Highway Infrastructure Asset Management Strategy 2021 – 26

March 2021

Growth and Infrastructure

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The Strategy

Forward

Councillor
Portfolio Holder

I am very pleased to be able to introduce Bournemouth, Christchurch and Poole Council's (BCP Council) Highway Infrastructure Asset Management Strategy (HIAMS).

The local highway network is BCP largest and most valuable publicly owned asset with a replacement value of £2.7 billion. It is used every day by residents, businesses and visitors and provides a vital contribution towards the economic, social and environmental well-being of the Area.

BCP Council is set in an outstanding natural environment and is a beautiful place to live, it is a vibrant and popular tourist destination. It is our priority to ensure that residents and visitors can enjoy the area by maintaining our roads to a high standard to allow access around our conurbation.

The Council is committed to the development of good practice and continuous improvement. Adopting current best practice will allow us to operate more effectively and put us in a better position to secure funding opportunities in the future.

In the current economic climate, managing the work to get the best value outcomes on highway infrastructure has never been more important. The importance of adopting an asset management approach which provides a more efficient and effective way of managing the highway infrastructure has been reinforced by the Government, where funding streams are linked to those authorities who can demonstrate value for money and efficient delivery of highway maintenance activities.

This Strategy sets out how the highway service will deliver against the Council's key priorities, taking into consideration customer needs, asset condition and best use of available resources. The Strategy supports and aligns with the objectives align in our Corporate Plan.

Purpose Statement

This Strategy sets out how the Highway Network Assets within the BCP Council Area will be managed and also how the Asset Management Policy will be achieved. The Policy is a high-level document that confirms BCP Council's commitment to Highway Infrastructure Asset Management.

The Highway Network Asset contributes to prosperous communities, encourages social connection, street culture, and a sense of pride while improving safety and reducing crime.

This strategy aligns and contributes to the five Priorities set out within BCP's Corporate Strategy

1. **Sustainable Environment** - Leading our communities towards a cleaner, sustainable future that preserves our outstanding environment for generations to come
2. **Dynamic Places** - Supporting an innovative, successful economy in a great place to live, learn, work and visit
3. **Connected Communities** - Empowering our communities so everyone feels safe, engaged and included
4. **Brighter Futures** - Caring for our children and young people; providing a nurturing environment, high quality education and great opportunities to grow and flourish
5. **Fulfilled Lives** - Helping people lead active, healthy and independent lives, adding years to life and life to years.

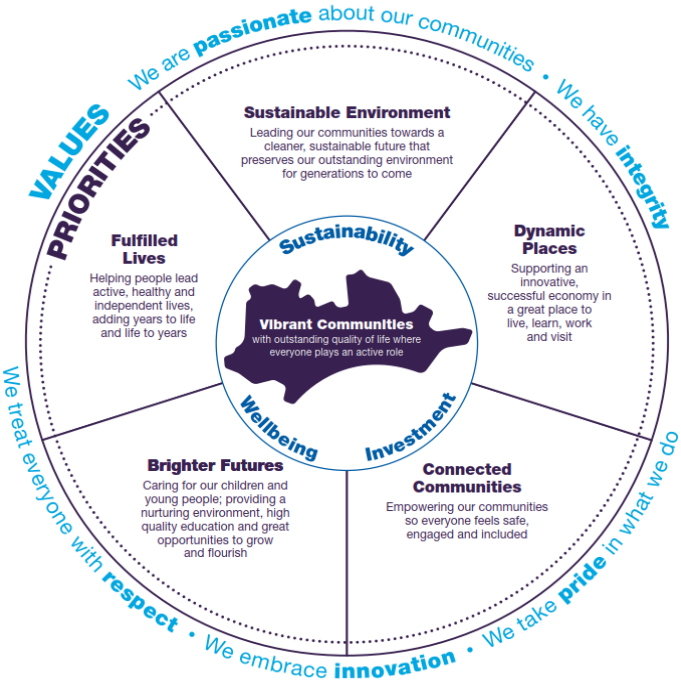


Figure 1: BCP Corporate Objectives

Objectives

The purpose of this Highway Infrastructure Asset Management Strategy (HIAMS) is to:

- Improve how the highway assets are managed
- Enable a more effective and efficient highways service to be delivered
- Maximise the impact from targeted investment in highway network assets.

The strategy also identifies the funding challenges and pressures for the main asset groups.

Strategy applies to

This strategy is applicable to all who represent BCP Council in any capacity – Members, Officers, consultants and contractors

This strategy is applicable to all public highway infrastructure managed and maintained by BCP

This strategy replaces

The HIAMS from the proceeding legacy authorities of Bournemouth Borough Council, Borough of Poole, Christchurch and East Dorset District Council and Dorset County Council.

Approval process

This strategy requires Cabinet approval.

Links to Council Strategies

During the preparation of this strategy document due consideration has been given to the following Council Strategies:

- Corporate Plan
- Sustainable Transport Plan
- Digital Strategy
- Workforce Strategy
- Health and Wellbeing Strategy
- Climate Change Strategy
- Equality and Diversity

Asset Management Framework

The following diagram illustrates the highway infrastructure asset management framework and how processes and components relate to national and local factors:

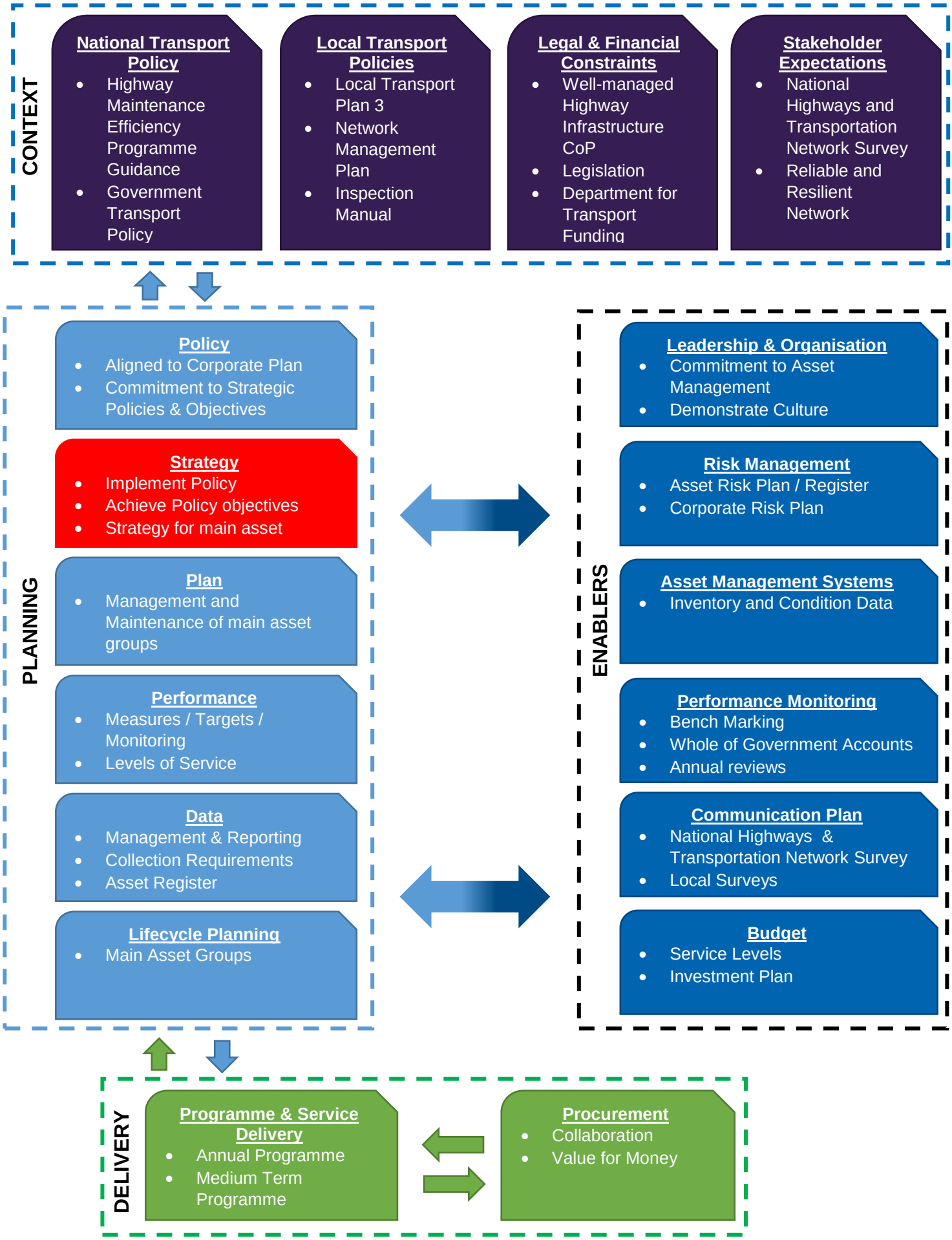


Figure 2: Asset Management Framework

Links to other plans

This strategy document together with the Policy will form the link between the Corporate Strategy, Business Plan and individual service delivery plans.

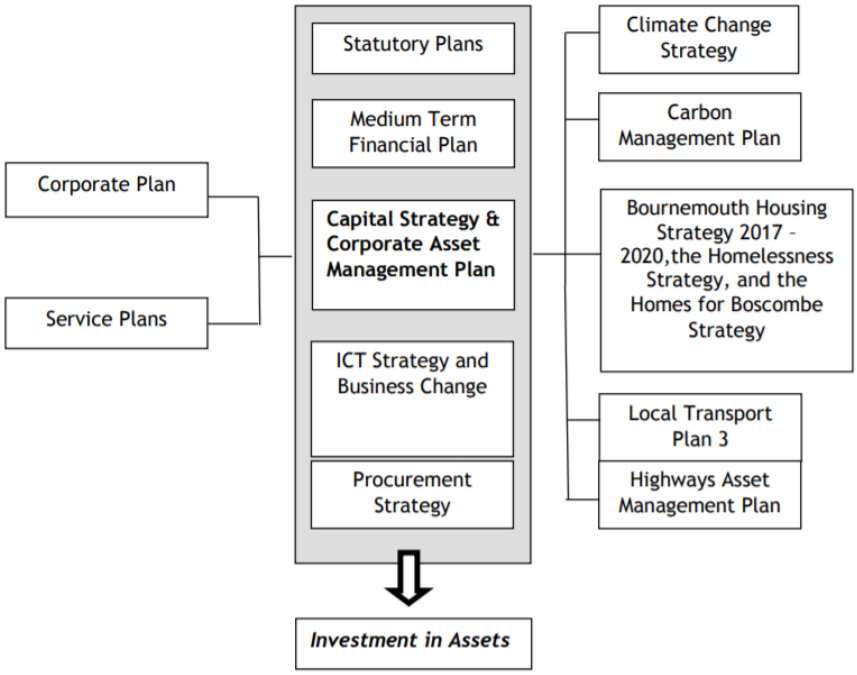


Figure 3: Links to other plans

Within the highway infrastructure asset management framework are a number of documents that have been developed and are in the process of being developed to ensure compliance with relevant regulations and guidance. These include a number of legacy documents from the proceeding legacy authorities of Bournemouth Borough Council and Borough of Poole currently in use during transition phase.

Figure 4: Asset Management Documents

Asset Management Policy

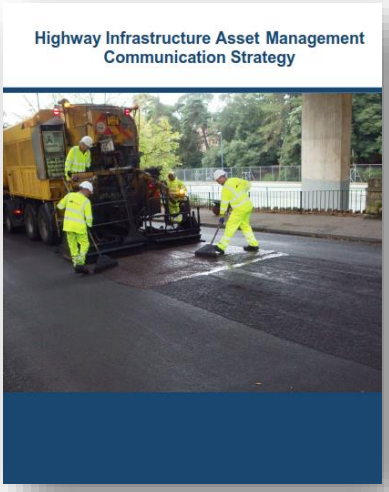
The Highway Asset Management Policy sets out the Councils approach to Highway Asset Management, it describes the principles adopted in applying asset management to achieve BCP's strategic objectives. The policy describes the authority's commitment to highway infrastructure asset management. It is endorsed by senior decision makers, including elected members and is visible to all staff involved in related activities.

Asset Management Plan

The objective of the Highway Asset Management Plan is to document the activities and processes of the Asset Management Framework and to provide detailed information to senior decision makers to support investment decisions and enable longer term planning. The Plan informs all staff about how the highway infrastructure is to be managed. The Plan supports the Asset Management Policy and Strategy.

Communication Strategy

The Council is responsible for maintaining a highway network that not only serves its residents but also supports the growth of the local economy, tourism and promotes recreational activities. Effective and efficient management of Highway Assets is a significant factor in the ability of the Council to deliver its services and enable the economy of the area to thrive. A well-maintained highway network plays an essential role in supporting growth and attracting increased investment in BCP.



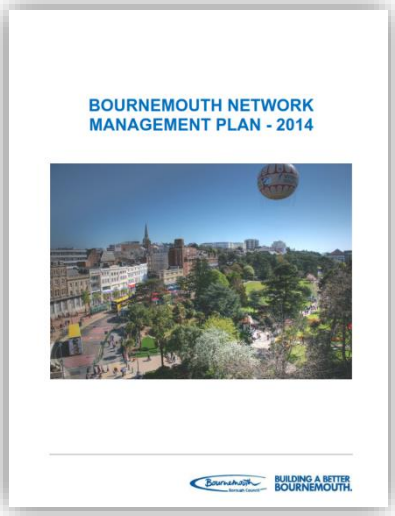
The adoption of an Asset Management approach ensures that highway infrastructure assets support the delivery of services and the local economy, taking into account the long-term performance of the asset.

In delivering the asset management strategy it is vitally important that the Council listens and communicates with customers and involve them in how services are planned and delivered.

For this reason, BCP Council is developing a Highway Infrastructure Network Communication Strategy (HINCS) which has a number of messages to the authority's stakeholders. The Communication Strategy ensures that relevant information is provided to inform and to promote engagement with Asset Management.

Network Management Plan

The Network Management Plan (NMP) brings together all the objectives, policies and standards required to effectively deliver services and manage the highway network. With the current pressures being placed on Local Authority budgets the need to be effectively and efficiently managing the highway network has never been greater.



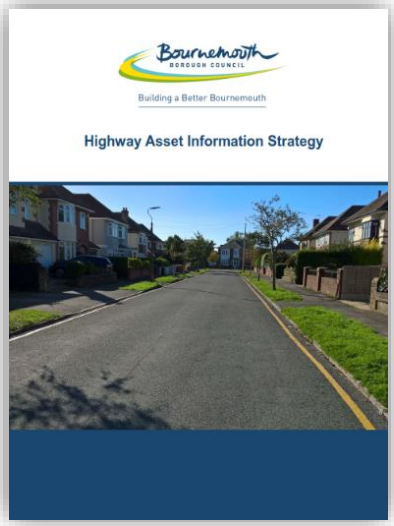
The NMP recognises that BCP Council can be taking on several roles when managing the network, whether it is as the Traffic Authority, Highway Authority or Permit Authority.

The Council has adopted the Code of Practice for Well-Managed Highway Infrastructure (WMH) which is designed to "promote the adoption of an integrated asset management approach to highway infrastructure based on the establishment of local levels of service through risk-based assessment".

The NMP supplements other documents including the Highway Infrastructure Asset Management Plan (HIAMP) and Local Transport Plan (LTP). Furthermore, the NMP helps the Council to deliver its strategic priorities outlined in the Corporate Plan.

Data Management Plan

The highway network is surveyed routinely using a variety of different methods to collect data and condition information. BCP has in place a data collection strategy “Highway Asset Information Strategy” which is aligned to the UKRLG Highway Infrastructure Asset Management Guidance.



Collected asset data is added to the Asset Register, which is a live system that benefits from continual updating as assets are created installed, repaired or removed.

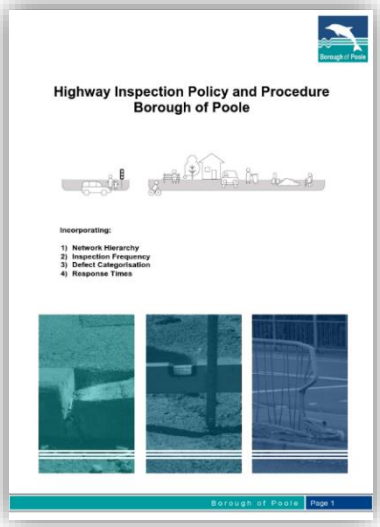
Streets will be added to the Network when they are formally adopted as Public Highway.

The data held in the system includes:

- Street Gazetteer and Network information
- Inspection records
- Condition information
- Maintenance histories

Highway Safety Inspection Manual

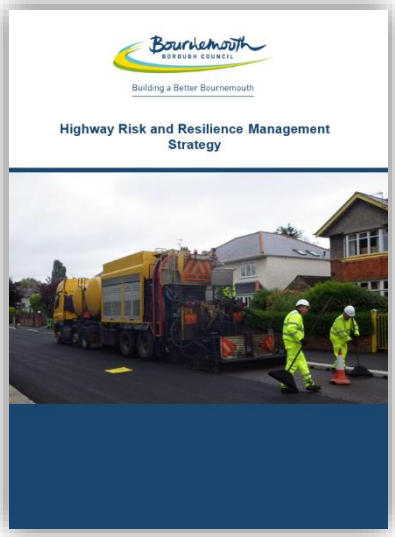
The Highway Safety Inspection Manual sets out the requirements for carrying out highway safety inspections on the highway network and contains guidance on BCP’s policy and requirements for prioritising timely repairs to safety defects in accordance with the risk-based approach methodology described within the Code of Practice.



Personnel responsible for managing or carrying out highway safety inspections as well as other staff who are responsible for the identification and/or instruction of defect repairs will need to comply with the requirements set out in the manual.

Risk Management

Risk Management requires a less prescriptive approach to asset assessment and allows decisions to be made using risk assessments on the needs and local variation to meet the demands of highway infrastructure asset management which are outlined in the context section of the Asset Management Framework. To ensure that users’ reasonable expectations for consistency are taken into account, the approach of and, in particular, adjoining other local highway authorities has been considered.



The purpose of a risk-based approach is the consistent application of a decision-making process to:

- Correctly evaluate the risk posed to highway users by all defects or deficiencies in the highway asset
- Prioritise resources so that the risk is managed effectively
- Ensure the efficient use of available resources
- Understand performance and address any gaps in resources or performance
- Ensure value for money
- Enable monitoring of outcomes

Performance Management

The demands placed on the highway network will change over time and consequently place greater or lesser pressures on highway infrastructure assets. Levels of Service are a simple and effective way of describing the service that is to be delivered by the Highway Authority.

These can identify the way it is to be measured in a way that helps stakeholders understand what can be expected. It is therefore necessary to set Levels of Service to specify the standard of service that is to be delivered.

These Levels of Service take into consideration statutory duties, national and regional guidance, the management and mitigation of risk both to the service user and the volume and type of traffic using the network.

The Council monitors its service levels through a range of performance indicators which are routinely reported to senior management for review, as part of BCP's Corporate Performance Management Framework.

Asset Inventory

To effectively and efficiently manage the Council's highway network asset, there needs to be an appreciation of the size and condition of it. A managed inventory of highway network assets is therefore fundamental. The Council holds a significant amount of data particularly on its main assets

- Carriageways
- Footways
- Cycleways Structures
- Drainage Gullies
- Intelligent Transport Systems including Traffic Signals
- Street Lighting
- Rights of Way

Knowledge of the highway assets will continue to expand through an asset management approach.

Currently the Council's inventory includes:

Asset	Quantity
Carriageway Length	1,248 km
Footway Length	not yet collated accurately for BCP
Cycleway Length	not yet collated accurately for BCP
Highway Structures	273 No.
Gullies	59,706 No.
Vehicle Restraint System Length	56.6 km
Rights of Way / footpath Length	142 km
Traffic Signals Junctions	120 No.
Controlled Pedestrian Crossings	252 No.
Variable Message Signs	40 No.

Asset	Quantity	
Street Lighting	38,196 Units	Poole and Bournemouth only - Christchurch Street Lighting is still part of Dorset PFI

Table 1: Asset Inventory

Plus, drainage connections, street furniture, road markings and soft estate

Data Collection

The highway network is surveyed routinely using a variety of different methods to collect data and condition. A programme of inventory surveys is developed each year based on priorities and available budgets. Inventory data is only collected and maintained where there are demonstrable benefits when compared to the cost of collecting and maintaining this data.

Asset Management Systems

The Council recognises that effective asset management and its implementation relies on asset management systems that can be used as tools to support decision making at all levels.

The right systems coupled with well-maintained and audited data are important to reporting and monitoring of asset performance.

Asset condition is an important factor of performance. The right investment decisions are unlikely to be made without this information.

The asset inventory, condition and defect data are currently stored and interpreted in a number of ways, utilising asset specific systems.

These systems are maintained and upgraded to provide greater functionality and benefit from continual improvements in IT and developments in asset management.

The inventory contains sufficient data to allow reporting of the annual Whole of Government Accounts (WGA) valuation of the transport assets ensuring compliance with the requirements of the UKRLG Highway Infrastructure Asset Management Guidance. The asset inventory will be periodically reviewed, and the Asset Register consolidated.

The collected asset data, for each asset group, will be stored in an appropriate asset management system in a cost effective and appropriate format to ensure it is readily available to those that need it. Effective asset management relies on systems that can be used to support decision making at all levels.

Community Requirements

This section describes information about the community's requirements for the highway network asset. It outlines how this information is obtained and what it says in relation to community preferences.

Customer Service

Customer service is a consistent feature across all highway assets and activities. Core objectives of the Council's customer service include

- Delivery of satisfaction
- Provide effective consultation and communications
- Dealing effectively with enquiries and complaints

Customer Care

Customer contacts with the council regarding highways are managed using a customer relationship management (CRM) system. The system is used to record and categorise contacts made by customers and the actions taken in response to the queries and issues are monitored and reported.

Customer Consultation

BCP Council participates and utilises the information supplied annually to the National Highways and Transportation Network (NHT) Survey which serves to provide details on levels of customer satisfaction with local authority services and practices.

This helps target and publish information clearly and effectively to ensure members of the public and other highway stakeholders are as fully informed as possible about the current performance of the Council's services. It drives the Council's performance, identifying public perceived gaps, helps us analyse the public's understanding and will inform the communications approach.

Details of the results of the surveys are available at www.nhtnetwork.co.uk

Preparing for the future

An Expanding Highway Network

The highway network increases in size year on year and so too do the number of assets maintained by the Council.

Although the Council is not obliged to adopt new roads, the Highways Act 1980 gives the Authority the power to adopt highways by Agreement. In doing so, the Council supports economic growth and ensures that the roads and other highway assets constructed are installed to an acceptable standard that will benefit the residents, businesses, local communities and public / emergency / health services. When a new section of highway is adopted, in certain circumstances a commuted sum is paid to the Council for some assets to fund future maintenance.

In some instances, developers choose not to enter into an Agreement with the Authority and these streets remain under private ownership. Equally, if the developer fails to construct the adoptable highway assets to the required standard it will not be adopted.

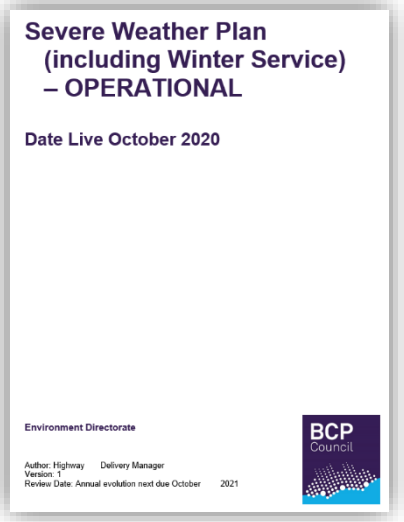
Sustainability

Sustainability in terms of asset management links to the wider environment and sustainability principles of the Council. The longer-term approach to highway asset management will consider actions to mitigate direct and indirect impacts of highway maintenance on the environment and communities taking into account

- Nature Conservation and Biodiversity
- Effects of Extreme Weather
- Environmental Impact
- Carbon Costs – footprint, material appraisal, waste management and recycling
- Energy Reduction
- Noise
- Air Quality and Pollution Control
- Walking & Cycling (Active Travel)

The effect of sustainability may have on investment priorities and lifecycle costs of the highway assets.

Environmental Conditions

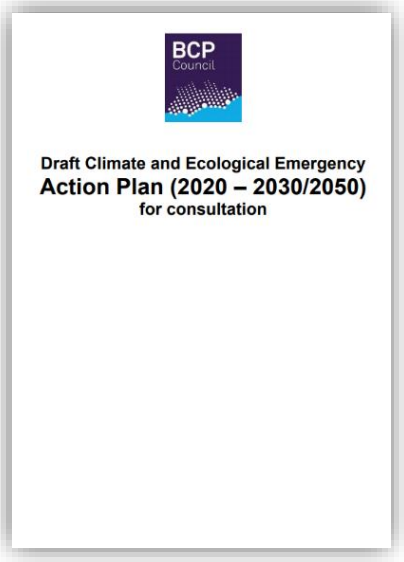


Environmental conditions have a significant influence on the condition of the road network.

Over recent years the UK has experienced periods of severe weather with a number of particularly harsh winters, extreme summer heat and prolonged dry spells, storms causing flooding and damage to trees.

During winter periods, freeze/thaw action can accelerate the deterioration of carriageways and footways, and winter maintenance operations have a direct effect on the resources needed for other maintenance activities. One of the reasons why road surfaces deteriorate is that ultra-violet light and heat damages bitumen on the surface leading to oxidisation and a loss of strength. Therefore, there is a need to consider what impact this may have on carriageway surface material specification and lifecycle cost estimates.

Climate Change Adaption



The Climate Change Act 2008 places obligations on the Authority and others to reduce greenhouse gas emissions and prepare to adapt to longer term climate change. The same Act established an independent statutory body, the Committee on Climate Change to provide advice to the UK. The Committee's latest risk assessment concludes, as expected, that the trend of overall land warming leading to warmer summers and wetter windier winters will continue, and that this will likely affect transport infrastructure including BCP's roads, drains and structures. The effects of climate change on the Authority's highway assets have already been seen during several cold, wet and windy weather events in recent years.

BCP declared a climate and ecological emergency on 16 July 2019, committing the authority to be carbon neutral by 2030. A report outlining 153 proposed actions has been approved by Full Council.

Network Resilience

The Flood and Water Management Act introduced new duties for local authorities which will need to be considered when managing the various asset groups. Investment in Sustainable Urban Drainage Systems (SuDS) and design considerations in new schemes has an increased focus on preventing surface water flooding. The introduction and maintenance of SuDS is a further pressure on maintenance budgets as these are more expensive to maintain than traditional drainage systems.

Critical Infrastructure

Critical infrastructure refers to routes and assets where failure would result in a significant impact to the local, and potentially the national economy, and affect the ability of public / emergency / health services to carry out their responsibilities. A Resilient Network has been identified by the Council and is formed from the winter gritting routes. This Resilient Network will provide the primary access roads to key services during extreme weather

The Council's Emergency Plan outlines BCP Council's core response to emergencies and major incidents.

To help inform maintenance priorities and investment decisions knowledge of critical assets in terms of their current performance and the impact of their failure would have on the network is crucial.

Management, including appropriate investment, of critical assets is essential to ensure that these assets are sufficiently resilient to cope with potential risk and threats. These potential risks and threats to the function of critical infrastructure, include climate change, impacts from flooding, rising temperature, high winds and drought.

Financial Summary

Asset Valuation

The Authority is required to meet the requirements for financial reporting of the highway asset to Her Majesty's (HM) Treasury using the Whole of Government Accounts (WGA) process.

This process allows The Council to understand the value of BCP's highway infrastructure assets and improves the Council's understanding of the network and deterioration. To undertake this process asset condition and data information is required.

The Gross Replacement Cost (GRC) represents the cost of replacing the existing asset with a new modern equivalent asset. The Depreciated Replacement Cost (DRC) represents the GRC less the value of the deductions for physical deterioration and obsolescence.

The annualised depreciation figure is the cost of all the treatment required to restore the service life of the asset spread over the lifecycle. This is the theoretical annual cost of maintaining the asset in a "steady state" condition although in practice the budgets and costs are significantly less than this.

Funding

Funding for maintaining the highway network asset is made available from a combination of revenue and capital allocations. In general, revenue funding is provided by BCP Council and capital funding is provided by central government. In addition, specific grants (revenue and capital) may be made available by both BCP Council and central government for certain items e.g. excessive deterioration and damage caused by severe winters, drought and flooding.

Highway network assets generally deteriorate slowly and the effect of a change in the level of funding is not always immediately evident. Specific funding strategies for the main assets will be developed within the Highway Infrastructure Asset Management Plan (HIAMP) using long term predictions (typically, 20 years plus) of condition and will consider the whole life cost of maintaining the asset. Using long term predictions means that decisions about funding levels can also be taken with due consideration of the future maintenance funding liabilities that are being created.

Lifecycle Planning

Lifecycle planning principles have been adopted by the Authority to review the level of funding, support investment decisions and substantiate the need for appropriate and sustainable long-term investment in highway asset management.

Lifecycle planning establishes a strategic approach to the management of highway assets, from construction to disposal. It is the prediction of future performance of an asset, or a group of assets, based on investment scenarios and maintenance strategies. This lifecycle plan is the documented output of this process as adopted by the Authority.

The Lifecycle Planning process includes the following steps:

- Performance expectations, consistent with goals, available budgets, and organisational policies, are established and used to guide the analytical process, as well as the decision-making framework.
- Inventory and performance information are collected and analysed. This information provides input on future network requirements.
- The use of analytical tools and processes to develop viable cost-effective strategies for meeting Local Authority needs and requirements, using performance expectations as critical inputs.
- Alternative options are then evaluated, consistent with long-term plans, policies, and goals. The entire process is re-evaluated annually through performance monitoring and systematic processes.

The Lifecycle Planning objectives for the authority's main assets are set out below:

- Identify long-term investment for carriageway assets and develop an appropriate maintenance strategy.
- Predict future performance of highway infrastructure assets for different levels of investment and different maintenance strategies.
- Determine the level of investment required to achieve the required performance.
- Determine the performance that will be achieved for available funding and / or future investment.

- Support decision-making, the case for investing in maintenance activities, and demonstrate the impact of different funding scenarios.
- Minimise costs over the lifecycle, whilst maintaining the required performance.

Levels of Service

The WMH Code of Practice recommends that a risk-based approach should be adopted for all aspects of highway infrastructure maintenance, including setting levels of service. Adopting a risk-based approach enables BCP to set levels of service appropriate to circumstances and are achievable for the available budgets.

The core objectives for maintenance are

Network Safety

- Meeting statutory obligations Section 41 of the Highways Act 1980
- Meet road users need for safety

Network Serviceability

- Ensure availability
- Achieve integrity
- Maintain reliability
- Resilience
- Manage condition

Network Sustainability

- Minimising cost over time
- Maximising value to the community
- Minimising environmental impact

Main Asset Groups

The main assert groups dealt with within this strategy documents are

- Carriageway
- Footway
- Cycleway
- Highways Structures
- Intelligent Transportation Systems including Traffic Signals
- Drainage
- Street Lighting

Challenges

- **Funding**
  National underfunding of highway assets has been a long standing issue. Securing longer term funding is critical for developing BCP's asset management approach. BCP aspire to making sure that the funding is targeted "right time – right place" and having the right resources who are fully trained to be able to deliver,
- **Cross Asset Prioritisation**
  The code of practice recommends that in developing priorities and programmes, consideration should be given to prioritising across asset groups as well as within them. The Council has adopted a process that is fair and addresses the most important asset needs utilising a staged and prioritised approach to allocating the funding.
- **Backlog**
  The backlog is the amount of money required to bring the highway network asset back into a reasonable condition. Currently, the rate at which the highway network assets are deteriorating far exceeds the rate of investment from central government, as a consequence the rate of deterioration and hence the backlog continues to increase.

Carriageway

Strategy

It is the strategy of BCP to manage the carriageway network and associated assets in an effective and affordable manner whilst maintaining the assets value, availability, and safety to users of the network, and to support tourism within the Authority. The carriageway and associated assets will be maintained to a standard appropriate to their location and use, including treatments and maintenance techniques.

Inventory and Hierarchy

Carriageways are one of BCP's main asset groups they tend to be the most valuable and visible public asset owned and maintained by the Council.

Class	Length of Network (km)		
	Rural	Urban	Total
A	28.48	107.46	135.94
B	5.30	55.31	60.61
C	10.36	106.12	116.48
Unclassified	2.04	933.00	935.04
Total	46.18	1201.89	1,248.07

Table 2: Carriageway Inventory

The carriageway asset is managed according to a hierarchy based on road classification, and further divided by urban/rural road type. The unclassified carriageway is typically residential roads and makes up 77% of the whole network.

A characteristic of the unclassified roads is that they tend to be constructed with less substructure, due to the lower commercial vehicle use, and are most at risk of rapid deterioration from the ingress of water and overloading.

Challenges

Carriageways may suffer progressive deterioration where there is a lack of investment. Severe weather over the last few winters combined with flooding has caused additional damage.

The main concerns over the future condition of this asset are:

- Sufficiency of future budgets to maintain the road network.
- Roads with less substructure at risk of rapid deterioration.
- Use of roads with less substructure being used by buses increasing the rate of deterioration.
- Poor utility reinstatements.
- Resource to deliver the current programme and develop the forward programme.
- Impacts of Climate Change
- Insufficiency of future budgets to maintain A and B roads.
- Minor roads, forming vital link for local communities being heavily used, but with little structure are at risk of rapid deterioration due to water ingress and overloading.

Condition

In some cases, the structure and use of the carriageway has evolved rather than been designed, consequently the structure is inconsistent and is not always fit for purpose. The unclassified network is at most risk of rapid deterioration. Typically, these roads have little structure and consist of a thin layer of bituminous surfacing laid over a stone base.

Approach

BCP has adopted a lifecycle planning approach to carriageway maintenance, which means that investment can then be targeted where it will return the greatest whole life cost.

Using lifecycle planning will help develop a long-term investment strategy to reduce the maintenance backlog and allow the most efficient use of funding available.

To maximise Value for Money, a preventative maintenance approach has been implemented, maintenance is designed to be undertaken just before the onset of rapid deterioration and in advance of the requirement for structural treatments. Typically for carriageways these preventative treatments include surface dressing and micro asphalt which are cost-effective techniques used to prolong the life of roads that are starting to show the first signs of minor deterioration. The process is an economical method which seals the road surface whilst improving attributes, such as surface ride and skid resistance of a road which is structurally sound.

Using a preventative approach will enable far more of the network to be treated.

Desired Outcome

- To meet the statutory obligation on BCP as the highway authority to maintain the public highway Safe for Use and Fit for Purpose.
- Maintain the carriageway condition with minimum whole life cost.
- To deliver a sustainable improvement in carriageway condition
- Investment will recognise the differences in condition between various road hierarchies
- Maintain their structural integrity and maximise their lifespan, to provide maximum value for money from investment.

Footways

Strategy

It is the strategy of BCP to manage the footway and cycleway network in an effective and affordable manner whilst maintaining the assets value, availability, and safety to users of the network. The footway and cycleway networks will be maintained to a standard appropriate to their location and use including treatments and maintenance techniques.

Footways and cycleways are essential assets used as a healthy alternative to vehicular travel providing vital access for work, school, business, shopping and leisure. Encouraging walking and cycling is vitally important within the authority as a means of improving the current low levels of physical activity, health and also the environment by reducing carbon emissions and improving poor air quality.

Inventory and Hierarchy

Footways form an integral part of the highway infrastructure.

There are many different types of footway construction within the authority, most of the network is of bituminous material and classed as urban. The hierarchy lengths maintained are detailed in the following table.

Hierarchy	Length of Network (km)
1a Prestige Walking Zones	TBC
1 Primary Walking Routes	TBC
2 Secondary Walking Routes	TBC
3 Link Footways	TBC
4 Local Access Footways	TBC
Total	**TBC**

Table 3: Footway Inventory

There are areas of flagged footways and modular footways particularly in the town and local shopping centres. These footways are essential for users to connect homes with businesses, school and other leisure facilities. For many these are their only links to travel and access public transport.

Challenges

The main concerns over the future condition of this asset are:

- Sufficiency of future budgets to maintain footway network.
- Limited condition data on a large part of the asset.
- Tree roots causing major structural damage to footways.
- Insufficiency of resource to develop the forward programme.
- Poor utility reinstatements.
- Impacts of Climate Change

Condition

Unlike carriageways the condition of footways is not routinely measured, largely because generally footways deteriorate at a slower rate than roads, primarily because vehicles are not normally travelling on them.

The consequences of poor maintenance are often less pronounced than those for roads. The principle risk on footways is from trip hazards, particularly in high footfall locations. However, where vehicles do regularly park on or traverse footways even small defects can escalate quickly. This both increases the replacement costs and shortens the life of the asset.

A programme of surveys, over a four-year period, has been instigated to gather inventory and condition data.

Approach

BCP has adopted a lifecycle planning approach to footway maintenance, which means that investment can then be targeted where it will return the greatest whole life cost.

To fully utilise this approach and to make better informed decisions about prioritisation a programme has been set out to collect condition data of all footway category types. Investment will recognise the differences in condition and usage between various hierarchies

Desired outcome

- To meet the statutory obligation on BCP as the highway authority to maintain the public highway Safe for Use and Fit for Purpose.
- Support the recognised benefits of walking to health, the environment and the economy
- To achieve BCP's ambition to make walking an accepted choice for shorter journeys and to promote active travel.
- To deliver a sustainable improvement in footway condition
- Maintain the footway condition with minimum whole life cost

Cycleways

Strategy

It is the strategy of BCP to manage the cycleway network in an effective and affordable manner whilst maintaining the assets value, availability, and safety to users of the network. The cycleway network will be maintained to a standard appropriate to their location and use including treatments and maintenance techniques.

Cycleways are essential assets used as a healthy alternative to vehicular travel providing vital access for work, school, business, shopping and leisure. Encouraging active travel is vitally important within the authority as a means of improving the current low levels of physical activity, health and also the environment by reducing carbon emissions and improving poor air quality.

Inventory and Hierarchy

Cycleways form an integral part of the highway infrastructure. Cycling provision continues to expand in BCP and new networks are being incorporated on a frequent basis

Challenges

The main concerns over the future condition of this asset are:

- Sufficiency of future budgets to maintain cycleway network.
- Limited condition data on a large part of the asset.
- Insufficiency of resource to develop the forward programme.
- Poor utility reinstatements.
- Impacts of Climate Change.
- Cycleways that form part of carriageway, current prioritisation process does not reflect the use as a cycleway

Condition

At present the condition of the off road cycleway network is not routinely measured. Cycleways that are part of the road condition is collected as part of the carriageway condition data – but not separately identified

Approach

BCP will develop a long-term maintenance investment strategy for active travel. Investing in maintenance to ensure safe, reliable, convenient and attractive conditions for cycling.

Desired outcome

- To meet the statutory obligation on BCP as the highway authority to maintain the public highway Safe for Use and Fit for Purpose.
- Support the recognised benefits of cycling to health, the environment and the economy
- To make roads safer and more attractive for cyclists
- To achieve BCP’s ambition is to make cycling an accepted choice for shorter journeys and to promote active travel.

Highway Structures

Strategy

BCP's strategy for highway structures is to ensure that structures are maintained to a condition where the safety of the highway user is not compromised. Where new structures are to be installed, the authority will ensure these structures are designed and constructed to current standards.

As the Highway Authority BCP has a statutory duty to maintain all highway structures including bridges, culverts, subways, retaining walls etc.

Inventory and Hierarchy

The inventory of highway structures currently shows there to be over 270 structures within the authority which are 'owned' by BCP this represents a significant publicly owned asset.

Structure Type	Number
Bridge or culvert with span greater than 1.5m	98
Bridge or culvert with span less than 1.5m	19
Retaining Wall	60
Subway	45
Footbridge	42
Sign Gantry	7
Commercial building supporting the highway	2
Total	**273**

Table 4: Structures Inventory

Challenges

The type and age of the bridges varies enormously, ranging from historic masonry arches to modern complex steel and reinforced concrete structures. Although BCP's structure stock is relatively small in comparison to other Authorities it does include some extremely large and complex bridges which need specialist inspection and repair techniques.

Works identified as part of the prioritisation process and subsequent ranking of major structural repairs or complete replacement will not be able to be funded from the typical maintenance budgets. Consideration should in these circumstances be made for supplementary investment through bidding or borrowing opportunities.

Condition

Detailed inventory and condition data is held for all highway structures.

In a similar fashion to carriageways and footways, the results of structures inspections are used to represent the state of the structure stock. Each structure is assigned two numerical Bridge Condition Index (BCI) ratings: an Average BCI score (BCIav) and a Critical BCI score (BCIcrit).

Individual structure condition scores are combined to give a Stock Condition indicator score. These provide a high-level overview of the structure stock. They are effective when used to monitor trends over time and to determine whether the stock condition is improving, remaining constant or is progressively deteriorating with time.

The Bridge Condition Index (BCI) forms the core element of assessing highway structures and assigning works into the future. The BCI represents the outcome of all assessments of the structure.

Approach

BCP will continue to follow the principles set out in the Code of Practice for Well-Managed Highway Infrastructure (WMH).

All highway structures (including bridges, culverts, underpasses and subways) are subject to regular visual inspections in accordance with best practice. These include two main types of inspections: General and Principal.

Inspections of structures have a dual purpose. They serve to confirm that routine maintenance is being done properly and effectively and that maintenance schedules are correctly calibrated. They also serve to identify capital maintenance requirements.

Structural geometry, condition and capacity assessments are carried out on structures to ensure they can carry their designated loading. When necessary strengthening projects will be carried out or weight limits imposed.

Ranking of maintenance works are generally prioritised to target low BCI critical scores first because these represent the greatest risk, however funding availability and efficiencies through combining work with other highway projects is also considered.

Desired Outcome

- To ensure fitness for purpose and extend the life of the structures
- Enhance the quality of the environment for users and residents.
- To meet the statutory obligation on BCP as the highway authority to maintain the public highway Safe for Use and Fit for Purpose.
- To maintain the bridge stock in its overall current condition with appropriate interventions to deliver value for money.

Intelligent Transportation Systems (ITS)

Strategy

Traffic signal-controlled junctions and pedestrian crossings form an important highway asset, contributing to the safe and efficient use of the road network, promoting economic growth within the authority, promoting walking and cycling and improving accessibility.

These assets allow effective management of traffic flow around the authority while improving safety for all network users.

Inventory and Hierarchy

ITS form an essential part of the highway infrastructure asset

Asset Type	Number
Signal controlled junction	120
Toucan crossing	75
Pelican/Puffin crossing	177
Real Time Information Signs	242
Variable Message Signs	40
VAS Signs	TBC
Other ITS (Variable Message Sign, Real Time Information, Closed Circuit Television and Car Park Monitoring)	164
Total	**818**

Table 5: Intelligent Traffic Systems Inventory

Challenges

Maintaining a programme to replace and upgrade equipment if funding cannot be secured via being part of wider improvement initiatives will have a significant impact on the future condition of the asset with the associated potential for reduced levels of service and customer satisfaction.

Condition

The ITS assets are generally in average condition and historically a reactive maintenance approach has been taken to replace elements of the ITS.

Over the last few years there have been opportunities to replace equipment as part of wider initiatives for example the Local Sustainable Transport Fund programme of works.

This capital investment has reduced the long-term revenue maintenance burden. Through upgrading signal control systems to Extra Low Voltage (ELV) this requires less infrastructure such as ducting at the implementation stage. This in conjunction with the use of Light Emitting Diode (LED) lamps.

Approach

To continue to effectively manage existing ITS assets, reducing fault repair times and striving for efficiency saving through working with partners and suppliers to continually improve BCP's service.

The principles of Management of Electronic Traffic Equipment: A Code of Practice will continue to be applied. A lifecycle planning process will be used to determine a cyclic programme for replacement.

Continued use of energy and cost saving technologies within the traffic signals assets. Schemes such as replacement of old-style halogen signal heads with LED lighting heads and traffic signal sites to be changed to using extra low voltage (ELV) will form part of the works programme.

BCP will operate efficient economical systems to manage traffic flows effectively, reduce congestion and allow automatic fault reporting. The systems employed will be maintained to a usable standard to ensure traffic conflicts are avoided and to maintain safe passage for all highway users.

Desired Outcome

- Efficient operation and maintenance to allow those using the road network to move around the authority with the minimum of delay and disruption.
- Maintenance regimes in place that ensure that the traffic signal installations are maintained in a safe structural and electrical condition.
- Planned improvement of the ITS stock to reduce operating costs and average age of the asset
- Maintain as a minimum the current condition and continue with the current maintenance regime and programme of planned equipment replacement.
- Reduce operating costs using ELV and LED technology.

Drainage

Strategy

BCP's strategy for highway drainage is to manage the drainage asset in an effective and affordable manner that keeps the assets free from obstructions to provide the greatest opportunity to remove water effectively and efficiently from the surface of the highway allowing users to pass safely.

Inventory and Hierarchy

BCP's highway drainage network includes a wide range of assets, varying from combined kerb drainage units to open watercourses, which assist in the Council's duty to safely drain the highway.

Asset Type	Number
Gullies	59,706
Grips	Data not available
Catch-pits	Data not available
Culverts	Data not available
Other drainage types	Data not available

Table 6: Drainage Asset Inventory

BCP does not yet hold a complete inventory of all drainage asset components. Whilst inventory asset data exists with regard to the majority of highway gullies, information on the associated outfall systems, of various types, into which they discharge is limited. The cost of collecting such data would be very high and cannot currently be justified.

Inventory and data is collected on a site by site basis when for example flooding issues are investigated, asset knowledge is growing as the inventories grow.

Challenges

Highways drainage assets form a critical role in removing standing water from the highway and if maintained effectively the asset requires minimal capital investment.

Select localised data suggests that typically where gully connections have faced damage, often from utility works or tree roots, these have the potential to cause problems in the autumn/winter with large quantities of leaves making them susceptible to quickly becoming blocked.

Failure to invest in planned cyclic drainage activities linked to ditches, catch-pits, soakaways carries a risk across the network, in terms of standing water on the carriageway (ice in the winter months), and accelerated deterioration of the road construction. In some weather events drainage is at or above capacity and in some cases is influenced by tides or natural water table.

Reduced revenue budgets mean that many drainage maintenance activities have either ceased or been reduced significantly. This reduced drainage maintenance could be attributed to a reduction in material life and deterioration in parts of the road network.

The importance of understanding the drainage asset has been enhanced with the introduction of the Flood and Water Management Act 2010 which promotes finding suitable solutions to surface water problems through organisations working together as necessary.

Condition

The condition of the drainage asset is proven to have a direct influence on the condition of other highway assets. Non-functioning or inadequate drainage has the potential to speed up the deterioration process of road and footway construction, through water ingress. BCP has adopted a maintenance programme that seeks to achieve the policy objective and also minimise wider damage to other highway assets.

BCP are developing performance-based levels of service to monitor the performance of asset maintenance. For drainage services this level of service will include measure of the gully cleaning programme performance.

Condition based levels of service are intrinsically linked to predictable investment and the current environment does not allow consistent and predictable investment, subsequently levels of service, although linked to long term forecasting when developed will be updated annually in line with budgeting.

Approach

Highways drainage assets form a critical role in removing standing water from the highway and if maintained effectively require minimal capital investment.

BCP has adopted the principles of the Code of Practice for Well-Managed Highway Infrastructure (WMH). The approach for highway drainage is to target maintenance and investment in flooding hotspots, focusing on protecting the resilient road network, working with the Flood Risk Management team, to identify priority sites.

A risk-based gully emptying regime is in place with areas known to be vulnerable to blockages given greater priority and emptied more frequently. Data from historic cleaning and from new visits is used to produce a flexible schedule of works based on gully condition e.g. empty, half full or full. Roads with full gullies will have frequencies increased and those which have empty gullies will have the frequency extended. Leaf fall and flood risk are also taken into account.

Desired Outcome

- To meet the statutory obligation on BCP as the highway authority to maintain a safe highway by assessing and prioritising high risk flooding issues, programme accordingly and work in partnership with other organisations to deliver other benefits where possible.
- To assess and prioritise high risk flooding issues
- Develop forward programme for capital maintenance schemes
- Target the construction of highway drainage schemes to result in fewer residential and business properties being at risk of flooding (measured as the number of residential or business properties protected) or fewer flooding related highway safety concerns (measured as the distance of highway better protected from flooding).

Street Lighting

Strategy

BCP's strategy for street lighting is to maintain the condition of the lighting stock in a steady state. Manage the street lighting asset in an effective and affordable manner, ensuring the safety of all network users.

Inventory and Hierarchy

Lighting forms part of the highway infrastructure asset

Asset Type	Number
Street Lights Columns, luminaries and cable infrastructure	34,387
Signs and Bollards Illuminated and non-Illuminated	3,155
Other Lighting Wall mounted, subway, school, zebra, marker and gas	654
Total	**38,196**

Table 7: Street Lighting Inventory (excludes Christchurch PFI)

Challenges

Lighting columns will continue to deteriorate over time, future budgets will need to reflect the ongoing need to monitor and replace columns to maintain the condition of the stock.

Condition

Over recent years there has been significant investment in the authority's street lighting stock to

- install LED luminaries (except for those mounted on specialist high masts and listed heritage lighting),
- replace mild steel columns which were past design life,
- replace columns over 40 years old and associated lanterns

This has enabled greater efficiencies in identifying faults and has helped to reduce ongoing maintenance costs.

A function of the replacement programme was to update the asset inventory and install a Central Management System (CMS). The CMS has enabled greater management of maintenance records.

Approach

BCP has adopted the principles of the Code of Practice for Well-Managed Highway Infrastructure (WMH) Investment will be targeted in key areas and a programme will be developed that will bring the assets of Bournemouth and Poole legacy councils in to line.

Maintenance of the street lighting stock will be undertaken through programmes of electrical testing, structural inspections, bulk lamp replacements and lens cleaning.

Desired Outcome

- To meet the statutory obligation on the authority as the highway authority to maintain the public highway Safe for Use and Fit for Purpose.
- Planned improvement of the lighting column stock to reduce the average age
- Understanding of whether a cyclic painting maintenance approach to columns achieves a beneficial whole life cost and is practical
- To improve service and maintain customer satisfaction levels.

Risk Management

Managing risk is integral to the effective and efficient management of the highway asset. The identification of current and future risks associated with all aspects of Highway management is embedded in the asset management approach.

Risk types include:

- Health and Safety
- Strategic
- Financial
- Regulatory
- Reputational
- Operational

Risk based decision making is used to inform and define the management approach to BCP's assets, including, inspection regimes, setting levels of service, responses, resilience, priorities and programmes. By adopting a risk-based approach highways maintenance can be carried out in accordance with local needs, safety, priorities and affordability. Guidance and training of the risk based approach and its implementation is provided to all those roles with responsibility for taking the risk-based decisions. Competencies and training for those staff have been identified and are regularly updated providing a programme of continuing professional development.

Each asset group has different needs based upon its usage and that variance in need is reflected in the management approach taken to the asset.

Performance Reporting and Improvement Plan

Progress is continually reviewed, a performance report will be developed with the aim of providing an annually summary the condition of each main asset group. The report will describe the result of the previous year's investment in terms of meeting the target service standards and outcomes.

The report will also include long term predictions of levels of defects and condition and will be used to enable the authority to best allocate the following years budgets and to decide whether any of the service standards contained in this plan or funding levels need to be revised.

This highway infrastructure asset management strategy has been designed to bring improvements to the management of the authority's assets. Monitoring performance against outcomes will enable the Council to identify where progress is being made and where changes may be needed, to ensure that the asset is managed in the most efficient manner, and to ensure continuously improvement.

Strategy Review

This Highway Infrastructure Asset Management Strategy will be reviewed formally after 5 years, in the intervening period there will be light touch reviews at 2 yearly intervals.

Good Practice and Knowledge Sharing

BCP is committed to the development of good practice and continuous improvement, having already played a leading role in the development of the regional agenda on highway asset management we will continue to make best use of the following forums:

- South West Highways Alliance (SWHA)
- South West Highway Asset Group (SWHAG)
- South West Bridge Group (SWBG)
- South West Lighting Group (SWLG)
- South West Traffic Signals Group (SWTSG)
- South West Benchmarking Club (SWBC)
- Highway Maintenance Efficiency Programme (HMEP)
- Chartered institute of Public Finance and Accountancy Highways Asset Management Planning (CIPFA HAMP)
- UK Roads Board
- UK Bridges Board
- Association of Directors of Environment, Economy, Planning and Transport (ADEPT)

Using these forums allows initiation and continuous improvement in delivering BCP's highway service.

Supporting Documentation

- BCP Council's Highway Infrastructure Asset Management Policy
    - (Link to be included when published)

- BCP Council's Corporate Strategy
    - Corporate Strategy

- *BCP Council's Corporate Performance Management Framework*

- BCP Council's Climate and ecological emergency
- BCP Climate Emergency Webpage

- Bournemouth, Poole and Dorset Local Transport Plan 2011 to 2026
- LTP 3

- *BCP Council's Severe Weather Plan (including Winter Service) – OPERATIONAL*

- Severe Weather – Gritting Routes
    - BCP Gritting Routes

- UK Roads Liaison Group Guidance
- UKRLG Highway Infrastructure Asset Management Guidance

- Highways Maintenance Efficiency Programme (HMEP) Guidance
- HMEP Resources

Acronyms	
ADEPT	Association of Directors of Environment, Economy, Planning and Transport
AMP	Asset Management Policy
AMS	Asset Management Systems
AR	Asset Register
BCI	Bridge Condition Indicator
BMX	Bridge Management Expert
CCA	Climate Change Act 2008
CCTV	Closed Circuit Television
CIPFA	Chartered institute of Public Finance and Accountancy
CMS	Central Management System
CQC	Customer, Quality & Cost Survey
CRM	Customer Relationship Management system
CRR	BCP Corporate Risk Register
DfT	Department for Transport
DMA	Data Management Plan
DRC	Depreciated Replacement Cost
DVI	Detailed Visual Inspection
ELV	Extra Low Voltage
EP	Corporate Emergency Plan
FWMA	Flood and Water Management Act 2010
GIS	Geographic Information System
GRC	Gross Replacement Cost
HA 1980	Highways Act 1980
HAIS	Highway Asset Information Strategy
HAMP	Highways Asset Management Planning network
HIAMP	Highway Infrastructure Asset Management Plan
HINCS	Highway Infrastructure Network Communication Strategy
HMEP	Highway Maintenance Efficiency Programme
HNA	Code of Practice on the Highways Network Asset (2016 Edition), CIPFA
HRRMS	Highway Risk and Resilience Management Strategy
HSIM	Highway Safety Inspection Manual
ITS	Intelligent Transportation Systems
LCP	Lifecycle Planning
LED	Light Emitting Diode
LEP	Local Enterprise Partnership
LoS	Levels of Service
METE	Management of Electronic Traffic Equipment: A Code of Practice
NHT	National Highways and Transportation Network
NMP	Network Management Plan
PMF	Performance Management Framework
PMS	Performance Management Strategy
RMS	Risk Management Strategy
RTI	Real Time Information
SRS	Skid Resistance Strategy
SuDS	Sustainable Drainage Systems
SWBC	South West Benchmarking Club
SWBG	South West Bridge Group
SWHA	South West Highways Alliance
SWHAG	South West Highway Asset Group
SWLG	South West Lighting Group
SWTSG	South West Traffic Signals Group

Acronyms	
TIA	Code of Practice on Local Authority Transport Infrastructure Assets
TSRCD	Traffic Signs Regulations and General Directions
UKPMS	United Kingdom Pavement Management System
VMS	Variable Message Sign
WGA	Whole of Government Accounts
WMH	Code of Practice for Well-Managed Highway Infrastructure