst ensuring improved carbon resilience, performance, managing risk and communicating that risk where budgets or resource are limited, making decisions based on condition and use, investing in early treatments to reduce carbon and ensuring the preservation of the asset where possible. It also aims to balance and satisfy the needs of stakeholders in respect of:

- safety
- condition
- accessibility
- value for money
- carbon and net zero
- sustainability
- regulatory performance

The carbon emergency that the world faces has to be considered now in the lifecycle planning and the use of materials. Steps have to be taken now to ensure that low carbon treatments can be carried out in the future. It is essential that those assets that are in good condition are maintained and not allowed to degrade to a point where they require resurfacing. New and innovative ways of treating the surfaces will be trialled and investigated to ensure that North Somerset has the lowest possible footprint and reduces its offsetting burden as much as possible.

The day-to-day active reactive maintenance of potholes, deterioration, keeping gullies clear, the removal of water snow and ice from the asset as well as vegetation, and debris is also key to maintaining the asset. Regular surveys are undertaken to ensure that assets are not deteriorating rapidly due to lack of planned maintenance or are highlighted when they appear to require an intervention treatment.

Key asset groups identified (Asset plans – right) and are managed by specialist professional officers; consultation and coordination is carried out to ensure where possible joint working, minimal disruption to the public and minimal costs to the council are achieved.

Asset plans

Highway

- Carriageways and footways
- Combined footways cycleways /cycleways that have the sole purpose of being a space for cyclists
- Road markings and traffic signs

Highway Electrical

- Public lighting and electric vehicle chargers
- Traffic management systems

Structures

- Bridges and structures

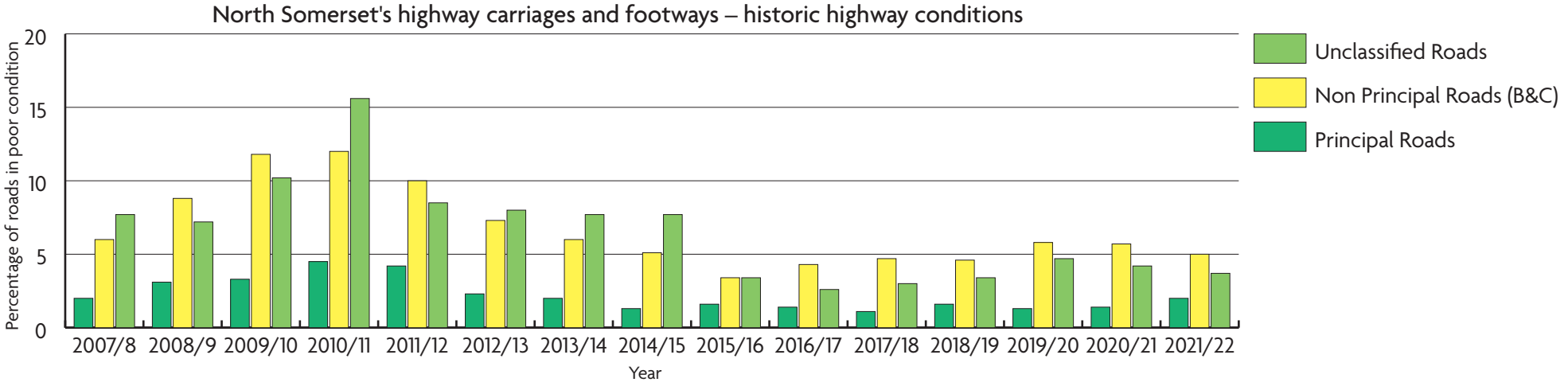
Vehicle restraint systems

Drainage

Public transport infrastructure

Street furniture

The greatest asset in size is the highway carriageways and footways (refer to North Somerset's historic road condition in the chart below). Whilst overall the condition has shown improvement since 2011, North Somerset's Highway Asset Management Strategy is intended to uphold the standards of these improved A & B roads, and maintain a steady state/condition by using cheaper preventative treatments. The objective is to invest any remaining funds on the C and unclassified roads, and some footway works where the budget allows.



	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Principal Roads	2	3.1	3.3	4.5	4.2	2.3	2	1.3	1.6	1.4	1.1	1.6	1.3	1.4	2.0
Non Principal Roads (B&C)	6	8.8	11.8	12	10	7.3	6	5.1	3.4	4.3	4.7	4.6	5.8	5.7	5.0
Unclassified Roads	7.7	7.2	10.2	15.6	8.5	8.0	7.7	7.7	3.4	2.6	3.0	3.4	4.7	4.2	3.7

	2018/19	2019/20	2020/21	2021/22
Principal Roads – requiring Maintenance soon	1.6	1.3	1.4	1.5
B Roads – requiring Maintenance soon	1.2	1.3	1.2	1.4
C Roads – requiring Maintenance soon	5.8	7.5	7.3	6.2
Unclassified Roads – requiring Maintenance soon	3.4	4.7	4.2	3.7

Main assets

Asset	Quantity	Surveyed	Replacement Plan	Condition
Carriageway	697 miles	Yes	Maintain to good standard	Generally Good
Footway	580 miles	Yes	Maintain to good standard. No plan in place.	Fair some structurally unsound
Cycleways	41 no	Yes	Maintain to good standard	Generally Good
Sign Posts	22,000+	No	No	Unknown
Signs	22,000 +	No	No	Unknown
Road markings	31,200	No	No	Unknown
Traffic Lights	49	Yes	15 Years + Condition + LV Heads due to phasing out	Good but some concerns
Crossings	69 (140 if zebra crossings included)	Yes	Traffic signal crossings same as traffic lights, zebra crossings same as street lights	Good but some concerns
Lamp columns/fixings	20,872		Lamps replaced, columns ongoing	
Bollards	7,404 +	Unknown	Unknown	Unknown
Pedestrian rails	Unknown	Unknown	Unknown	Unknown
Subways	75	Unknown	Unknown	Unknown
Drainage	45,000	Yes	Maintain to good standard. No plan in place.	Fair some structurally unsound

Within these asset groups we are aware that there are old, faded, non-standard or obsolete items that require removal or replacement to current standards.

Street lighting:

Highway lighting is inspected based on national guidance. Steel columns are prone to rusting and fatigue. Structural surveys are carried out periodically to determine risk of failure, any dangerous columns are attended to swiftly. Any defects are attended to and recorded in an asset database so works can be prioritised for in year and for future years.

The street lighting team are currently undertaking a replacement project to replace inefficient lanterns with low carbon and more efficient LED installations. Manufacturers have ceased to provide and produce older forms of orange lamps; any remaining on the network will be replaced as they fail. Most of the lights in North Somerset have been replaced now, and where possible any existing columns have also been replaced, however, there are still a number of columns which have exceeded their design life.

Structures:

Historically many structures were designed to accommodate lower loadings and traffic flows than they are currently subjected to. North Somerset

Council's policy for Highway Structures is to ensure their structures are maintained to a condition where the safety of the highway user is not compromised. Where new structures are to be installed, the Council will ensure these structures are designed and constructed to the current national industry standards and, where possible, accommodate possible climate change effects.

There are more than 725 structures on the council's highway network, ranging from; vehicular bridges, to culverts, to public rights of way and pedestrian bridges. Efficient maintenance and long-term management of highway structures is key in maintaining an open and safe highway network. This is linked to the upgrading of the structures to meet the increasing demands placed on highway structures.

Programme of works

Works are planned as far as possible for the work to be carried out at the optimum time to reduce the budgetary spend over the lifetime or lifecycle of the asset. Where the asset is in its design life is also considered. If it is end of life decisions must be made as to what expenditure and maintenance is needed until a renewal can be put in place. Many streams of information help us to prioritise works for the plan, and on occasion assets are either brought forward or delayed so that savings can be made by scales of economy, for example – by delaying or bringing forward an asset that needs a specialist treatment, contractor costs are reduced through larger quantities.

Asset management principles show that maintenance requirements focus on reducing whole life costs rather than carrying out short-term fixes. The programme of works is based on many factors: there is an optimal point in the roads life where it can be treated so that little or no reconstruction or potholes occur. Unfortunately, we do not have the funds to do as much as we would like.

The Highways Asset Management strategy will be separate from the Local Transport Plan programme. This will enable officers and contractors to have an early sign off and view of the works to undertake pre-construction activities ready for the first week in April each year.

Asset	Quantity	Surveyed	Replacement Plan	Condition
Bridges	203	Yes	Maintain to stop further deterioration of the existing structure.	Good to fair depending on age of the structure
Tunnels	2	Yes		Fair
Subways	18	Yes		Good
Culverts	212	Yes	Repair/strengthening/replace the structure to ensure the highway is safe.	Fair
Retaining Walls	219 many unknown	Yes		Fair
Barriers	170	Yes	Repair/replace where it required to avoid compromising the road users safety.	Good

Carbon and net zero considerations

Works will be assessed for their whole life carbon through the following stages:

- Programmes
- Projects
- Early contractor engagement and design
- Contamination remediation
- Procurement
- Construction and maintenance
- End of life recycling or disposal

The current term contract is coming to an end in 2024, there will be a requirement for the contractor to supply the required data at a granular level to ensure that reductions in carbon use can be interrogated and reported on. The asset management team is actively engaged in subgroups developing a national tool.

Finance

Highways Capital Maintenance is predominantly funded by Central Government; this funding is based on our performance and can change dramatically. An additional top up from North Somerset Council gives us the opportunity to carry out additional works on Footways and Unclassified Roads and some Cycleways. This funding is not enough to bring all the roads in the county up to an excellent as new standard. There is an estimated backlog in excess of £58 million to bring the road carriageway asset up to a good condition. To replace the network to design standards that are applicable to current traffic levels would cost something in the region of £2.4 to £2.8 billion due to current increases in global costs.

Carbon off-setting, and the drive towards newer efficient transport and machinery has increased the actual costs of the raw materials and plant required to deliver the works. Changes in legislation and construction booms have also forced wages up. In effect the programme of work delivered in 2022 was in the region of 20% less for the same 2020/2021 budget.

Forecasting future spending will be difficult due to rapid changes in supply. The following considerations are made to reduce the costs incurred.

- Have a signed off fixed 12-/15 month and an indicative 60 month programme of schemes in place by January each year so that the contractors can source and resource materials at reduced costs
- Carbon reduction elements are currently being assessed and they will have a priority input into the position of a site in the plan
- To apply appropriate resistant surfaces to sites where the environment creates premature failure.
- To identify early intervention treatments and carry out repairs, which will lead to a cost saving in the long – term.
- Strategic and important roads need early consideration for treatment due to the effects of carbon use and the free movement of road users.
- Failure types, i.e., structural or aesthetic will be considered with structural failures receiving priority.

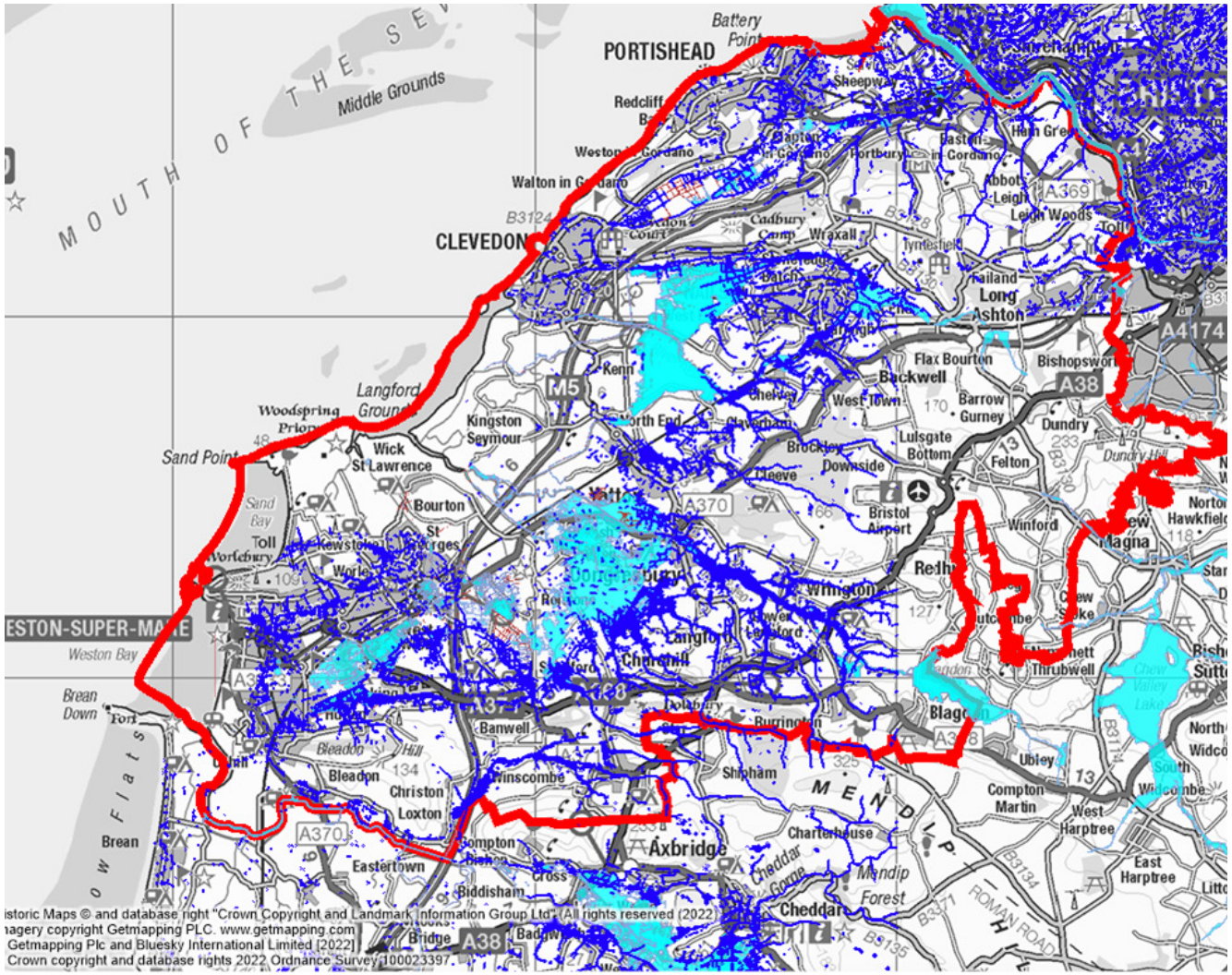
Network resilience

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

North Somerset is at risk of all types of flooding. The highway network is particularly impacted by surface water flooding which will become more intense and frequent with climate change. Drainage capacity will be exceeded, and debris will be washed onto the highway more often. All the towns and villages have areas of known risk and the rural network in steeper areas can become conduits for flood water in extreme events.

Key:

- Light blue area is EA fluvial flood zone 3
- Dark blue is surface water flood risk for 1 in 100 year events



Prioritisation

Ultimately there will be more sites than we have funding for, and sites that are in the same general condition and equal importance. Where these are found other factors will have an input on the position within the plan:

- Corporate priorities – will influence changing emphasis on asset types or network locations.
- Joint schemes – for example drainage or active travel schemes.
- Highway inspections – where there are a large number of sites in similar condition – reports are used to further assist prioritisation.
- Importance to the network and risk management.
- Customer enquiries and claims – where there are a large number of sites in similar condition enquiries and claims are used to assist in prioritisation.
- The council also has access to the Highways Infrastructure Resilience Assessment Modelling tool – which has enabled other counties to obtain additional funding. The council's Highway Asset Team has recently been fully resourced and will actively seek suitable schemes and bid for additional funding when the streams are released.

Engagement and communication

The management of the highway, its structures and other assets, generates interest from the public and the press. This is likely to become more significant as the public become aware of the need to reduce our carbon burden and seek to have a say in the way that the highways should operate in the future, with particular regard to walking and cycling. Effective communication plans for maintenance, with a focus on informing the public of our plans showing the condition-based decision making, will be needed regularly.

Engagement surveys are carried out nationally and locally, and the results of which show that North Somerset is a very diverse county with no overarching strategic needs: needs are local and change from village to village, urban areas to rural areas and from town to town.

Communication is made with adjacent authorities, utilities, motorways, and other groups to ensure as far as possible that works are coordinated and efficient. The exercise also aims to protect the assets from early failures due to utility excavations.

North Somerset Council are also members of regional groups such as The South West Highway Alliance and the Local Council Roads Innovation Group. The latter provides members with a unique platform to engage with councils, the Department of Transport and the wider highways community.

Our aim is to produce a forward plan of sites of any particular asset group which is accurately costed and has achievable timeframes. This will give officers adequate time to communicate with councillors, members of the public and internal teams for all of the pre-planning, coordination and contractor engagement, so that the works can be as efficient and provide as little disruption as possible to the public or local businesses.

Scheme selection

Schemes must be selected in accordance with asset management principles. Structural defects and defects that contribute to accelerated deterioration have significantly higher rankings in the condition data in the surveys carried.

The data produced for carriageway schemes can be interrogated so that it produces maintenance schemes. These schemes are then reviewed to take account of the priority of the road carbon savings, other utility works, and the possible disruption to the network. Where disruption will be high we consider other works that could be carried out on the other assets at the same time to make best use of the opportunity.

Some schemes will be selected for preventative treatments before they show adverse wear and tear, e.g., preservatives lock in condition and maintain it for periods of up to five years where the preservative is re-laid. It is envisaged that these schemes will begin in 2024 when the new maintenance contract is awarded.

Risk

Current events such as the pandemic and other global issues mean that the prices of raw materials and components are volatile. In extreme cases some projects may need to be placed on hold, or substitute products used that may not be as cost effective or carbon efficient than the original may be used or reserve projects will be made available to ensure continuity and spend where possible.

It is likely that the maintenance of our assets or the length of diversions, timings and duration of works, noise and general disruption will fall short of stakeholder requirements. Good all-round communication is essential in improving/maintaining public satisfaction and explaining why works are carried out in certain ways.

If we do not undertake the works in a timely and preventative manner our costs and carbon consumption will not be controllable.

Under the Highways Act 1980 the council has a duty to maintain highways and footways. The council receives very few valid claims, however they are all monitored so that trends can be identified and action to be taken accordingly.

Performance

The council is performing well on the percentage of roads that are red (requiring maintenance now) with an overall figure of 3.7%. The strategic move for North Somerset would be to target roads so they do not turn red. Our green (good condition) roads are at 77.9%, targeting the amber (consider maintenance) roads will ultimately increase the good roads and decrease the amount falling into a red category.

National road status indicators

- RED = requires maintenance now
- AMBER = consider maintenance
- GREEN = good condition

Our condition surveys contribute to benchmarking ourselves against other authorities. There are also national performance indicators that are used to show customer perception. According to the National and Highways Transport Network, many authorities have stated that the optimum road condition results for those roads that are red (as described above) or in the region of:

- Predominantly Rural Authorities = 13% Red
- Mixed Authorities = 10% Red
- Predominantly Urban Authorities = 7% Red

Review

The document is owned by the Executive Member with portfolio responsibility, and forms part of the Highways Asset Management Plan suite of documents.

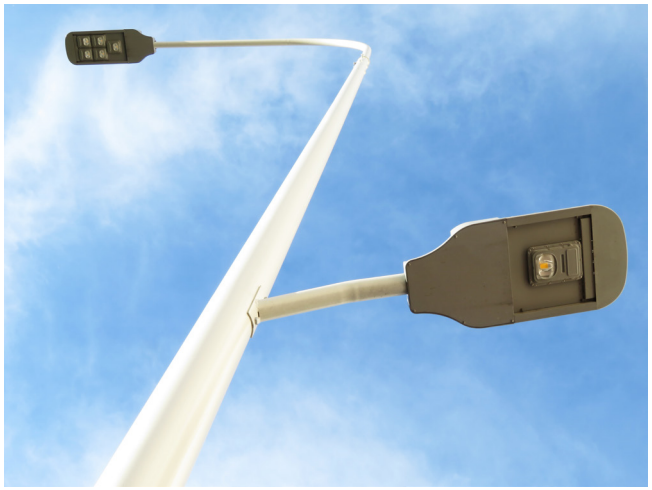
The Executive Member will review and approve the Highways Asset Management Strategy where significant changes are made, otherwise the Director shall on an annual basis ensure it remains relevant and consistent with the organisational policy, and to test its appropriateness in the current climate of obligations.

The implementation of the strategy into a forward plan is the responsibility of Highway Technical Services department within the Place Directorate.

The management of the delivery of the schemes that are generated in the highway asset management plans is carried out by the Highways and Parking Service area within the Place Directorate.

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

This strategy will be reviewed regularly as part of our commitment to continuous improvement with a full review every three years.



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