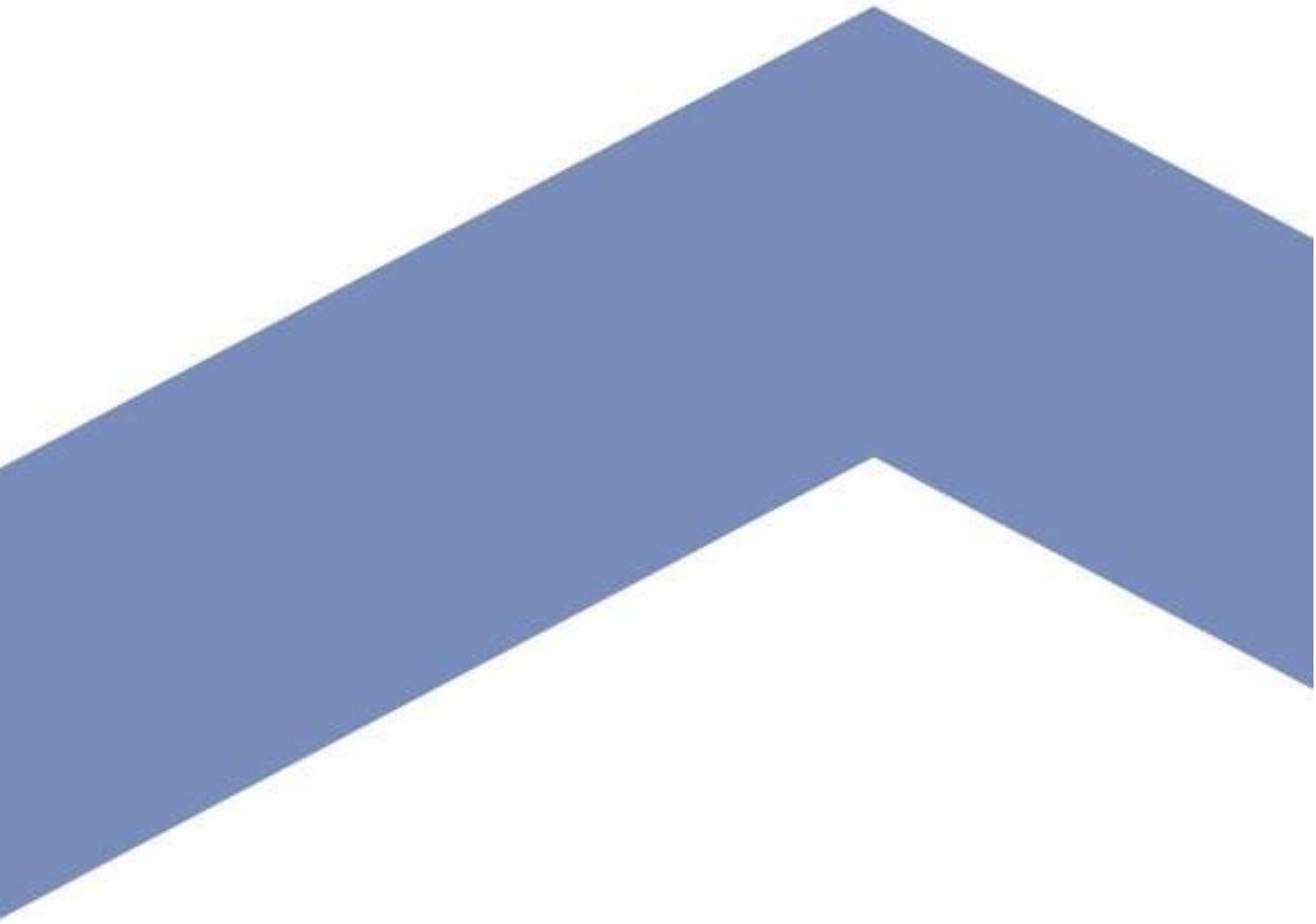
Staffordshire County Council

Highway Infrastructure Asset Management Plan



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Introduction

If you live, work, or pass-through Staffordshire whether on foot, cycling, using public or personal transport you will use the largest and most visible asset Staffordshire County Council is responsible for – the highway network.

The Council recognises the vital role played by the local highway network in supporting the Council's Strategic Plan. The Plan 2018-22 describes the Council's vision of a County where big ambitions, great connections and greener living give everyone the opportunity to prosper, be healthy and happy.

A well maintained and managed network that is safe, serviceable, and sustainable is one of the best ways to foster job creation, encourage economic growth and support local communities. It makes an important contribution to social inclusion, community safety, and education and health. The appearance of our streets helps to shape the character and quality of the local environment in which people live.

The highway network is a huge and complex system that includes the inspection, maintenance and renewal of roads, footways, cycle routes, bridges, tunnels, retaining walls, lighting, drainage, traffic signals, trees, land and much more – filling potholes is just the tip of the iceberg.

The Council understands that effective asset management will deliver clarity around standards and levels of service and help it to make best use of its available resources. This document sets out Staffordshire's approach.

Executive Summary

BACKGROUND

Asset management has been widely accepted by central and local government as a means to deliver a more efficient and effective approach to management of highway infrastructure assets through longer term planning, ensuring that standards are defined and achievable for available budgets. It also supports making the case for funding and better communication with stakeholders, facilitating a greater understanding of the contribution highway infrastructure assets make to economic growth and the needs of local communities.

In Staffordshire County Council we have significantly developed our approach to asset management in highways in recent years, including introducing measures to implement the Well-Managed Highway Infrastructure code of practice. As a result, we have been able to maximise Department for Transport Incentive Fund resource, secure additional funding, and continue successfully defending claims.

Despite making substantial progress in recent years, we recognise we are in an increasingly challenging environment, with deteriorating assets, increasing traffic volumes, uncertainty around future funding and, more recently, coronavirus impacts.

We have therefore developed this comprehensive Highway Infrastructure Asset Management Plan (HIAMP).

This is a forward-looking document covering the next three years which:

- Sets out how asset management contributes to achieving strategic outcomes, including environmental.
- Describes how we manage our assets and make decisions based on risk
- Explains what we know about current and predicted asset condition
- Sets out our service levels alongside an assessment of associated risks
- Sets out how we prioritise schemes into a forward works programme
- Supports the use of sustainable modes of transport
- How we meet our statutory obligations.

This document seeks to highlight the importance of consistency of funding and approach over that longer period, to enable us to deliver a more efficient service with better condition outcomes.

STRUCTURE OF THE HIAMP

This document comprises five parts:

- Part 1: Overarching Principles: describes the background to our highways asset management principles and sets it in the context of our legal obligations and strategic objectives.

- Part 2: Policy Framework: How the HIAMP fits with the council objectives and local and national agenda.

- Part 3: Implementing Well-managed Highway Infrastructure: A Code of Practice describes the recommendations of the Code of Practice for highway maintenance and our subsequent implementation of key components of it.

- Part 4: Implementing Asset Management Principles in Highways sets out the principles that directly influence the organisation's asset management systems and plans and how this may affect future condition, stakeholder perception and investment.

- Part 5: Managing our Assets: takes a detailed look at what our approach to asset management means for each of our asset groups, and what that means for each group over the next three years.

MANAGING OUR ASSETS

Asset Management describes a common sense, systematic approach for managing our highway assets through their design, construction, maintenance and replacement. It provides a connection between the high-level strategic context and the day-to-day decisions we make in maintaining our highway network.

Implementing the principles of effective asset management ensures we make transparent, consistent, well-communicated and better-informed decisions.

The consequence of poorly maintained highway infrastructure across the County impacts directly on all road users - both businesses and domestic - has a detrimental impact on the local economy and on user’s perception of Staffordshire. Poor roads mean increased vehicle operating costs, delays and less safe roads, and as a result is likely to influence business investment, decisions about where people live, work and travel as well as leisure and tourism. Our communities rely on a good road system as a basis to access jobs, health care, education, social interaction and to propagate pride in our communities.

This plan sets out how an asset management led approach, puts the customer at the heart of our service. Our members are elected by the local community to represent their views. This HIAMP recognises the importance of member engagement in order for local priorities to be reflected in our highway service.

THE HIGHWAY NETWORK

The scale of the task of maintaining Staffordshire's highway infrastructure and the resources needed to do this are significant. The replacement cost of our highway assets is calculated at in excess of £7billion.

The highway network in Staffordshire includes :

- Over 6,200km's of carriageway
- More than 4,360km's of footway
- 200km's of cycleways
- Over 1,000 structures
- 150,000 road gullies
- 115,000 streetlights
- Over 500 signal-controlled junctions or crossings
- 475,000 trees
- 2.2 million square metres of urban grass and 5,800km's of rural grass verges
- Over 400 milestones and other historic monuments
- 16 pumping stations
- 6 reservoirs
- 261 electronic warning signs

In addition to the assets above, we are responsible for road markings, traffic signs, road studs, pedestrian barriers, vehicle restraint systems, cycle stands, bollards, hedges, embankments, grit bins, catchpits, lagoons, trash screens, kerbs, laybys, ditches, grips, weather stations and much more.

The Council's highway infrastructure is continuing to grow in length, size and quantity which will increase maintenance costs by approximately £162k per annum, based on the last ten years growth.

CONTEXT

Managing the highway network is challenging in the context of national legislation and guidance, climate change, reducing levels of funding, asset growth and increasing customer expectation.

The Department for Transport (DfT) is responsible for funding local roads renewals and upgrades, while the Ministry for Housing, Communities and

Local Government (MHCLG) provides revenue support to local highways authorities for routine road maintenance.

Capital funding is used to provide renewal and replacement of all highway assets including carriageways, footways, structures (bridges), safety fencing, drainage, traffic signals and signs but as noted above, excludes street lighting in Staffordshire which is managed under a PFI contract.

Revenue funding is typically spent on all other areas that support the operation of the highway infrastructure such as routine maintenance such as grass cutting and energy for street lighting

Historically, capital maintenance grant falls someway short of the threshold required to achieve optimum whole-life-cost management of our highway infrastructure. The variable nature of Government funding year on year impacts on the ability of the service and its supply chain to plan and invest in resources and the future workforce.

Highway infrastructure is increasingly fragile and less resilient to damage from wear and tear, ageing, the changing nature of traffic and the impact of climate change. Public pressure can result in short term fixes, to potholes for example, rather than properly planned and implemented longer term solutions such as preventative maintenance.

The condition of our highway infrastructure is forecast to decline over the period of this plan at the expected levels of funding. As capital funding reduces the amount of reactive type work required to keep the network in a safe and serviceable condition increases.

DEMAND AND EXPECTATION

The highway infrastructure is accessed on a daily basis by residents, businesses and visitors. As such we recognise the importance of engaging with the public to understand their levels of satisfaction and obtain their views on the condition of our highway infrastructure, service standards and levels of performance. Therefore, in order to better understand residents views we commission the National Highways and Transport (NHT) Public Satisfaction Survey annually.

CLIMATE CHANGE AND SUSTAINABILITY

In July 2019, the Council declared a Climate Emergency and subsequently developed its Climate Change Strategic Development Framework, which committed the Council to reach the target of net-zero carbon by 2050; and also sets out how the council will work collaboratively to protect the future of the county and its residents. In addition, our four-year plan, sets out a series of actions up to 2025 to cut carbon, improve air quality, reduce

waste, improve the natural environment and support people in changing their behaviour to become more environmentally friendly.

Highway infrastructure related contributions to carbon reductions include supporting the creation, protection and enhancement of our green estate, recycling materials and arisings, material innovation, LED replacement programme.

Part 1: Overarching Principles

1.1. WHAT IS ASSET MANAGEMENT

Highway asset management describes a common sense, systematic approach to designing, constructing, maintaining, modifying, and replacing assets in the most cost-effective manner whilst also taking into consideration the performance of the asset and the risks involved in managing it. Asset management supports making the case for funding, for better communication with stakeholders, and facilitates a greater understanding of the contribution highway infrastructure assets make to economic growth and social well-being of local communities, in line with the requirements set out by the Council Strategic Plan[1].

The benefits of this approach are now widely recognised. National government have stressed the importance of highway asset management in order to deliver some of the required public-sector efficiencies.

1.2. ASSET MANAGEMENT IN PRACTICE

When putting together our works programmes, we have two key questions to consider:

1.2.1. Which roads shall we treat?

Because we look at the long-term impact of our decisions, we do not simply prioritise our programmes based on what appears to be most pressing at the moment but rather we look to pick the package of works, which, within the budget available, will give us the best long-term result for the network.

What this means for road maintenance is that we consider over a much longer term all the roads in the county in relation to one another when working out which ones to maintain or repair first, rather than automatically fixing the roads which look worst. This enables us to make the best use of the limited resources we have but sometimes causes confusion when people see us working on roads that appear to be in better condition than some others.

1.2.2. Which treatment shall we use?

Since our programmes are limited by the available budget, each pound we spend on a particular road is a pound that is not available to be spent elsewhere. It is not, therefore, simply a case of selecting the 'best' treatment for a particular road, we must select the most cost-effective treatment for that road - they are sometimes the same thing, but not

[1] Strategic Plan 2018 to 2022 - Staffordshire County Council

always. If a low-cost option will significantly delay the need for more expensive repairs, then it deserves serious consideration even if a more expensive option would deliver a wider range of benefits.

For example, when looking at some roads in a particular area, we may find one road in a really bad condition and three other roads in a slightly better condition – not yet 'bad' but, perhaps, vulnerable if we should have another period of severe weather.

Within the set budget available to us we have to decide whether to spend all our money on fixing the worst road (and let the other three roads continue to deteriorate into a worse condition) or whether to spend the minimum amount necessary to keep the worst road safe and invest the remaining budget in preventative maintenance works on the three vulnerable roads to protect them and stop them deteriorating into the same poor condition as the first road.

Preventative maintenance is usually cheaper, so we can often maintain three or four roads for the price of fixing one bad one. It is also generally more sustainable and less disruptive than full repair work and so it offers better value all round, but, with competing demands on the programme it means that we need to be prepared and able to take the tough decisions and do the minimum on the bad road to keep it safe while spending most of the money (in this example) on less bad roads in order to maintain and protect them.

To conclude the example, if we repaired the worst road first, we could find, in a year's time, that we have one good road (the one we fixed) and three other 'bad' roads (the vulnerable ones that we ignored, which have subsequently deteriorated) all needing a larger amount of money spent on them. However, if we spend the budget on preventative maintenance on the three vulnerable roads, in a year's time we would find that we have three good roads and only one bad road to spend our budget on.

In the long term, it is obvious that this is a good way for us to spend the set amount of money we have for our road network. However, in the short term, it may appear that we are ignoring those roads which appear to be in the greatest need of our attention, but this is not the case.

This is just one illustration of how asset management can be applied, there are many others too. For instance, it can help us make decisions about which type of streetlight offers best value for money and it can help inform our improvement works to make them cheaper to maintain in the future.

1.3. THE BENEFITS OF ASSET MANAGEMENT

There are many benefits of asset management. The County Council sees the main benefits as:

- Captures stakeholder and community feedback and shapes the service to take account of local needs and priorities.
- A comprehensive understanding of extent and condition of the highway infrastructure assets.
- A clear methodology for linking goals, aspirations, and objectives with levels of service.
- A sound approach for predicting the levels of funding required to deliver the desired levels of service at minimum cost over the asset's whole life.
- A mechanism for assessing the impact of funding constraints.
- Better understanding risks associated with these assets, not simply health and safety, but also financial risks, environmental risks and hazards which may affect the service it provides; for example, preventing the closure of a bridge.
- An opportunity to maximise funding and ensure that secured funding is used efficiently and effectively.
- A route to minimising lifecycle costs and reducing expensive reactive repair costs.
- Alignment and co-ordination of existing initiatives, including competency development.
- Greater engagement of the workforce, including leadership, communications, and cross disciplinary teamwork.
- Making better informed decisions about investments. Decisions are made using a long-term 'whole-life' approach leading to optimum outcomes.
- Aligning highway maintenance service provision to the County Council's objectives, including the plan to reduce carbon emissions.
- Increasing transparency of the challenges faced and the performance of the asset as well as how we are meeting out statutory duties leading to improved customer satisfaction, stakeholder awareness and confidence.
- Understanding the consequences of changes to investment levels.

A key benefit of an asset management approach is to move decision making away from the imminent and the urgent to a planned regime where the needs of the asset are better understood so that appropriate preventative maintenance treatments can be planned within a wider whole-life approach. This enables decisions to change from those based on a worst-first priority to those that delivers greatest value.

1.4. OBJECTIVES OF THE HIAMP

The objective of this Highway Infrastructure Asset Management Plan (HIAMP) is to lay out, in a clear and transparent manner, how Staffordshire manages our highway assets to keep them safe for use and fit for purpose.

This HIAMP recognises that a well-managed highway network is the lifeblood of our local communities. Our communities rely on a good road system as a basis to access jobs, health care, education and social interaction.

It is easy to think of our highway network as simply a means for people to travel from A to B. In reality, the highway network has many other functions. Our roads form vital components of residential areas, affecting the overall quality of life for local people and helping to engender pride in our communities.

The term 'highway' as used here refers to the highway maintainable at public expense (HMPE) by Staffordshire County Council and to all assets (physical components) in this area. The types of assets covered in this HIAMP include carriageways, footways, highway structures, lighting (including lighting columns), and other assets, such as Vehicle Restraint Systems (VRS) and the green estate (trees and planted and grassed areas). The HIAMP is an organic document and will be revised from time to time as necessary.

One key role of the HIAMP is to make the connections between the higher-level legal and strategic context governing work (for example, the Highways Act 1980[2]) and the day-to-day decisions the Council makes to maintain its road network.

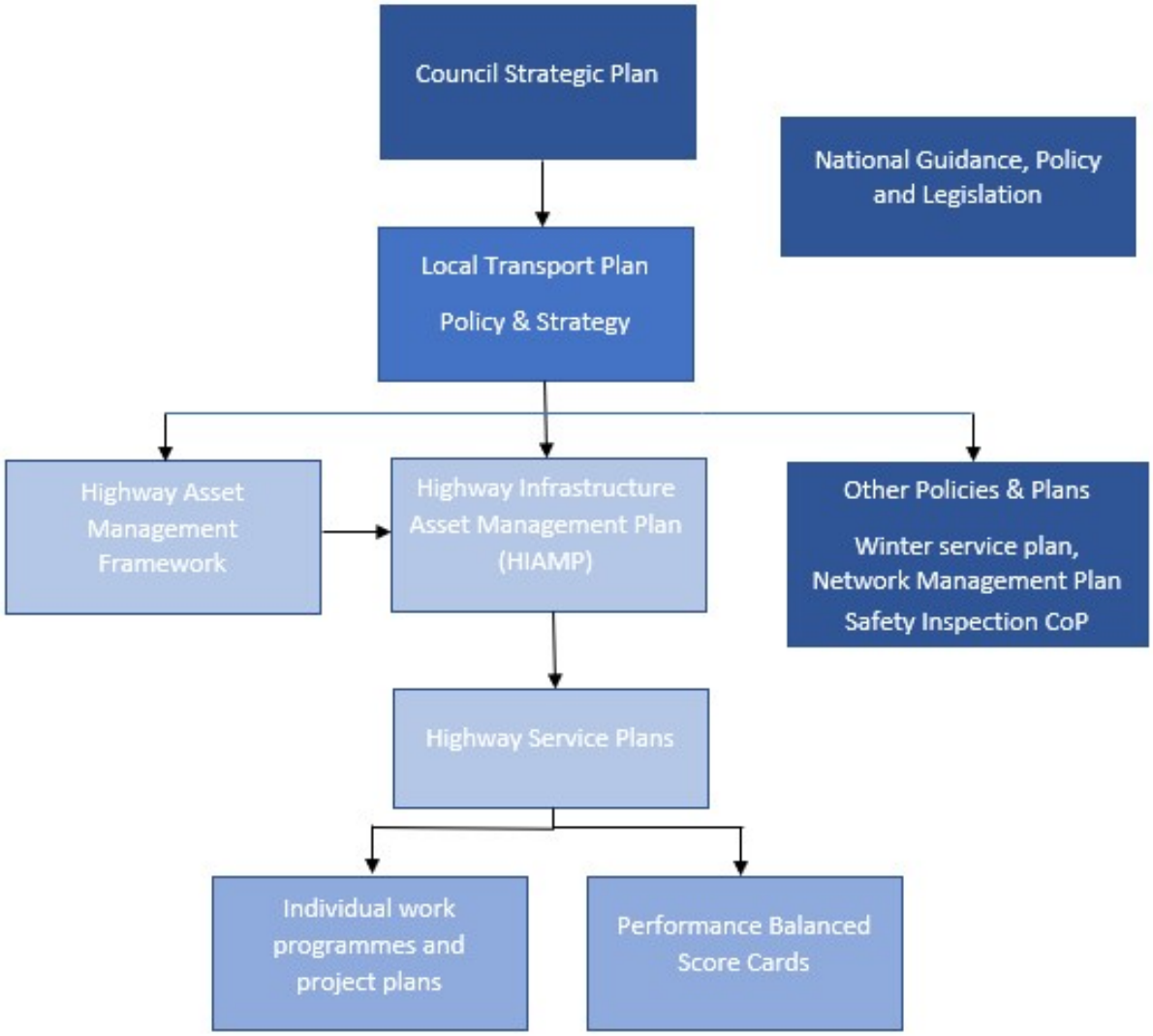
Following this approach of linking strategy with practice, the document sets out the levels of service which we intend to provide from the physical assets themselves. The HIAMP explains the processes undertaken to assist in providing this service efficiently and achieving value for money. In particular, the HIAMP aims to explain how decisions are made to replace or extend the life of an asset (through capital renewal) or repair it (as part of operational management).

1.5. LINKS TO OTHER DOCUMENTS

This HIAMP together with the Highway Asset Management Policy and Strategy will form the link between the Council Strategic Plan, Corporate Strategy, Local Transport Plan and individual service delivery plans.

[2] Highways Act 1980

Figure 1 – Highway Asset Management Document Framework



Staffordshire County Council's Highway Service has developed an Asset Management Policy[3], outlining its approach towards effective asset management in line with the member-approved commissioning strategies developed by the authority as a whole.

Staffordshire County Council's Highway Service has further developed an Asset Management Strategy[4], outlining its approach towards formalising strategies for investment in key highway asset groups through life-cycle planning, defining affordable service standards, improving how the highway assets are managed and subsequently enabling more effective and efficient highways services to be delivered.

The HIAMP contains a series of annexes that provide further detail regarding the management of each highway asset group.

[3] SCC Highway Asset Management Policy
[4] SCC Highway Asset Management Strategy

Details of the winter service and the highway safety inspection process undertaken by Staffordshire County Council are outlined in separate documents named the Winter Service Operational Plan and the Highway Safety Inspection Code of Practice. These documents are not included as annexes to the HIAMP due to their very specific legal requirements.

1.6. SCOPE OF THE PLAN

The document will comprise of a number of Volumes, each outlining a specific Asset Group.

Each Asset group Volume will contain the following information:

- Legal Framework,
- Asset Condition,
- Asset Management,
- Asset Inspection
- Asset Programming.

All these core elements generate a consistent approach to best practice asset management and put into practice the demands of good lifecycle planning outlined within the Highway Infrastructure Asset Management Strategy.

Part 2: Asset Management Framework

2.1. COMMUNICATION STRATEGY

Stakeholder expectations and effective customer communication are highly important to Staffordshire County Council, with a Communication Action Plan[5] in place for the authority. This has driven the Communications Strategy for Highways, Pitching the Message, written in line with service delivery and the Highway Infrastructure Asset Management Plan (HIAMP).

2.1.1. Aims

The aim of our communications is to:

- To engage and listen to our citizens and our communities' concerns about the highway network and to meet their needs and feedback our progress on a regular and timely basis.
- Inform the public about physical road works, operational highways issues (including defect repairs, winter maintenance etc) and value-for-money highways and transport activities in a timely manner.
- Communicate proposed changes to highways asset management in Staffordshire, encourage public engagement through our communications and raise awareness about changes if these are adopted.
- Encourage people to make the best use of reporting channels – e.g., 'self-serve' via our website.
- Ensure the public is aware of funding bids awarded to the council to help maintain and enhance the local transport network.

The plan sets out how an asset management led approach, puts the customer at the heart of our service. Considerations for this strategy and the communication of Highways Asset Management have been developed to and in excess of recommendations within UKRLG Highway Infrastructure Asset Management Guidance document[6].

2.1.2. Key Groups/Stakeholders

People, groups of people, or organisations that can affect or be affected by the policies and actions of Staffordshire County Council are all stakeholders of the highway network. Effective engagement with stakeholders is a key

[5] SCC Communications Action Plan
[6] UKRLG Highway Infrastructure Asset Management Guidance

issue in managing expectations and therefore satisfaction with the highway service.

We will seek to engage and communicate with a wide range of people and organisations that have a stake in Staffordshire's road network. The Highway Infrastructure Communications Strategy identifies our key stakeholders.

2.1.3. Stakeholder Expectations

The Council monitors stakeholder expectations using the National Highways and Transport[7] (NHT) customer satisfaction survey and through ad-hoc consultation exercises.

The County Council participates in the NHT customer satisfaction survey each year and the outcomes of this survey are used to inform asset management planning. As well as the levels of satisfaction that are also reported levels of service, of particular relevance to this plan in the context of dealing with the challenge set out in the medium-term financial strategy, is the levels of service which are not acceptable to reduce.

The survey collects the public's views on different aspects of Highways and Transport in local authority areas, it covers:

- Pavements
- Cycle Routes/Lanes
- Local bus services
- Local taxi services
- Community transport
- Demand responsive transport
- Safety on roads
- Traffic congestion
- Levels of traffic pollution
- Street Lighting
- Condition of roads
- Local rights of way network

It asks detailed questions about each of these aspects in turn.

The Staffordshire public consistently place most importance on 'Safety on roads' and 'Condition of Roads'. In terms of satisfaction the public are most satisfied with 'Street lighting' and least satisfied with 'Condition of roads.

The biggest difference between how important and how satisfied the public is with the 'Condition of roads.

[7] The National Highways & Transport Network

With regards to spending priorities the public identified 'Condition of roads' as the area they consider the authority should be spending more to improve the level of service.

These priorities are acknowledged in this HIAMP and will be considered as the asset management approach is developed.

2.1.4. Best Practice – Collaboration and Knowledge Sharing

The Midlands Highway Alliance plus (MHA+) is a collaborative alliance for adjacent/peer authorities to share knowledge and good practice. Although not a founding member, Staffordshire was one of the early members of the alliance and remains active in leading in innovation. Many of Staffordshire's processes that ensure the implementation of this Plan, have been developed in conjunction with other local authorities within the MHA+.

The County Council will also be enhanced by benchmarking our data with other similar authorities through the Alliance and the NHT customer satisfaction survey/CQC Efficiency Network.

The County Council is also a member of other national alliances such as the Future Highway Research Group. The council has representation on national groups such as the National Winter Service Research Group (NWSRG), National Highway Sector Schemes (NHSS), UK Roads Liaison Group (UKRLG) and the Association of Directors of Environment, Economy, Planning and Transport (ADEPT).

2.2. LEGAL FRAMEWORK AND GUIDANCE

This section contains information on duties and powers specifically related to highways.

2.2.1. Powers and Duties

There are several pieces of legislation which provide the basis for powers and duties relating to highway maintenance. These include but are not limited to the following:

- Highways Act 1980
- Traffic Management Act 2004
- New Roads & Street Works Act 1991
- Transport Act 2000
- Road Traffic Regulation Act 1984
- Traffic Signs Regulations & General Directions 2002
- Railways and Transport Safety Act 2003
- Local Authorities (Transport Charges) Regulations 1998
- Countryside and Rights of Way Act 2000

- Environmental Protection Act 1990
- Noxious Weeds Act 1993
- Health and Safety at Work Act 1974
- Management of Health and Safety at Work Regulations 1999
- Construction (Design & Management) Regulations 2015
- Local Government Act 2003
- The Clean Neighbourhoods and Environment Act 2005
- Disability Discrimination Act 2005
- Equalities Act 2010
- Environment Act 2021

2.2.2. Highway Act 1980

The Highways Act 1980 sets out the main duties of Highway Authorities in England and Wales. Section 41 imposes a duty to maintain highways maintainable at public expense. Section 58 provides for a defence against action relating to alleged failure to maintain on grounds that the authority has taken such care as in all the circumstances were reasonably required to secure that the part of the highway in question was not dangerous for traffic.

The Act also identifies other powers that highway authorities can exercise to undertake activities on or within the highway such as improvements, drainage, acquiring land, authorising skips, scaffolds etc.

2.2.3. The Traffic Management Act 2004

The Traffic Management Act[8] was introduced in 2004 to tackle congestion and disruption on the road network. The Act places a duty on local traffic authorities to ensure the expeditious movement of traffic on their road network and those networks of surrounding authorities. The Act gives authorities additional tools to better implement parking policies, moving traffic enforcement and the co-ordination of street works. The Act states that local traffic authorities shall make appropriate arrangements for performing their network management duty. These arrangements must include provision for the appointment of a Traffic Manager whose function it is to ensure that the authority complies with the duty.

The Act introduced a number of provisions:

- National Highways Traffic Officers
- local authority duty for network management
- permits for work on the highway
- increased control of utility works
- increased civil enforcement of traffic offences

[8] Traffic Management Act 2004

The most important feature of the Act is Section 16(1) which established a new duty for local traffic authorities 'to manage their road network with a view to achieving, so far as may be reasonably practicable having regard to their other obligations, policies and the following objectives:

• securing the expeditious movement of traffic on the authority's road network
• facilitating the expeditious movement of traffic on road networks for which another authority is the traffic authority'

Section 31 of the Act specifically states that the term 'traffic' includes pedestrians, so the duty requires the authority to consider all road users. The Traffic Management Act 2004 has also strengthened the regulatory regime with regard to works of utilities and others within the highway including permit schemes, new conditions, and fixed penalty notices. The Act changes significantly the provisions of the New Roads and Street Works Act 1991, but much of the guidance remains valid.

2.2.4. The New Roads and Street Works Act 1991

The New Roads and Street Works Act 1991[9] (NRSWA) requires highway authorities to coordinate works and develop systems to record works so that utilities could be held financially responsible for failings in their operations and quality of workmanship (reinstatements).

2.2.5. The West and Shires Permit Scheme (WaSP)

The permit scheme that operates in Staffordshire requires any organisation carrying out works in the highway to apply for a permit in order to 'book' time on the highway. The West and Shires is a common permit scheme currently operating in a number of Local Highways Authorities across the country.

We issue permits with conditions attached to better focus the activity in terms of reducing the impact of road users and other stakeholders; this might be in relation to the timing of the works, the traffic management and methodology or any other factor that is deemed important.

Equally, we can refuse to issue a permit if we feel the planning, or the detail of the application is insufficient. The WaSP[10] scheme allows us to recoup the cost of coordinating and managing the activity by charging for issuing a permit.

[9] New Roads and Street Works Act 1991
[10] Permit scheme - Staffordshire County Council

2.2.6. Well Managed Highway Infrastructure

The Code of Practice 'Well Managed Highway Infrastructure' (WMHI)[11] provides guidance to councils regarding the management and maintenance of local roads. The Code of Practice was <published< commissioned by the Department of Transport and came into effect in October 2018.

The Code of Practice is non-statutory however it is deemed to be guidance of best practice by the courts. The County Council is required to demonstrate a robust decision-making process, an understanding of the consequences of those decisions, and how the associated risks are managed to ensure highway safety.

2.2.7. Health and Safety

The Health and Safety at Work Act 1974[12], together with the Construction, Design and Management Regulations 2015 set a requirement for highway, traffic and street authorities to carry out work in a safe manner and establish robust arrangements for the management of construction works.

2.2.8. General and Specific Requirements

Much of highway infrastructure maintenance activity is based upon statutory powers and duties contained in legislation and interpretations of these powers and duties provided by the court.

The authority has developed a training and competency framework for asset management to ensure that those involved in highway maintenance have an appropriate understanding of their duties and powers, their implications, and the procedures used to manage and mitigate risk.

2.3. FUNDING

2.3.1. Background

The Department for Transport (DfT) is responsible for funding local roads renewals and upgrades, while the Ministry for Housing, Communities and Local Government (MHCLG) provides revenue support to local highways authorities for routine road maintenance.

The DfT provides annual capital funding for highway maintenance through the Highways Maintenance Block and Integrated Transport Block. In addition, the DfT, on occasions, provides additional maintenance funding, typically for pothole repairs, or provides the opportunity for local authorities to bid for additional maintenance funding.

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[11] Well Managed Highway Infrastructure Code of Practice

[12] Health and Safety at Work etc. Act 1974 (legislation.gov.uk)

Capital maintenance expenditure is used to add to the value of a fixed asset. Highway works eligible for capital funding include activities that:

- extend the life of an asset, such as reconstructive resurfacing or preventative treatment schemes
- enable the construction of improved infrastructure
- replace an existing feature with an enhanced structure, such as drainage renewal schemes revenue expenditure covers day to day expenditure, such as works to maintain the value of a fixed asset.

Capital funding is used to provide renewal and replacement of all highway assets including carriageways, footways, structures (bridges), safety fencing, drainage, traffic signals and signs but as noted above, excludes street lighting in Staffordshire which is managed under a PFI contract.

Revenue funding is typically spent on all other areas that support the operation of the highway infrastructure such as routine maintenance including grass cutting and energy for street lighting

2.3.2. Capital Funding Streams

Highway Maintenance Block (Needs Element)

The Maintenance Block funding allocated to each local highway authority is based on a formula using road length data and the number of highways assets such as bridges and lighting columns for which they are each responsible for.

Highway Maintenance Block funding is not ringfenced and local authorities are free to prioritise their spending as appropriate to meet local needs. However, the DfT do allocate a notional proportion of the total funding to the four elements as follows:

Table 1 – DfT Notional Funding Apportionment

Element	Proportional Allocation
Roads	75%
Split evenly between:	
A roads	25%
B and C roads	25%
U roads	25%
Bridges	14%
Lighting	2%
Cycleways & Footways	9%

Historically, Cabinet has agreed that a 5% top-slice of Highways Maintenance Block funding is used to support other centrally funded capital projects in areas such as Economic Development, Waste Management and Libraries, which receive no such allocation from government and provision has similarly been made in 2021/22.

Integrated Transport Block (ITB)

The Integrated Transport Block (ITB) provides funding support to local authorities for transport capital improvement schemes worth less than £5 million. The ITB is not ringfenced and is spent at the discretion of the authority.

Highway Maintenance Incentive Fund Element

In recent years an increasing proportion of DfT funding has been dependent on the authority being able to evidence that we have fully embedded asset management principles into the management of highway business. The incentive fund does not provide additional funding but incentivises local authorities to ensure they receive their full share of available funding.

Councils are banded 1 to 3. Staffordshire has received its full share of the incentive fund, based on its band 3 status – the top band. In 2021/22 ensuring the authority achieves the top band is worth £2.785m to the authority.

Local Highway Maintenance Challenge Fund

The local highways maintenance challenge fund enables local highway authorities in England to bid for major maintenance projects that are otherwise difficult to fund through the usual formula funding allocations they receive from government.

Staffordshire have been successful in recent years in securing funding from the Challenge Fund for critical maintenance repairs to some of our highway structures.

In 2017 £6.1m investment was secured for St. Peter's Bridge in Burton to replace bearings, safeguarding the future use of the bridge for HGVs while boosting access for businesses and securing skilled jobs locally.

In 2020 the authority was successful in securing £2.35m to restore Chetwynd bridge, Alrewas. The road width was reduced to a single lane following issues identified with the iron road railing following inspection.

Additional Funding

In recent years the Government has provided additional discrete pots of capital funding for local councils to help repair potholes and to undertake other routine maintenance. Funding is allocated in accordance with the needs-based formula, is not ring fenced and is expected to be spent within the financial year.

As part of wider plans to boost active travel the government are placing increasing emphasis on improving and developing walking and cycling infrastructure. Ensuring the council's highway asset management strategy is aligned to the changing nature of government priorities will be important in securing future funding.

SCC Additional Investment

Over the last 12 years the County Council has provided in excess of £82 million of additional investment to support highway maintenance activities, including £5.0m per year in the six years 2017/18 to 2022/23 and additional revenue funding of £929,000 in 2020/21 from Reserves.

In 2021/22, the government grant provided for highway maintenance was reduced significantly and at the time of writing it is assumed will stay at the same level for 2022/23. Consequently, the Councils Medium Term Financial Strategy (MTFS) includes an investment in highways in 2022/23 which will help to reduce the maintenance backlog and will mitigate the impact of the grant reduction. An amount of £15.5 million is included in the Capital Programme for this purpose.

2.4. APPROACH TO MAINTENANCE

Staffordshire County Council undertakes various maintenance activities on the highways network which will be outlined throughout the course of this document.

Maintenance activities contribute in varying degrees to the core objectives of safety, customer service, serviceability, and sustainability. Levels of service and delivery arrangements are established having regard to these objectives and focussed on outcomes.

The main types of maintenance are as follows:

- Routine – Regularly scheduled works (often cyclic) e.g., lamp replacement, drainage cleansing, grass cutting and weed spraying etc.
- Reactive – Safety-based, responding to inspections, customer reports or emergencies.

- Planned – Planned schemes include structural and preventative maintenance to extend the life of or renew an asset.
- Regulatory – Inspecting and regulating the activities of others affecting the highway.
- Winter Service –salt spreading and snow ploughing in adverse weather.

2.5. CARBON STRATEGY

The County Council is committed to establishing a clear action plan to embed carbon reduction measures across the Authority and make Staffordshire more resilient to the impacts of a changing climate. The Staffordshire County Council Climate Change Strategic Development Framework[13] sets out the council's approach to achieving net zero by 2050.

The Staffordshire Highways Carbon roadmap sets out a long-term view on reducing carbon emissions and providing network resilience, beyond that of the current Staffordshire Infrastructure+ Highways Service Contract. The strategy sets the investment to ensure Staffordshire has the continued capacity to being carbon neutral.

Transforming the approach in engineering design is the first step in the journey towards creating a low carbon, low cost, highly resilient highway network. Staffordshire Highways will seek to create or identify the tools to assess, reduce & offset carbon, design out waste, reuse materials and design in recycled materials.

Measures will be employed to reduce the Council's carbon footprint in the maintenance of the Highway Services Assets employing measures to:

- Make use of low temperature carriageway and footway treatments
- Recycled and recyclable materials
- Fuel efficient fleet and tools
- Efficient routing of services, including reactive management repairs, inspections and monitoring, winter service, etc.
- Whole life cost calculations including carbon calculations and enhanced design to extend durability.
- Behavioural changes such as green driver training.
- Moving to electric/hybrid fleet where possible.

Staffordshire highways have been a leading authority in areas of carbon reduction. For example, we have had Low Temperature Asphalt (LTA) in our base specification for over 10 years. LTA can achieve carbon savings of around 20% over conventional asphalt.

[13] Climate Change Strategic Development Framework - Staffordshire County Council

We crush and recycle around 30,000 tonnes of asphalt per year. Diverting from landfill and putting valuable stone back into the road network. Decreasing the need to quarry new stone. In doing so, we save 37 Tonnes of Carbon output from sending to arisings to landfill. Further to this we save over 1,100 Tonnes of Carbon by not needing to source primary material.

2.6. TRAVEL QUALITY

The way in which the highway network is managed, including works to the highway, and the choice of materials and particular products, can have a significant effect on the travel quality experienced by all highway users.

The predominant activity, in maintenance terms, are structural repairs and preventative works to sustain the highway structure. The provision of such measures as dropped kerbs for disabled people, or parents with prams, can make a journey easier.

Well maintained carriageways with a good riding surface, and well-defined edges, provide a smooth ride and minimise driver stress when travelling and encourage activities such as cycling.

Peak hour roadworks restrictions, vehicle activated temporary traffic signals, and waiting restrictions on the major traffic routes, can help traffic flow.

Textured footway and cycleway surfacing, or audible alerts at pedestrian crossings, help blind and disabled people.

Good information, warning, and regulatory signs can help all road users.

It is therefore important that if the key objectives which relate to travel quality are to be achieved, clear policies and standards exist. The key objectives relating to travel quality are:-

- To ensure that the highway network is able to carry both the volume and weight of traffic, as determined by the road network hierarchy.

- To have regard for the long-term future of the network when formulating expenditure plans, and to ensure efficient and economical use of resources in the maintenance of the network.

- To minimise the impact of adverse weather conditions on travel quality.

- To seek to ensure that the highway network satisfies the reasonable expectations of the community's needs for transport, in business and

leisure activities. The work carried out by the SCC asset management team will complement the traffic management and safety measures implemented by the wider highway design service.

2.7. CONSERVING AND ENHANCING THE ENVIRONMENT

The impact of highway management on the environment can take the form of aesthetic or visual intrusion and noise intrusion, conservation, pollution, or the impact on wildlife or other nature conservation interests, as well as the sustainable use of resources.

It is therefore important that the Highway Authority has a clear set of policies and standards which address these impacts. The following are considered in all design stages:-

- To minimise the environmental impact of traffic, especially Heavy Goods Vehicles, on the quality of life of the community.
- To encourage traffic speeds that are appropriate to the nature of the highway and surrounding environment.
- To maintain and enhance the environment of the highway corridor in a manner which is sympathetic to the nature of surrounding area.
- To conserve energy and other natural resources, wherever possible, in the Network Management process, and avoid the use of materials known to be harmful to the environment.
- Contribute towards the achievement of sustainable development to ensure that flood risk is properly managed.

2.8. SERVICE LEVELS

Levels of Service is a term used to describe.

“The quality of services provided by the asset for the benefit of users”.

One of the hardest challenges of asset management is finding a balance between investing in an asset in order to safeguard its integrity and value, while providing a high-quality service to the public.

The Level of Service relates to our highway infrastructure, the way highway services are delivered and how the services are perceived, these include.

- Condition of the asset.
- Performance of the asset.
- Quality of the services that the asset provides.
- Performance of the management in delivering the services.

Levels of service and standards are derived from various strategic considerations with reference to relevant legislation and national guidance and best practice documents.

In defining any such targets and performance levels it is important that they are 'SMART'; that is 'Specific, Measurable, Agreed, Realistic and Time-based'.

2.9. RESILIENCE REVIEW

As part of good asset management practice, Staffordshire have established a resilient network to increase the resilience of the highway network during extreme events. This covers events such as extreme heat, increased rainfall, and industrial action amongst others.

Reviews are undertaken every two years to gauge the economic viability of the extent of the network and the efficiency of managing the resilient network.

Part 3: Implementing Well-managed Highway Infrastructure: A Code of Practice

The Code of Practice 'Well Managed Highway Infrastructure' (WMHI) provides guidance to councils regarding the management and maintenance of local roads. We follow this guidance as best practice to deliver an efficient and effective service.

This HIAMP explains how the County Council is adopting each of the 36 recommendations in the Code of Practice.

3.1. POLICY FRAMEWORK

RECOMMENDATION 1 – USE OF THE CODE

This Code, in conjunction with the UKRLG Highway Infrastructure Asset Management Guidance, should be used as the starting point against which to develop, review and formally approve highway infrastructure maintenance policy and to identify and formally approve the nature and extent of any variations.

The code of practice is founded upon the principles of best value and emphasise the use of an asset management approach to highway maintenance. The intention of the code 'Well-managed Highway Infrastructure' is that authorities will develop their own levels of service through a local, risk-based, approach. This Highway Infrastructure Asset Management Plan (HIAMP) does just that and has been developed in conjunction with the asset management policy and strategy that is detailed in that plan.

This HIAMP details the mechanisms that will be deployed as we work towards attaining the Council's objectives as expressed in the Strategic Plan 2018-22. This will be through planned performance against the life cycle plans for all major components of the highway asset. This plan sets out the risk-based approach, which will be embedded in every-day decision making.

RECOMMENDATION 2 – ASSET MANAGEMENT FRAMEWORK

An Asset Management Framework should be developed and endorsed by senior decision makers. All activities outlined in the Framework should be documented.

RECOMMENDATION 3 – ASSET MANAGEMENT POLICY AND STRATEGY

An asset management policy and a strategy should be developed and published. These should align with the corporate vision and demonstrate the contribution asset management makes towards achieving this vision. (HIAMG Recommendation 3)

This HIAMP sets out in more detail the principles outlined in the Council's Asset Management Policy and Strategy which are published on the Councils website.

The highway asset management policy and strategy are endorsed by senior decision makers.

The highway asset management strategy sets out the asset management objectives which support the County Council's core purpose. The policy explains the corporate approach to managing our highway infrastructure.

The objectives state that:-

- Senior decisions makers will adopt the principles of highway infrastructure asset management.
- The principles and approach to delivering highway services are documented and defined.
- We communicate with all staff and stakeholders on our approach to managing all highway infrastructures.

The Highway Asset Management Strategy sets out how the Highway Asset Management Policy will be delivered.

The strategy has been developed to support the Local Transport Plan (LTP objectives, by utilising investment programmes to provide an efficient and resilient highway network. The relationship between SCC's outcomes and our asset management objectives are clearly defined. The performance of which is measured and enabled through a clear reporting structure and a framework of asset management documents which include the asset data

management strategy, highway inventory policy and the performance management framework.

3.2. STAKEHOLDERS AND COMMUNICATION

RECOMMENDATION 4 – ENGAGING AND COMMUNICATING WTH STAKEHOLDERS

Relevant information should be actively communicated through engagement with relevant stakeholders in setting requirements, making decisions and reporting performance.

The Community Highways team act as ambassadors for the County Council engaging with Members and the communities, they represent about local highway issues & programmes of work.

Key stakeholders are invited to comment on the policy and strategy, these include the interests of Members, contractors, highways users, neighbouring authorities, local business and key partners, such as the NHS and the Police who rely on the network for delivery of their services.

Through this way of working, we ensure that the delivery of our investment programmes is informed by the intelligence gained through working alongside the community within localities. We also ensure that the work undertaken at a local level complements the activity delivered through our borough wide programme of maintenance and improvement works.

Future work programmes are approved and shared with Members and the public and scheduled or planned work details are communicated as set out in each service area's Pitching the Message standards.

3.3. CONSISTENCY OF SERVICE

RECOMMENDATION 5 – CONSISTENCY WITH OTHER AUTHORITIES

To ensure that users' reasonable expectations for consistency are taken into account, the approach of other local and strategic highway and transport authorities, especially those with integrated or adjoining networks, should be considered when developing highway infrastructure maintenance policies.

The Council was one of the early members of the Midland Highway Alliance which has now joined together with the Midlands Service Improvement

Group (MSIG) and West Midlands Highway Alliance (WMHA) to form the Midland Highway Alliance Plus (MHA+). The MHA+ is a collective of Councils sharing best practice to drive improvements and efficiencies within the highways and road safety disciplines of Local Authorities. In particular, the Asset Management Task Group has worked to develop a set of High-Level Principles for the Risk Based Approach to safety inspections and defect response times.

Agreements are in place with our neighbouring authorities for cross boundary maintenance and winter service provision.

3.4. INTEGRATED NETWORK MANAGEMENT

RECOMMENDATION 6 – AN INTEGRATED NETWORK

The highway network should be considered as an integrated set of assets when developing highway infrastructure maintenance policies.

This plan, and the risk-based approach it details, enables the wide variety of highway assets to be managed as an integrated set. It details an approach to assessing and undertaking maintenance that is used across all assets.

A 'Candidate List' of sites requiring maintenance, for consideration in future works programmes is developed for each asset. These are discussed between teams who lead on the various assets on the network with a view to shaping the integration, scope, and timing of any potential works to ensure value for money efficiencies are achieved. This includes, though not exclusively, street lighting, structures, drainage, and any third-party assets such as those owned by utility companies.

Through programme coordination and visibility of future SCC schemes which may affect other key highway asset or major improvement scheme, we adjust the priority place in the programme so that we can combine activities in order to maximise financial efficiencies.

3.5. RISK BASED APPROACH

RECOMMENDATION 7 – RISK BASED APPROACH

A risk-based approach should be adopted for all aspects of highway infrastructure maintenance, including setting levels of service, inspections, responses, resilience, priorities, and programmes.

Meaningful risk management is an intrinsic part of the management of our highway infrastructure. Inspections, maintenance, renewals, and improvements present extensive choices and therefore it is vital that the impact of implementation and the consequences of failure are fully understood. In addition, there is a variety of external influences which impact on the performance of the highway network. Weather, budget, political direction, and demand from other service areas also need to be considered when determining the approach to maintenance and investment.

Adopting a risk-based approach has facilitated the establishment and implementation of levels of asset condition and service standards that are appropriate to their circumstances.

We have adopted a risk-based approach for all aspects of highway infrastructure maintenance, including setting levels of service, inspections, response, resilience, priorities, and programmes. The management of current and future risks has been embedded within our approach to asset management and service delivery.

The key actions of this risk-based approach are:

- Understanding our statutory duties and ensuring that these are fulfilled.
- Identifying the value and criticality of the County Council's assets and operations to fulfil the asset management objectives and achieve the levels of service.
- Gathering sufficient and appropriate information to support risk-based decisions.
- Ensuring staff have sufficient knowledge and competency to make risk-based decisions.
- Identifying and prioritising risks associated with the assets using systems that are consistent with the County Council's corporate approach to risk management.
- Implementing appropriate controls.
- Documenting risk-based decisions ensuring that the whole approach is transparent.

- Applying the risk-based approach equitably for all stakeholders and in all locations.
- Communicating the approach and the outcomes of where it is applied to stakeholders.

This HIAMP sets in place the over-arching approach which will be deployed for operational procedures.

Risk management is therefore at the heart of good management practice and corporate governance arrangements. Our approach to risk management is proactive and enables decisions to be based on properly assessed actions and events that balance risk and reward with a view to ensuring that the right actions are taken at the right time.

RECOMMENDATION 14 – RISK MANAGEMENT

The management of current and future risks associated with assets should be embedded within the approach to asset management. Strategic, tactical, and operational risks should be included as should appropriate preventative and mitigation measures.

SCC has a highway infrastructure risk management policy and risk register. The policy links to the corporate risk framework, corporate risk register and the business continuity plan.

The Highway Asset Management Delivery Project Team has been established to regularly review highway asset risks and consists of officers designated as asset leads and service managers. The group maintain a detailed risk register used to assess the potential risks encountered when managing the highway network. The risk register records what the risks are, evaluates the impact, identifies how the risk can be mitigated, the investment required to control the risk and designates a risk action owner.

The Highway Infrastructure Plus partnership has a clear procedure for identifying, reporting, and controlling the escalation of risk.

3.6. INFORMATION MANAGEMENT

RECOMMENDATION 8 – INFORMATION MANAGEMENT

Information to support a risk-based approach to highway maintenance should be collected, managed, and made available in ways that are sustainable, secure, meet any statutory obligations, and, where appropriate, facilitate transparency for network users.

RECOMMENDATION 9 – NETWORK INVENTORY

A detailed inventory or register of highway assets, together with information on their scale, nature, and use, should be maintained. The nature and extent of inventory collected should be fit for purpose and meet business needs. Where data or information held is considered sensitive, this should be managed in a security- minded way.

The Highway Infrastructure Inventory Policy establishes a process for the recording, identification, and accountability of all County Council owned highway infrastructure assets.

The policy requires:

- All highway infrastructure assets shall be identified with unique asset reference, where appropriate this unique reference number shall be affixed to the asset.
- Asset records shall be maintained for each asset.
- The Asset Custodian to make an annual declaration of the accuracy, currency, and coverage of inventory. Commentary on any significant changes to the inventory shall be included in the declaration.
- The Asset Custodian to be administratively responsible for the asset assigned to them.

RECOMMENDATION 10 – ASSET DATA MANAGEMENT

The quality, currency, appropriateness, and completeness of all data supporting asset management should be regularly reviewed. An asset register should be maintained that stores, manages, and reports all relevant asset data.

To provide effective asset management we require knowledge of an asset, its condition, and its use. This entails the collection and importantly management of asset inventory and condition data. A Highway Asset Data Management Strategy has been developed to assess whether the systems and information available to the authority are sufficient to ensure:

- Our approach to highway maintenance is consistent with the current recommendations of the Highways Maintenance Efficiency Programme (HMEP).

- Consistency with the code of practice for highway maintenance 'Well Managed Highways Infrastructure'.

- The Council is in a position to secure the full funds available through the Department for Transport's (DfT's) Incentive Fund award process.

- Development of a more analytical and evidence-based approach to managing its highway assets.

- The detailed direction and operational processes required to underpin delivery of the Highway Asset Management Policy and Strategy are available.

Stewardship of asset data is a clear strength of the County Council with named posts in the structure that are clearly responsible for certain sets of data.

RECOMMENDATION 11 – ASSET MANAGEMENT SYSTEMS

Asset management systems should be sustainable and able to support the information required to enable asset management. Systems should be accessible to relevant staff and, where appropriate, support the provision of information for stakeholders.

For asset management to be effective it must be supported by quality data. A number of commercial off the shelf systems are available that provide a range of functionality to support the asset management process.

Given the diversity of Highway Services Assets and their individual maintenance requirements, the Council's current asset management systems comprise a number of separate systems that effectively manage asset groups, i.e., structures, carriageway and footway, street lighting, traffic signals. These individual systems are linked through common referencing of asset and association with a common highway network enabling an integrated approach.

Data relevant to the highway network and its Asset Register is held in the Confirm UKPMS Asset Management System used by many local councils to manage highway and transport assets, customer services, maintenance, and performance. Confirm and other performance management systems are used to manage and monitor performance across the Highway service.

3.7. FUNCTIONAL HIERARCHY

RECOMMENDATION 12 – FUNCTIONAL HIERARCHY

A network hierarchy, or a series of related hierarchies, should be defined which include all elements of the highway network, including carriageways, footways, cycle routes, structures, lighting, and rights of way. The hierarchy should take into account current and expected use, resilience, and local economic and social factors such as industry, schools, hospitals and similar, as well as the desirability of continuity and of a consistent approach for walking and cycling.

The network hierarchy recognises that maintenance and management of the Highway Services Assets based on the current classification of A, B, C, and non-classified roads fails to recognise:

- the volume of traffic using particular roads
- their importance in delivering the Council's aims and objectives
- the consequences of failure of certain routes or items of infrastructure
- the impact on the economy and communities

The Council has developed a Network Maintenance Hierarchy and Resilience Strategy based on both network usage and the importance and limitations of particular routes and assets across the network. It allows differing levels of service and maintenance strategies to be applied to the hierarchy of the network ensuring the most effective treatments are employed appropriate to the use and importance of the roads in question and allows for the integrity of routes used by greater volumes or goods vehicles to be maintained to ensure the long-term resilience of those parts of the network.

RECOMMENDATION 20 – RESILIENT NETWORK

Within the highway network hierarchy, a 'Resilient Network' should be identified to which priority is given through maintenance and other measures to maintain economic activity and access to key services during extreme weather.

It is now recognised that climate change is affecting weather patterns. In the UK, this is reflected through greater incidence of prolonged rainfall, strong winds and heatwaves which can combine with other natural events

to create adverse conditions for the Councils transport network. Where practical, there is a need to make the Councils transport networks more resilient to such events.

The increasing frequency, variety, and impact of these extreme weather events prompted the Department for Transport (DfT) to undertake a review of the resilience of the UK transport network to extreme weather events. This review recommended that local highway authorities should identify their resilient network and give it priority consideration in terms of maintenance and availability.

The resilient network will also be used as a tactical tool with which priority can be given to minimise the impacts of extreme weather. This could include the following –

- Additional maintenance interventions/inspections may be used to ensure the asset continues to function.
- Prioritise funding to mitigate the onset of deterioration of the asset.
- Prioritise work programme to reduce the risk of failure in the asset.
- Prioritise reactive maintenance in the case of extreme weather.
- Assisting in emergency planning events including recovering from an emergency event.

At its highest level the network maintenance hierarchy identifies a resilient network of key routes serving the businesses, communities, services and forming links both nationally and between adjoining authorities. These routes will be given priority in planned and reactive maintenance and will be maintained in the event of adverse weather or other emergent events. The resilient network includes a number of assets where failure would result in significant impact to the local economy, and these have been identified and prioritised in the Highway Services Asset Risk Strategy.

3.8. LIFECYCLE/DESIGNING FOR MAINTENANCE

RECOMMENDATION 13 – WHOLE LIFE/DESIGNING FOR MAINTENANCE

Authorities should take whole life costs into consideration when assessing options for maintenance, new and improved highway schemes. The future maintenance costs of such new infrastructure are therefore a prime consideration.

Whole life costing involves predicting the likely deterioration rate of assets based upon usage and material composition plus the treatment cost versus

useful life calculations which give the most cost-effective medium and long-term asset maintenance plans.

Staffordshire works to design specifications contained in the 'Manual for Streets'[14], the Staffordshire Residential Design Guide[15] and the Design Manual for Roads & Bridges[16]

Scheme designs are based, as far as is reasonably practicable, on the most sustainable whole life approach to design, specification of materials and construction methods. Such examples include the specification of durable materials and designs, recycling and re-using materials where possible, prioritising repairs and maintenance, undertaking treatments in a timely manner and using innovative techniques often developed through early contractor involvement.

A sustainable approach to maintaining Staffordshire's roads and pavements will assist in reducing whole life costs and ensure continued levels of serviceability of the highway network.

RECOMMENDATION 15 – COMPETENCIES AND TRAINING

The appropriate competencies for all staff should be identified. Training should be provided where necessary for directly employed staff, and contractors should be required to provide evidence of the appropriate competencies of their staff.

To ensure our officers are competent in the principles and practices of asset management, a training and competency framework has been developed which provides the expected qualifications, training, and proficiencies for each prescribed role.

RECOMMENDATION 16 – INSPECTIONS

A risk-based inspection regime, including regular safety inspections, should be developed, and implemented for all highway assets.

All features of the highway, including carriageways, footways, cycleways, and highway structures will be inspected regularly, at intervals depending on the hierarchy of the road and type of survey being carried out.

[14] Manual for the Streets
[15] Residential Design Guide - Staffordshire County Council
[16] Standards For Highways | Design Manual for Roads and Bridges (DMRB)

The Council's Highway Safety Inspection Code of Practice[17] details the safety inspection regime which forms a key part of the Council's strategy for managing risk. It comprises the following elements:

- Frequency (and mode) of inspections
- Items for inspection
- Degree of deficiency
- Nature of response

Risk based Inspection Frequency

Where a road use changes or reports have been received regularly and/or reactive works have been carried out regularly, safety inspection frequency may be altered, (this may include the use of additional inspections). Similarly, surfacing schemes may trigger a review of the inspection frequency for a certain area due to the reduction in risk. Frequency changes will be determined via risk assessment that takes account of the above considerations and will be reviewed by Highway Services and recorded by the Highway Asset Manager (with the reason for doing so) annually or following a significant change.

A separate guidance document is provided for an inspector that sets out what and how the inspection should be undertaken. This provides guidance on the risk based approached detailed within this plan to establish a response time to defects identified.

Defect Investigation Levels

When assessing the risk associated with defects consideration will be given to its location, the volume of traffic, the nature of such traffic, usage by children, elderly and disabled persons, and the extent of visibility at the site amongst other considerations. The code of practice, Well-managed Highway Infrastructure, does not set out specific intervention levels and refers to legal precedents.

Recording Defects

All highway defects which are noted should be recorded on the mobile devices. To ensure the repair team can quickly identify the precise defect, it is essential that the information provided is simple and easily understood. In order to locate a defect effectively, the repair team records the following information:

- The location of the defect along the length of the highway.
- The position of the defect across the width of the highway

[17] Highway Safety Inspections Code of Practice - Staffordshire County Council

- The size and type of defect

Defect Response Times

The response times commence from the time that the County Council first become aware of the existence of a defect (i.e., if the Authority is notified via electronic mail, it first becomes aware of the defect when the electronic mail is opened). This is particularly important in relation to defects which require an urgent response. Because the 24-hour response time starts when the County Council is first informed of the defect by a member of the public, only Customer Enquiry reports that are attributed as emergencies will potentially become Category 1 defects. In relation to defects noted by the highway inspector the 24-hour response time commences from the point that the defect was noted.

Out of Hours

Defects identified out of normal working hours are reported to the out of hours Duty Officer (Highways) via the call centre, who will respond based on the information provided by the reporter and in accordance with the risk table in the Highway Safety Inspection Code of Practice. If insufficient information is available, then the defect will be considered very high risk and the appropriate response made. Provision is made for an appropriate response during non-working days via the out of hours team and/or the Duty Officer (Highways).

The Duty Officer has a guidance document to ensure that they are able to ensure appropriate responses are taken to ensure a safe network.

Timescales are designed to enable highway defects to be, wherever practicable, actioned by a permanent repair. This balances the immediate risk posed to highway users with the ongoing risk that will be posed as a consequence of a failed temporary repair. In some situations, it may be necessary to respond to certain defects as an emergency, responding as soon as possible (within 2 hours).

When action has been undertaken by the out of hours service that requires a follow up, such as a temporary repair, this will be recorded on the Confirm system for follow up by the normal working hours team.

RECOMMENDATION 17 – CONDITION SURVEYS

An asset condition survey regime, based on asset management needs and any statutory reporting requirements, should be developed, and implemented.

The purpose of highway data collection is two-fold. Firstly, to provide up to date accurate and reliable data to inform operational decisions. Secondly, to co-ordinate the required data gathering to ensure that funding decisions are informed by appropriate, current, and reliable data.

The condition data collection strategy utilises a range of survey types that are either machine based or interpretive, based on a visual engineering observation of whole streets and routes either by high-definition video or on-site survey. The network hierarchy has a large part to play in the selection of survey method and the subsequent maintenance strategy.

3.9. MANAGEMENT SYSTEMS, RECORDING AND MONITORING OF INFORMATION

RECOMMENDATION 18 – MANAGEMENT OF SYSTEMS AND CLAIMS

Records should be kept of all activities, particularly safety and other inspections, including the time and nature of any response, and procedures established to ensure efficient management of claims whilst protecting the authority from unjustified or fraudulent claims.

Inspection information, maintenance activities and correspondence regarding enquiries are recorded in the Confirm asset management system. These records are utilised for performance monitoring and in the investigation of claims. The procedures for dealing with claims managed within the Council's Insurance Services team include activities to detect and prevent unjustified and fraudulent claims.

Oversight of the systems and processes is provided by the Insurance Claims Delivery Project Team (DPT) which consists of key staff from the county council's insurance, highways and claims teams and the infrastructure partner Amey.

RECOMMENDATION 19 – DEFECT REPAIR

A risk-based defect repair regime should be developed and implemented for all highway assets.

During a safety inspection, where a defect is observed that may be considered a risk, details are recorded, and a risk assessment undertaken. This information is recorded in the asset management computer programme system Confirm. The risk assessment will determine the time

scale for potential repair that is detailed in the risk matrix detailed in the SCC Highway Safety Inspection Code of Practice.

All other issues identified are either added to the respective works programme or monitored at future inspections.

3.10. CLIMATE CHANGE AND ADAPTATION

RECOMMENDATION 21 – CLIMATE CHANGE ADAPTATION

The effects of extreme weather events on highway infrastructure assets should be risk assessed and ways to mitigate the impacts of the highest risks identified.

In July 2019 the Council declared a climate change emergency to achieve net zero emissions by 2050 across every aspect of our service provision and estate.

To demonstrate a commitment to taking action to reduce climate change impacts we have released a Climate Change Strategic Development Framework and climate change action plan outlining how we are to tackle the council's emissions now and in the future.

The climate change action plan includes a number of highway related actions including reviewing street lighting operation and energy, reviewing fleet operations, reviewing grass verge maintenance, flood management and increasing tree cover.

RECOMMENDATION 22 – DRAINAGE MAINTENANCE

Drainage assets should be maintained in good working order to reduce the threat and scale of flooding. Particular attention should be paid to locations known to be prone to problems, so that drainage systems operate close to their designed efficiency.

The highway drainage system in Staffordshire is designed to take water away from the road surface. We have a total gully asset level of in the region of 165,000 gullies, therefore, associated works are prioritised accordingly.

We operate a cleaning schedule to routinely clean the gullies throughout Staffordshire, using data collated in recent years the frequency of the cleansing is determined by the silt levels readings and road classification.

In addition to a routine cleaning schedule, ad-hoc cleansing operations take place 1 to 2 days a week in targeted locations based on risk assessed priority.

Other drainage asset such as trash screens are on designated cyclical inspection and cleansing regimes.

RECOMMENDATION 23 – CIVIL EMERGENCIES AND SEVERE WEATHER EMERGENCY PLANS

The role and responsibilities of the Highway Authority in responding to civil emergencies should be defined in the authority's Civil Emergency Plan. A Severe Weather Emergencies Plan should also be established in consultation with others, including emergency services, relevant authorities, and agencies. It should include operational, resource and contingency plans and procedures to enable timely and effective action by the Highway Authority to mitigate the effects of severe weather on the network and provide the best practicable service in the circumstances.

Detailed information on Staffordshire's approach to planning for and dealing with civil and severe weather emergencies can be found on the authority's website

Emergencies that may affect Staffordshire include flooding, severe weather, major transport accidents, industrial accidents, outbreaks of disease including flu pandemics and terrorist incidents.

To prepare for possible emergencies within the county the authority will:

- assess local risks in order to identify what needs to be planned for
- write and review emergency plans
- train and exercise with other key organisations to enhance the management of an emergency
- ensure that Staffordshire County Council has plans in place to deliver important services to the public during an emergency.

The County Council also helps to support the emergency services and other organisations with their emergency response in a number of ways:

- arranging emergency accommodation should members of the public be evacuated from their homes
- providing emergency transport to move members of the public from the scene of an emergency to a safe location

- co-ordinating services that the County Council provides which are required as part of the emergency response
- contributing to the running of assistance centres. Assistance centres will be set up in the aftermath of a major emergency to act as a focal point for information and assistance to families and friends of those missing, injured or killed, and to survivors
- providing information to the public
- providing advice and assistance to major sporting venues to ensure that they are prepared for emergencies
- providing guidance to Parish Councils and other community groups, to help communities prepare for emergencies
- providing emergency planning guidance to schools.
- Facilitating community self-help during flooding events- Marchington flood warden's scheme

The County Council provides this as a key partner of the Staffordshire Local Resilience Forum (LRF)[18], which is a partnership of local agencies engaged in resilience and response.

Recommendation 24 – COMMUNICATIONS

Severe Weather and Civil Emergencies Plans should incorporate a communications plan to ensure that information including weather and flood forecasts are received through agreed channels and that information is disseminated to highway users through a range of media.

The County Council uses its web pages, along with social media platforms, local radio, and television stations to communicate information updates and advice when disruptions occur. This takes the form of both self-service, whereby people can check for information themselves, or sign up for updates as required.

Recommendation 25 – LEARNING FROM EVENTS

Severe Weather and Civil Emergencies Plans should be regularly rehearsed and refined as necessary. The effectiveness of the Plans should be reviewed after actual events and the learning used to develop them as necessary.

The County Council is a key partner of the Staffordshire Local Resilience Forum (LRF), The strategic aim of the Local Resilience Forum is to establish

[18] Staffordshire Prepared - Staffordshire LRF

and maintain effective multi-agency arrangements to respond to major emergencies, to minimise the impact of those emergencies on the public, property and environment of Staffordshire and to satisfy fully the requirements of the Civil Contingencies Act[19]. Knowledge is shared across the forum, especially post event.

Recommendation 26 – PERFORMANCE MANAGEMENT FRAMEWORK

A performance management framework should be developed that is clear and accessible to stakeholders as appropriate and supports the asset management strategy.

Recommendation 27 – PERFORMANCE MONITORING

The performance of the Asset Management Framework should be monitored and reported. It should be reviewed regularly by senior decision makers and when appropriate, improvement actions should be taken.

The County Council monitors its service levels through a range of performance indicators which are routinely reported to senior management for review. These indicators are managed through the Authority's performance management system with the associated data being produced from the asset management systems and external sources such as NHT.

Continual service reviews through monthly development project team meetings are an integral part of the strategic partnership with outturn performance Indicators reported to the Operational Commissioning Board on a monthly basis along with actions required and/or implemented as a result of any under-performance.

Operational Commissioning Board (OCB) comprises of Staffordshire County Council and Amey senior leadership team; its primary objective is to lead the performance of the services and contractual requirements involved in providing the services to enable the Partnership to meet the outcomes. It considers issues raised through the Delivery Project Teams (DPT) and disseminates decisions back. DPTs deliver the services and enable the partnership to meet the outcomes whilst achieving best value for the county council. The partnership is monitored at a number of board levels through a suite of key performance and operational performance indicators.

[19] Civil Contingencies Act 2004

3.11. FINANCING OF HIGHWAYS MAINTENANCE

Recommendation 28 – FINANCIAL PLANS

Financial plans should be prepared for all highway maintenance activities covering short, medium- and long-term time horizons.

Highway maintenance and services are developed, delivered, and measured through a Forward Programme and Annual Plan. These plans will both inform and be prepared in line with the Council's Medium-Term Financial Strategy with the aim of delivering its long-term objectives.

This Plan sets out how the risk to highway users is managed in a robust and cost-effective way and the Council can demonstrate a thorough and reasonable system of inspection and repair, whilst delivering on the wider objectives across all assets, as expressed through this HIAMP and other related policies and plans.

Maintenance in local highway authorities is funded through a combination of capital and revenue funding. Capital funds come in part via the local highway's maintenance block funding from DfT while revenue comes from MHCLG. There is a consensus about the need to invest in infrastructure, including local highways maintenance with a long-term perspective. It is the uncertainty of future funding which hinders the authority in its medium to long term financial planning.

Recommendation 29 – LIFECYCLE PLANS

Lifecycle planning principles should be used to review the level of funding, support investment decisions and substantiate the need for appropriate and sustainable long-term investment.

Through our highway asset management planning we develop specific lifecycle plans for major assets that detail how we will collect information about condition and then utilise, when resources allow, a system of planned interventions designed to preserve, maintain and enhance our highway assets. This will take account of the following factors:

- Minimising whole-life cost and maximising cost/benefit
- Risk-based approach
- Network priorities and policies set out in the Local Transport Plan and service level plans.
- Agreed levels of service

- Carbon reduction measures

When allocating resources and the delivery of planned interventions across highway assets, we will use the standards and risk-based approach outlined in this plan to deliver, as a minimum, maintenance activities with the intention of maintaining the highway and maintaining highway safety in a reasonably practicable way. To ensure that the Council meets it duty towards the maintenance of the highway across its full extent it is essential that resources are directed towards the highest priorities and deploy the most effective ways to address these. This plan seeks to address this issue through a risk-based approach.

3.12. PRIORITIES AND PROGRAMMING

Recommendation 30 – CROSS ASSET PRIORITIES

In developing priorities and programmes, consideration should be given to prioritising across asset groups as well as within them.

Staffordshire has a 'Whole Street Approach' strategy in place which aims to consider all assets in terms of lifecycle and condition and to pick the optimum time for works to be carried out whilst looking to consider other assets which may also be in or close to their respective maintenance 'window' and works on these can be brought forward in conjunction with the initial identified works to reduce the scale and frequency of disruption to the public.

We are developing an approach to cross-asset prioritisation which will be utilised to understand the budgetary and maintenance requirements of all highway assets holistically and how best to maintain the network in a safe, reliable and sustainable manner.

Recommendation 31 – WORKS PROGRAMMING

A prioritised forward works programme for a rolling period of three to five years should be developed and updated regularly.

All the key asset types have individual work programmes covering more than one year, with support for a 5-year outline programme. The individual asset type maintenance programmes are developed from asset condition data, priorities, and budgets, resulting in a single year detailed programme of work and indicative future programmes for further years.

Co-ordination of these programmes relies on reviews of work planned for the year, finalised after the Council budget setting process. The adoption of a longer-term work programme supports greater efficiencies in co-ordinating works on the highway. In addition, it facilitates the identification of more cost-effective solutions.

3.13. SUSTAINABILTY AND HIGHWAY INFRASTRUCTURE

Recommendation 32 – CARBON

The impact of highway infrastructure maintenance activities in terms of whole life carbon costs should be taken into account when determining appropriate interventions, materials, and treatments.

Sustainability is a key part of the Council's vision. A four-year plan to reduce the county council's carbon emissions to help tackle climate change and support the authority in achieving a net zero carbon target by 2050 has been launched.

The plan sets out a series of actions up to 2025 to cut carbon further, improve air quality, reduce waste, improve the natural environment, and support people in changing their behaviour to become more environmentally friendly.

The delivery of highway maintenance is undertaken in accordance with good environmental management procedures outlined in the plan so as to minimise environmental impact and sustain Staffordshire's biodiversity and character.

In the selection of materials, and treatment, the environmental impact is considered. We aim to maximise the environmental contribution and sustain the county's biodiversity, character, and heritage by the adoption of good environmental management procedures in highway maintenance works.

Whilst most works are undertaken in accordance with approved works specifications, it is recognised that this should not limit the Council's ability to promote Environmental Sustainability. We promote value and innovation to drive continuous improvement. In each case departures from the approved standards will only take place following an assessment of risk, and with approval of the Highway Asset Manager and Asset Management Delivery Project Team.

Recommendation 33 – CONSISTENCY WITH CHARACTER

Determination of materials, products and treatments for the highway network should take into account the character of the area as well as factoring in whole life costing and sustainability. The materials, products and treatments used for highway maintenance should meet requirements for effectiveness and durability.

The overall street characteristics in conservation and other areas is important to maintain the heritage of a local area and its visual appearance and character. This can be tied to local street attributes, types of asset and materials used. Wherever possible, materials are maintained like for like in such areas with any changes being highlighted though the project control measures. This may involve consultation and incorporating defined requirements from other bodies or local considerations.

The priority for Staffordshire is to have a safe system of roads for the travelling public to use. If there is a conflict between safety and conservation, safety will be given a higher importance.

Recommendation 34 – HERITAGE ASSETS

Authorities should identify a schedule of listed structures, ancient monuments and other relevant assets and work with relevant organisations to ensure that maintenance reflects planning requirements.

Staffordshire has a diverse range of historic landscapes, buildings, settlements, archaeological sites, and monuments which reflect the county's own distinct character. The historic environment provides a sense of identity and belonging for its communities, is a valuable resource for education and enjoyment and can also be seen as a force for regeneration in Staffordshire.

The County Council's Historic Environment service is responsible for providing advice and guidance on the management and conservation of Staffordshire's archaeology, its historic buildings and its historic landscape. It is also responsible for the management and development of the Historic Environment Record.

The Historic Environment Record[20] can be accessed online via the Heritage Gateway website. Some information is also available through these maps.

[20] Historic Environment Record - Staffordshire County Council

SCC maintains an inventory of its 'structures' with particular attention to bridges that are either national monuments or are Grade listed.

Recommendation 35 – ENVIRONMENTAL IMPACT, NATURE, CONSERVATION AND BIODIVERSITY

Materials, products, and treatments for highway infrastructure maintenance should be appraised for environmental impact and for wider issues of sustainability. Highway verges, trees and landscaped areas should be managed with regard to their nature conservation value and biodiversity principles as well as whole-life costing, highway safety and serviceability.

This HIAMP recognises the benefits of choosing appropriate materials and techniques to cause least impact to the environment, to be able to cater for increasingly adverse weather conditions as well as minimising whole life costs and improving safety and serviceability.

Recommendation 36 – MINIMISING CLUTTER

Opportunities to simplify signs and other street furniture and to remove redundant items should be taken into account when planning highway infrastructure maintenance activities.

Staffordshire work with local planning authorities and developers through the development process, to improve the layout and design of streets, and remove any unnecessary clutter both in connection with new development and publicly promoted projects.

Identifying and removing superfluous or redundant items of street furniture and encouraging the co-location of signs to reduce unnecessary street clutter is routinely undertaken through day-to-day inspection and maintenance activities.

Part 4: Implementing Asset Management Principles in Highways

4.1. UNDERSTANDING THE ASSETS WE MANAGE

The highway network is made up of a diverse range of assets including around 6,200 kilometres of roads, more than 1,000 structures, 150,000 roadside drains, 475,000 trees, 108,000 streetlights as well as 4,200 kilometres of footways and over 550 traffic signal sites. The replacement value of these assets is estimated to be in the region of £7.5 billion. We understand different assets have different characteristics and so need to be managed differently.

Figure 2 – SCC Key Highway Assets Overview

Our Key Highway Assets at a Glance					
 **Carriageway**	 **Footways & Cycleways**	 **Structures**	 **Streetlights**	 **Traffic Signals**	 **Drainage**
▪ 6,200km of roads	▪ 4,560km of footway and cycleway	▪ 1,234 Bridges ▪ 6 Reservoirs ▪ 200km of Retaining walls	Over 115,000 streetlights and illuminated signs	▪ 553 Traffic Signal Sites ▪ 261 Electronic warning signs	Over 165,000 gullies, catchpits, headwalls

Other assets such as unlit signs, road markings and street furniture are critical to the safe and expeditious movement of highway users around the county, but we have no reliable record of their location or number.

4.1.1. Asset Information

Understanding both our assets and the effect they have on each other is central to effective asset management and informed decision making. We therefore do not consider the asset groups in isolation but as an integrated whole.

The information we need can be broken down into three categories:

- **Inventory and Condition Information**

  This data describes the full extent of an asset and can include location, age, size, construction, and details of previous maintenance. Examples of how we collect this data include digitalisation of historic records and data collection exercises included as part of routine maintenance works.

  Inventory and condition information helps us to plan maintenance activities and communicate with the public. It also helps us to understand the cost of replacing our assets with equivalent new assets.

- **Performance Information**

  This is the data we use to determine whether assets are doing what we need them to do to keep the highway safe, reliable, and meeting the needs of our residents, businesses, visitors, and local communities. Examples of how we collect this data include condition surveys, routine inspections and testing, customer enquiries, third party claims, records of damage to highway assets, traffic flows and energy bills.

  This data helps us to understand where we need to carry out maintenance activities, where our assets are going to need replacing now or in the future and where we need to think about changing, adding, or removing assets. It also helps us to understand the cost of replacing an asset with its modern equivalent, less deductions for all physical deteriorations.

- **Financial Information**

  This is the data we use to assess cost: for example, how much it will cost to maintain or replace an asset or how much it will cost to deliver a certain level of service.

4.1.2. Collection of Asset Information

We continually collect information about our new, replacement and improved assets. It is important that the data we collect is accurate, reliable, and useful but data collection can be expensive. We therefore take a risk-based approach to the collection of information, prioritising high risk assets and information that will support our approach to asset management.

The quality, appropriateness and completeness of our asset data are reviewed regularly by our asset custodians, as part of the Asset

Information Plan, to ensure that it fully supports our approach to asset management.

4.1.3. Storage of Asset Information

We store all collected asset data, for each asset group, 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.

Our asset inventory, condition and defect data are currently stored and interpreted in a number of ways.

Table 2 – Highway Asset Management Systems

Asset Group	Systems Used
Carriageways and Footways	Confirm, WDM Manager, Horizons. Gaist AssetView
Drainage	Confirm
Bridges, Tunnels & Highway Structures	Confirm
Street Lighting	PFI provided
Intelligent Traffic Systems	Information Management for Traffic Control (IMTRAC)
Soft Landscape	We do not electronically record details of this asset
Safety Barriers	We do not record details of this asset
Unlit Signs, Lines & Cats' Eyes	We do not record details of this asset
Street furniture	We only record a very small proportion of this asset

The systems that we use are also regularly reviewed and monitored by Asset Custodians through the Asset Data Management Strategy. This enables us to ensure that they are providing reliable information in a format that can be used to inform the delivery of our highway maintenance, renewals, and improvements effectively.

4.2. LIFECYCLE PLANNING

The objectives of lifecycle planning are stated by the UK Roads Liaison Group in the Highway Infrastructure Asset Management Guidance[21] as:

- Identify long term investment for highway infrastructure assets and develop an appropriate maintenance strategy.
- Support decision making, the case for investing in maintenance activities and demonstrate the impact of different funding scenarios.
- Predict future performance of highway infrastructure assets for different levels of investment and different maintenance strategies

Lifecycle planning has been undertaken as part of the development of the Asset Management Strategy and provides an outline of the long-term plans and funding requirements for the key asset groups (carriageways, footways, structures, street lighting and signals) to maintain the required levels of service at the lowest whole life cost.

The County Council has undertaken considerable investment in systems and surveys to collect and manage inventory and condition information on the carriageway and this data is utilised to:

- Assess the long-term funding requirements for the maintenance of the network.
- Assess priorities for required maintenance.
- Develop the programme of maintenance schemes.
- Design detailed treatments

SCC has reviewed and evaluated various options to assist with lifecycle planning. Following detailed evaluation of options, the county council decided to build upon its existing systems and processes for deterioration and budget modelling which are also utilised for scheme identification, evaluation, and prioritisation.

Building on past experience of in-house deterioration modelling and following the principles of the HMEP Toolkit and other lifecycle planning options, current and historic condition data is used to develop local deterioration curves for all carriageway classes.

4.3. FORWARD WORKS PROGRAMMES

Forward works programmes provide an effective and efficient way of delivering maintenance, repairs, and improvements. They enable prioritisation and optimisation of schemes to meet available budgets.

Identifying work will involve the consideration of current condition of the asset against the required performance and consideration of risk. Local

[21] UKRLG Highway Infrastructure Asset Management Guidance

intelligence is an important part of this process, not only to inform about constraints but also to provide engineering solutions which takes into account locally known risks. Prioritisation of the work ensures that for the resources available the County Council generates the maximum value. The precise process will be tailored to the individual asset groups according to the strategies set out in the lifecycle plans but the resources and delivery are considered together as in integrated programme of work.

Developing a works programme is a seven-stage process:

4.3.1. Identification

Potential schemes may be identified from a range of sources including inspections, surveys, local knowledge, customer enquiries, complaints, risk and wider transport or corporate objectives. These schemes are collated into an initial works programme for each asset group.

4.3.2. Prioritisation

The following things are considered when prioritising schemes:

- Current and projected condition
- the maintenance hierarchy of the road
- the safety of road users
- the impact on the movement of traffic if the asset fails
- value for money
- the cost of bringing forward or delaying works
- the lifecycle cost of our highway asset
- the impact on future use of the highway
- the environmental impact
- the impact on the community including damage to property or impacts on local businesses
- integrate all modes, especially active travel, and support modal shift
- local development plans
- planned and potential utility and third party works

4.3.3. Selection

A candidate lists of schemes for each asset group are combined, costed, and listed in priority order. A notional “cut off” point is then determined by totalling up the cost to the point where the budget is fully utilised.

4.3.4. Member Engagement

In order that local priorities are reflected in the planned maintenance programme the candidate list will be consulted on with members so they

have sight of current and future years work programmes and can prioritise schemes with a particular local importance.

4.3.5. Programming & Optimisation

Selected schemes are optimised within the works programme, based on many factors including deliverability. This is done by coordinating or combining works to minimise both cost and disruption.

Utility companies are a key consultees to manage not only short term and mid-term co-ordination but to also determine where utility companies may have assets that are towards the end of their life but not programmed for replacement at that time.

4.3.6. Approval

Cabinet members will be asked to approve the Highways Capital Programme each year.

4.3.7. Delivery

Finally, a multi-year works programme is confirmed and delivered from the available budget.

We publish our programmes of work on our website, so that members of the public can see where and when we plan to do works.

The Forward Works Plan is currently focused on the carriageway asset group, with a developing footway, drainage, structures, and traffic signals programme. The remaining assets comprising asset such as vehicle restraint systems are being identified and the business case developed for them to be surveyed in time.

The Forward Works Plan will:

- Provide a work bank that can be prioritised in the Council's annual service/works plan within the available budget
- Show the individual asset group and collective works required over the 1, 3 and 5 years forward works plan
- Identify the levels of backlog present
- Show how the backlog will continue to grow if expenditure does not meet the plan requirements
- Enable the timescale of the plan to be adjusted to best tackle the maintenance required to reduce the backlog and provide the agreed Levels of Service.

The prioritisation of the schemes identified within the forward programme will be determined annually by available budget, condition, and risk.

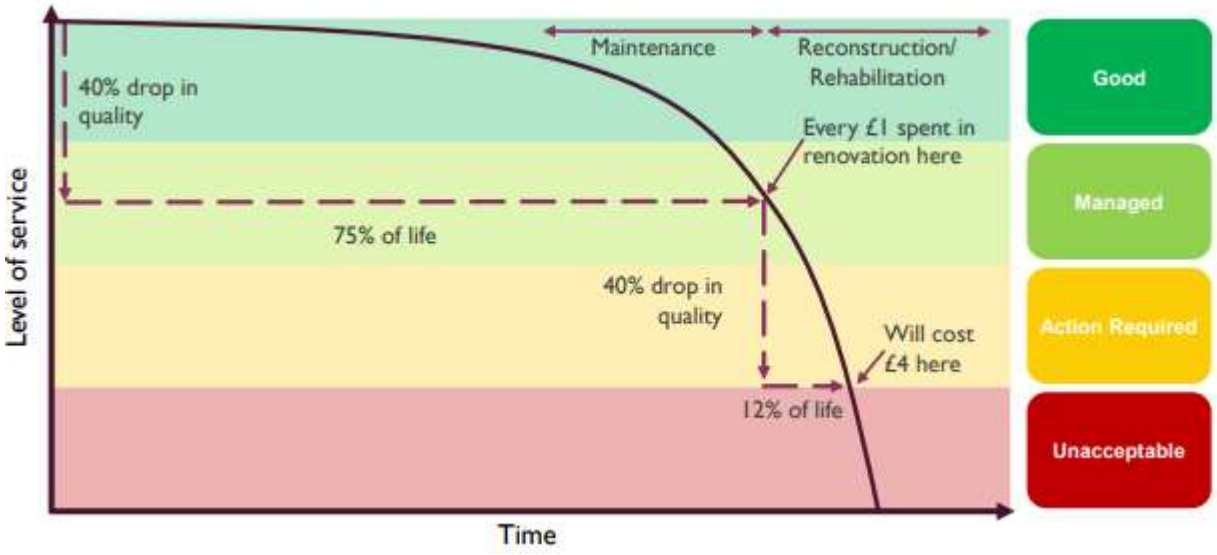
4.4. The Right Intervention at the Right Time

In line with Staffordshire's Highway Infrastructure Asset Management Policy and Strategy, the authority is committed to an asset management approach encompassing the benefits of whole cost life cycle ensuring the most effective and efficient use of the available highway budget to ensure the appropriate treatment is utilised at the right time, focussed on preventative work and prioritising high risk safety defects for repair.

Preventative maintenance by surface treatments early in the life of a road is significantly more cost effective (typically £5-£10 sq./m) than allowing roads to deteriorate to the point where they require replacement (£40-£100/sq./m) or continuous repairs to potholes. Where pre-surface treatment preparation is required, it should always be specified and undertaken with the principle that any preparatory works should exceed the life of the treatment.

Figure 3 below illustrates how effective asset management and early treatment can significantly extend the life of the asset and is a fundamental part of the County Councils Highway Infrastructure asset management.

Figure 3 – Highway Asset Lifecycle



The use of preventative maintenance such as surface dressing during the 'managed' life of the pavement, combined with subsequent further treatment can significantly extend the period of time until replacement is eventually required.

Leaving maintenance work until later in the pavements life results in the formation of defects and, replacement of the surface and/or underlying

structure at significantly increased cost as noted above. For every £1 spent on preventative maintenance undertaken in the 'managed' stage of a pavements life it will cost £4 if maintenance is delayed until the asset becomes unacceptable.

4.5. SUSTAINABLE MATERIAL CHOICES

4.5.1. Re-use of Materials

To facilitate the re-use of materials, specifications will be amended, where technically and financially feasible, to enable the incorporation of recycled material. Traditional materials will, wherever practicable, be re-used, in-situ, or taken up and re-used, or stored for re-use elsewhere.

Traditional materials include York stone, brick paviours, granite kerbs, setts, kidney stone cobbles amongst others.

4.5.2. Materials Sympathetic to the Environment

The selection of materials to be used in highway works in conservation areas, will take into consideration the adjacent buildings and surrounding environment.

During normal structural maintenance operations and design of new works, a choice of different types of material is frequently available. Examples:

- Kerbs – choice of colour and material.
- Paving – natural or artificial.
- Surfacing – choice of materials and colours.
- Street lighting – choice of lanterns, light source, column style.

4.5.3. Maintainability

When selecting materials and surface finishes, it is important to take account of the durability and maintainability of the work in question. The use of 'innovative' materials and surface treatments including coloured asphalt should be avoided where the ability to maintain them in a cost effective and straight forward manner, or the availability of replacement materials is in question.

4.6. MEASURING SUCCESS

We follow an asset management approach to deliver the following benefits:

- a service that is shaped by the needs of our residents, communities, visitors, and businesses now and in the future

- a service that makes best use of the available resources, maximising efficiency to meet with our legal obligations
- a service that is resilient and able to respond to changes and financial challenges.

It is important that we record and demonstrate that these benefits are being delivered. We can do so at a number of levels and in a number of ways:

4.6.1. Monitoring Outcomes

We ensure that our approach is being implemented as planned and is delivering the intended outcomes. For example, if our maintenance strategy for roads is to ensure that 85% of our main roads are in good or very good condition, we need to carry out condition assessments to determine whether or not this is being achieved.

By routinely monitoring outcomes and reporting on their delivery we can ensure that we remain focused on the needs of our residents, businesses, visitors and communities, meeting with our legal obligations and responding to changes and financial challenges. Whilst our approach to highways asset management and our forward works programme should be considered multi-year activities, the delivery of outcomes is reviewed and reported on annually through a number of channels.

4.6.2. Performance Measures and Targets

We use a range of metrics and targets to monitor our performance against our levels of service and determine how well we are delivering the intended benefits.

Examples of these measures and targets include national indicators such as the Road Condition Indicators which measure the overall condition of our carriageway asset, the percentage of residents satisfied with the highway service, and the number of damage and personal injury claims upheld against us.

By reviewing performance, we can ensure that we are continuously improving the way we work. We routinely review the performance of the service, identify areas where performance is not where we would like it to be and understand why this is the case. Having recognised opportunities for improvement, options to address any issues are identified and implemented. Performance is reported on a regular basis to key decision makers, elected representatives and members of the public.

4.6.3. Benchmarking

By comparing our service with the services provided by others, we can identify better ways of working at all levels. For example, we might compare the outcomes we are achieving using asset management with the outcomes other councils are achieving. Equally we might compare two of our own services, for example residents might be more satisfied with the street lighting service than they are with the drainage service. By comparing the two, lessons can be learnt, and improvements can be implemented.

We regularly participate in the National Highway and Transport (NHT) Network, a performance improvement organisation that enables members to measure, share and compare performance in order to identify areas for improvement. This is done through a number of key benchmark indicators, divided between six highway and transport themes. Currently over a hundred councils are members of the NHT network.

As well as allowing us to make a year-on-year comparison of public satisfaction with the service we provide it also enables us to compare the levels of satisfaction with our services to those achieved by other councils.

The NHT Network has also developed a consistent way of measuring and comparing efficiency within and between highway authorities. This is achieved in a balanced and objective way by providing a basis for assessment of performance by combining views of customers, from the NHT Public Satisfaction Survey, with quality and cost data provided by each individual member. We can then identify and implement service improvements.

4.7. ENVIRONMENTAL POLICY

SCC will discharge their maintenance activities within the following framework, aimed at safeguarding and sustaining the environment, and will:

- Work to enhance the quality of the environment by the use of appropriate materials and working practices.

- Maintain a balanced, disciplined and comprehensive approach, to judging the benefits to the community and adverse environmental impact of the maintenance work in question.

- Make systematic reviews of the impact of the County Council's maintenance activities on the environment.

- In considering the achievement of best value, maintenance managers will seek, to balance economic, environmental and social benefits.

- Seek to follow positive environmental policies in managing the County Council's maintenance operations.

- Ensure that, all concerned, are familiar with those aspects of environmental law which are relevant to their work.

- Keep up to date by seeking appropriate education and training in environmental matters.

- Encourage understanding of environmental issues, related to highway maintenance, amongst the communities of Staffordshire.

4.8. COMPETENCE AND TRAINING

The County Council recognises that competencies and training are critical to the delivery of this plan. Effective management of the highway network requires professional well-trained staff. A competency framework is used to identify the individual competency requirements. All staff will be assessed against this framework as part of the annual review process.

4.9. GOVERNANCE AND LEADERSHIP

Asset management of highway infrastructure in Staffordshire will continue to develop following publication of this plan. The HIAMP document and its supporting information should evolve as learning is gathered. The delivery of this HIAMP will be overseen by the Operation Commissioning Board (OCB). A report on progress and recommendations for changes to the HIAMP will be provided to the Executive. It is anticipated that the document be formally reviewed at least every three years.

4.10. UNDERSTANDING DEMAND AND EXPECTATION

4.10.1. Asset Growth

The quantity of highway infrastructure assets, managed by the council, continues to grow on an annual basis due in the main to the development of land for housing, resulting in the adoption of the highway infrastructure assets. As these are relatively new at the adoption stage, it is anticipated that this additional infrastructure will have little impact on short term funding requirements, but the impacts will increase as the assets age.

Between 2010 to 2020 the highway network grew by 65km's (6.5km's a year) or the equivalent of 700,000m2 of additional highway maintainable at public expense (HMPE). This level of growth is reflected in other asset groups, for example an additional 1,600 streetlights and 1,500 gullies' have become the responsibility of the authority.

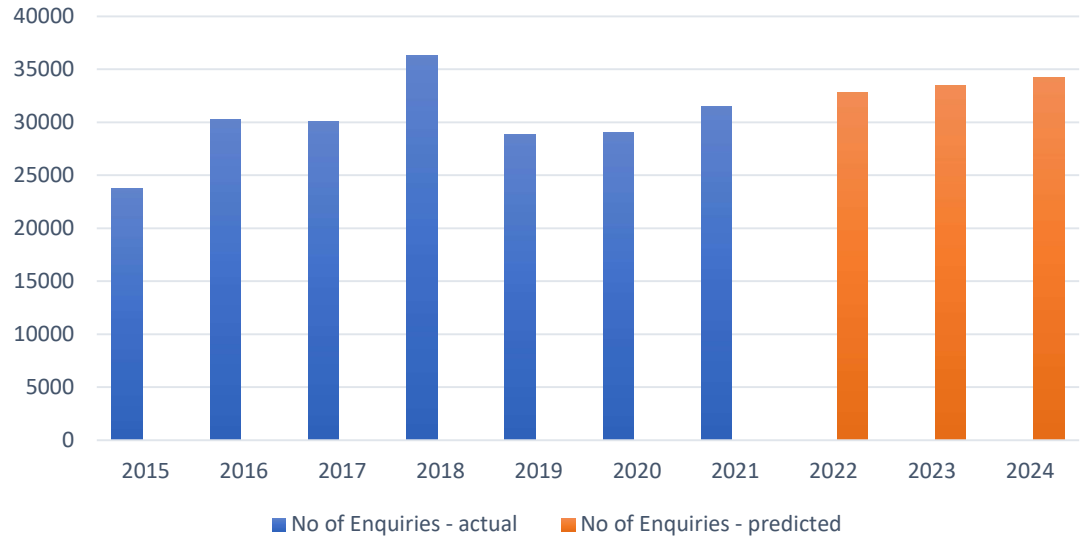
New assets create the need for maintenance, management, and associated funding in future years as these additional assets age.
Across the course of its life for every km of road that becomes maintainable at highways expense the council will have to find £25k. With around 6.5km's per a year becoming HMPE it means an average additional maintenance burden of £162k per year.

4.10.2. Customer Reports and Enquiries

Users expect the county's highway network to be safe, available and fit for purpose. Customer contacts regarding the majority of enquiries about roads are recorded in the highway maintenance management . Reports and enquiries about street lighting and intelligent transport systems (signals) are separately recorded and are not included in the figures below.

Excluding lighting and signals, the Council received more than 31,500 customer enquiries in 2021 relating to highways operations and structures. Although not all enquiries relate to asset condition, the level of enquiries is indicative of the importance placed on the highway asset. This figure has generally been increasing year on year since 2015and at the current rate of increase is likely to reach over 34,000 by 2024, an additional 2,500 enquiries compared to 2021 which will place additional demands on the inspection team to respond to what could be the equivalent of more than 90 enquiries to respond to each and every day.

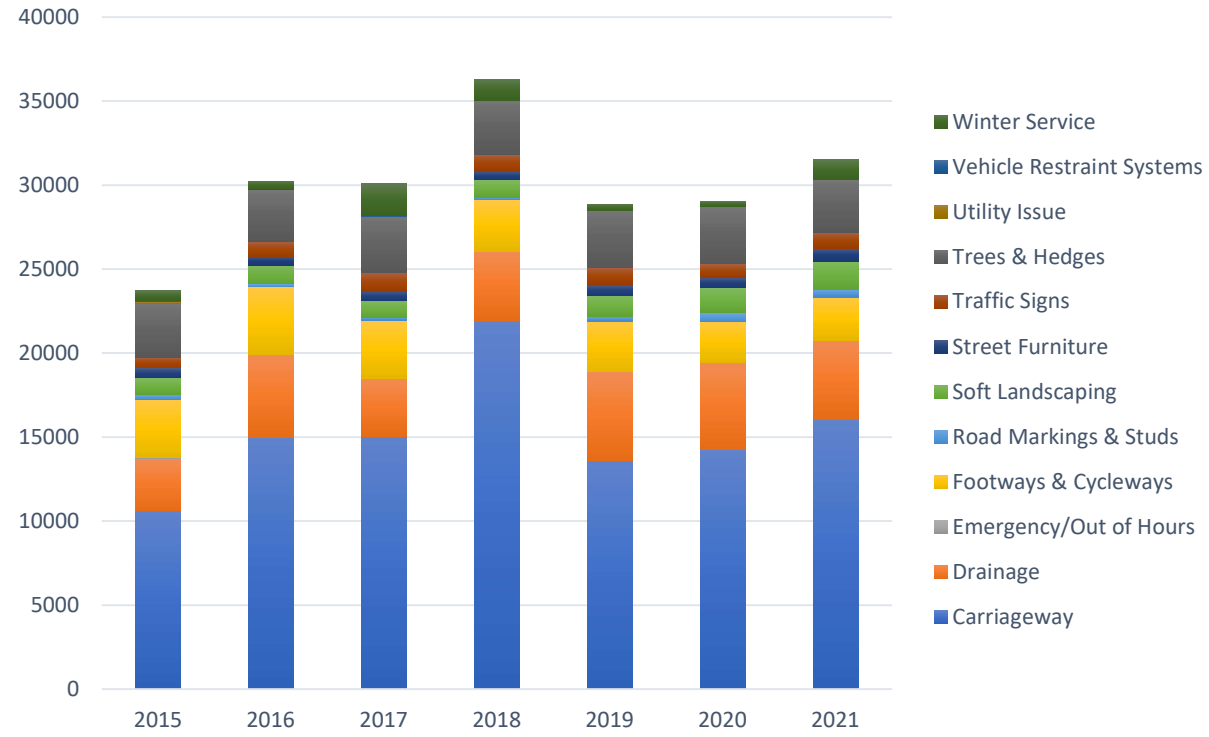
Chart 1 – Highway Asset Customer Enquiries



These enquiries provide an insight into the view and preferences of residents. The results of these enquiries have been reviewed as part of the preparation of this plan and a further breakdown is provided against each asset group in Volumes [1] to [16] where available. Further work will be carried out during the life of this plan to refine the reporting categories to improve the insight into each type of asset.

Analysis of results for the last three years indicate that almost eighty five percent of enquiries relate to four asset groups, 50% relate to the county's carriageways, 14% to with drainage, 10% to footway & cycleway 10% to trees and hedges (10%).

Chart 2 – Highway Asset Customer Enquiries by Asset Group



4.10.3. Traffic Growth

Traffic growth has placed increasing pressure on the highway network. The average number of cars per household increased by 9% between 2003 and 2019 in the West Midlands[22].

Much of the Council's highway infrastructure was not designed to accommodate increasing levels of traffic. This has created a growing need for increased investment in the resilience and maintenance of the network.

The impact of large infrastructure projects also exacerbates the issue, for example, the vehicle movements associated with HS2 in the coming years will increase the rate of deterioration of some of the county's more vulnerable 'evolved' roads.

4.10.4. Environmental Pressures

The Council considers how various climate change variables such as intense or prolonged rainfall; hotter temperatures and higher wind speed will

[22] Number of Cars in the UK 2022 | NimbleFins

impact on the highway assets that we manage and the likelihood of these events occurring. By doing this the greatest generic risks to network closure or restriction can be identified. These are likely to be

- Flooding (pluvial, fluvial, groundwater and coastal)
- Snow
- Landslips
- Scour
- Wind damage
- Heat/water and frost damage

The latest UK Climate Projections, as developed by the Met Office and Environment Agency are used when assessing future risk and vulnerability. These projections for future changes to both average climatic conditions and also the frequency of extreme weather events, allow for an understanding of where risk levels may change, and the identification of new risks which may emerge as the climate changes. When applied alongside records of past incidents, and other information sources (such as flood maps), climate projections may also help to identify when and what action should be taken to adapt to the risks.

In order to ensure uninterrupted availability of the road network, measures need to be taken to increase the resilience of road transport infrastructure to weather extremes and climate change, which should address, in parallel, the other challenges the road maintenance industry is facing, such as challenges around the carbon-neutral strategy.

The main risks to the road surface associated with climate change are, depending on the climate zone, extreme heat and insolation, higher occurrence of heavy rain and temperature fluctuation around the freezing point.

To mitigate the effects of climate change the authority are having to improve our design specification which in turn increases costs. Some of the ways we are doing this are:

- Adjustment of bituminous mixture design which may include using binders with different characteristics to climatic conditions, including polymer modification of bitumen, and the selection of stronger aggregate matrix.

- Increased attention to all maintenance services, like cleaning and maintenance of drainage systems, removing of storm damage, sealing and dusting roads, pruning of bushes and snow and ice removal.

- Replacement of mature trees with more suitable species or with hedges and planting the vegetation at a sufficient distance from the road.

4.10.5. Risk and Insurance

2019/20 saw a 6% increase in Public Liability premium followed by a 30% increase in 2020/21, along with an increase with the excess from £250,000 to £500,000. While partially due to market conditions and insurers reviewing their entire Local Authority book, the primary driver is Highways claims.

2021/22 terms have been agreed with insurers with a further increase of 8% for the Public Liability risk. As we have not received any assurances from holding insurers regarding 2022 terms, the decision (with our brokers advice) has been made to go to tender for renewal in 2022.

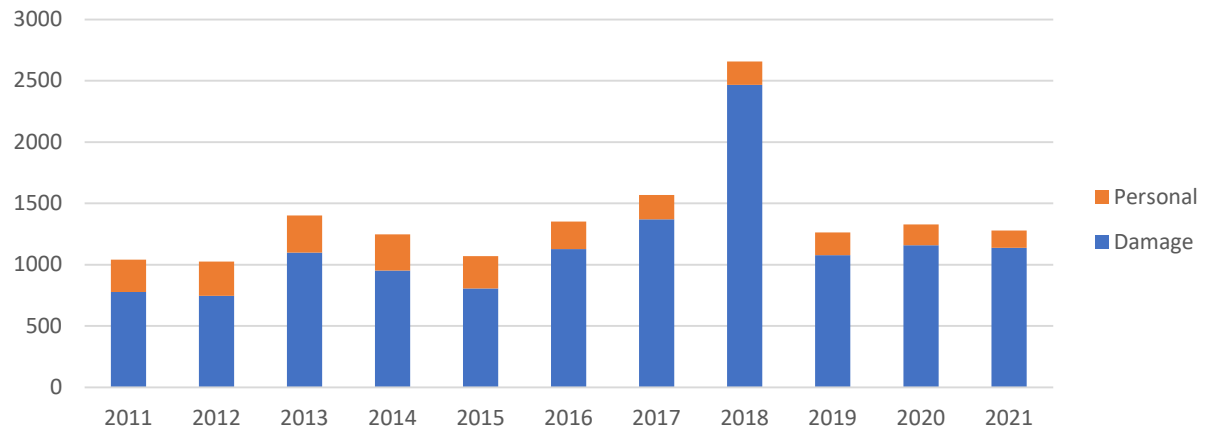
The insurance premium for all SCC public liability related risks 2021/22 is circa £925,000.

An analysis of claims over the past 5 years shows highways claims account for over 90% of all public liability claims made against the Council.

Claims for incidents on the carriageway account for the largest proportion of highway claims with nearly 90% recorded against this asset group.

Carriageway claims are generally for damage to vehicles caused by potholes. Other assets such as footways, cycleways and trees attract lower number of claims, but these are generally personal injury claims which can be significantly higher in liability value which makes the management of these assets equally as important.

Chart 3 – Highway Asset Claims – Damage vs Personal Injury



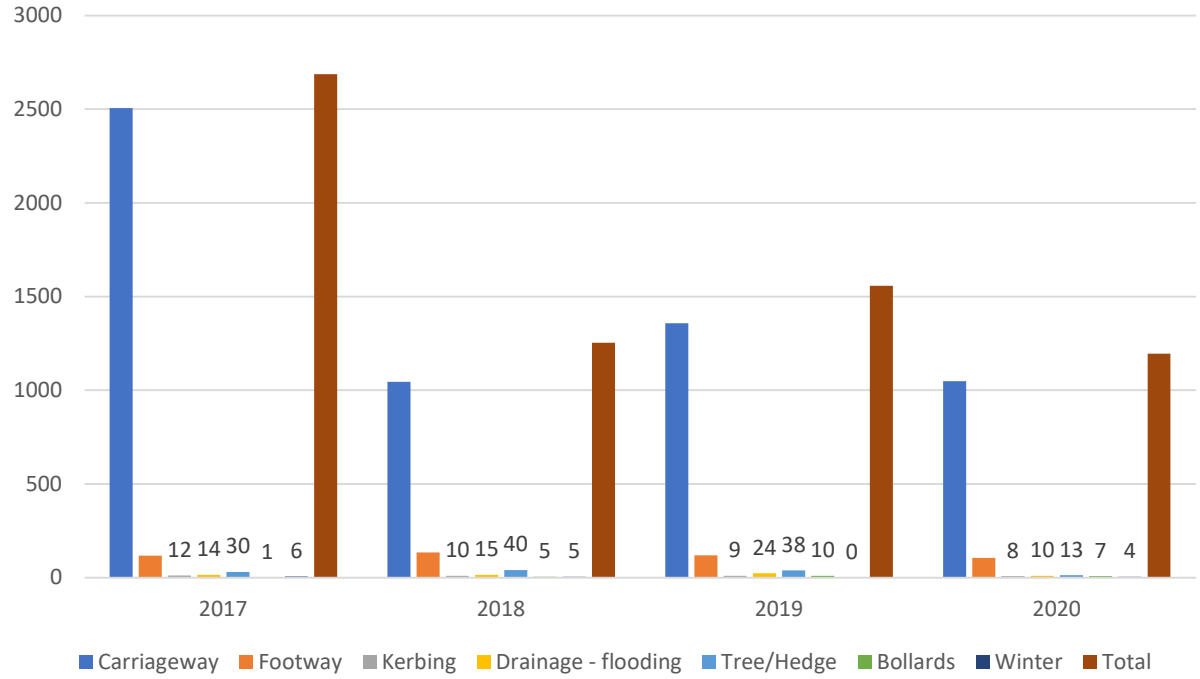
The average value of a personal injury claim is £4,945 whereas the average value of a damage claim is around £295.

Prior to the Covid related lockdown in 2021/22, claims volumes were at a record high, volumes exceeding those experienced in 2018. Levels did however drop due to the reduction in traffic volumes, an increase in volume has now occurred.

The authority is also seeing an increasing number of notices or potential notices served against it under Section 56 and 130 of the Highways Act 1980 for highways out of repair.

Chart 4 shows the number of highway claims by asset type for each of the last four year.

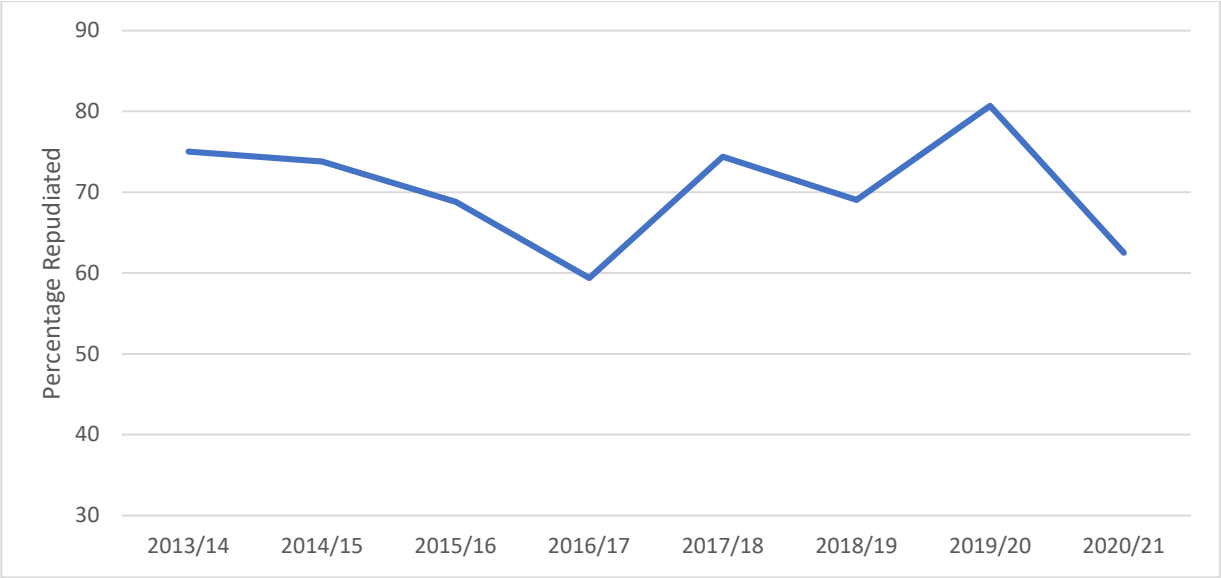
Chart 4 – Highway Asset Claims by Asset Group



The repudiation rate is a measure of the number of claims rejected by our claims team and is calculated by dividing the number of claims rejected by the total number of claims filed. This is a good measure of the success of the processes and systems the authority has in place for the inspection and repair of highway defects. The foundation of which is our special defence as per Section 58 of the Highways Act 1980.

Chart 5 shows our repudiation rate percentage across an 8-year period.

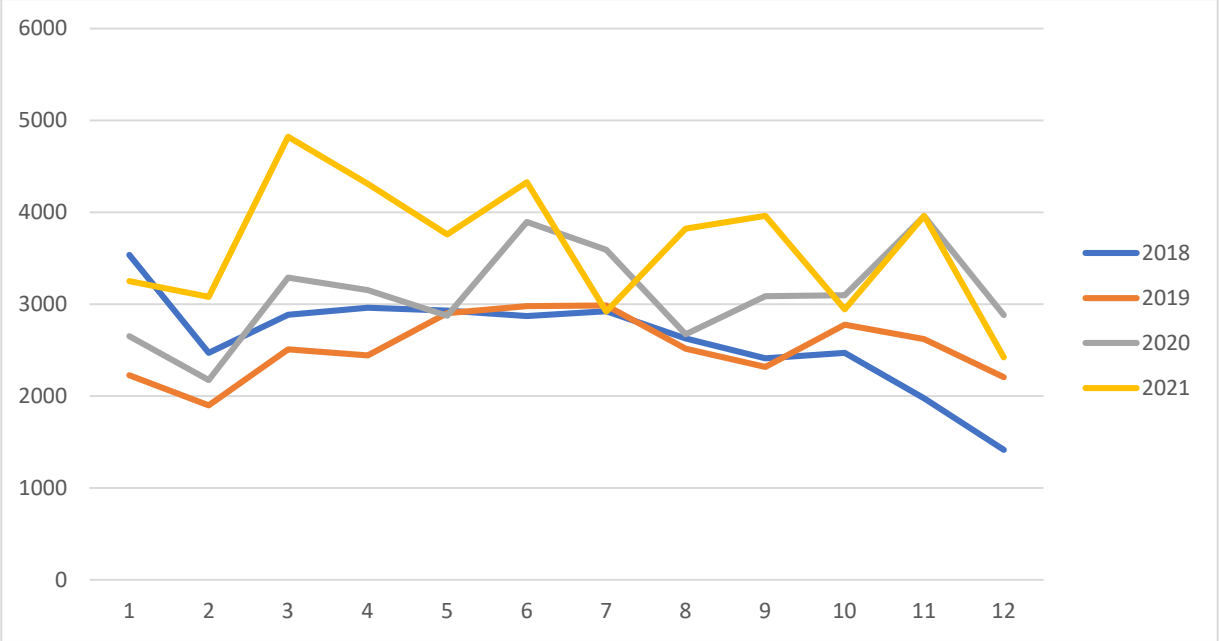
Chart 5 – Highway Asset Claims Repudiation Rate



4.10.6. Jobs

Chart 6 shows the number of jobs being raised each year since 2018 by month and year.

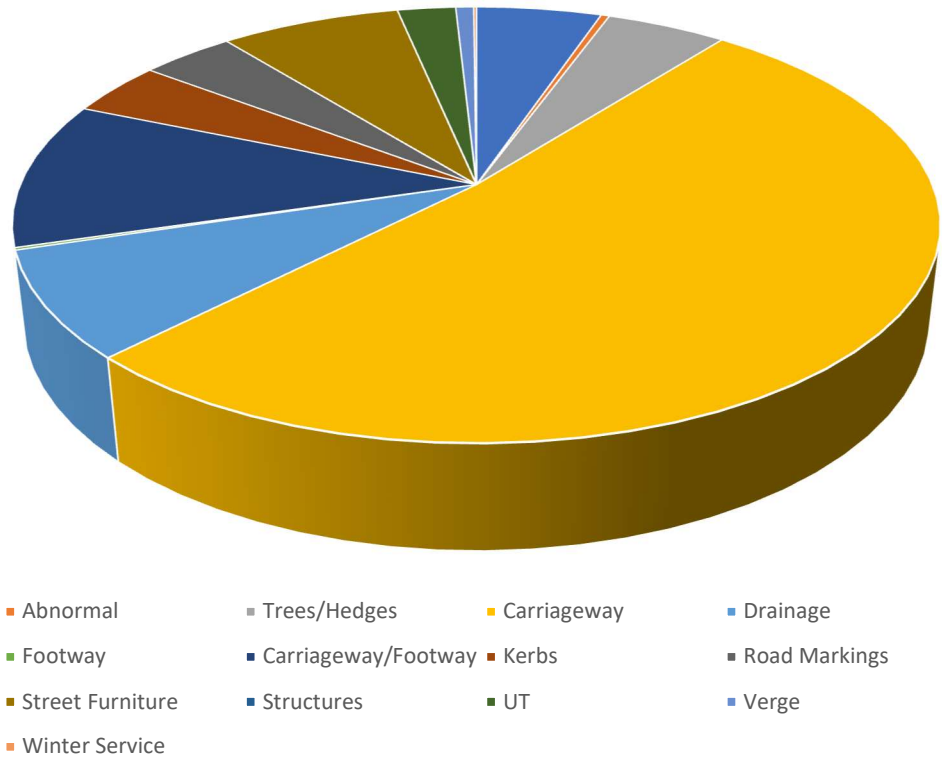
Chart 6 – Number of Highway Jobs Raised by Month and Year



The graph shows that the number of jobs being raised is increasing year on year. The increasing number of jobs is reflective of the increasing maintenance backlog and the deteriorating condition of highway infrastructure. 12,000 more jobs have been raised in 2021 than in 2019.

Chart 7 below shows that more than 60% of the jobs raised relate to carriageway works.

Chart 7 – Highway Jobs by Asset Type 2021



Many of the jobs will relate to reactive defect repairs rather than planned maintenance. In years gone by it was possible to address many of these defects from within existing highway budget, however, given the reduction in the highway maintenance funding such requests are now prioritised and where possible incorporated into the planned maintenance programme. The underfunding has resulted in a maintenance backlog of jobs work stack increasing

If the Council is to provide a service which meets the long-term needs and expectations of the county then a systematic, long-term approach to highways maintenance, needs to be adopted. Evidence suggests that investment should be focused on preventing potholes forming in the first place thereby reducing the number of reactive repairs and inefficiencies. Simply, allotting money in to reducing the 'work stack' of reactive repairs does little to arrest deterioration or improve the overall condition of the fabric of the highway network.

4.11. CROSS ASSET PRIORITISATION

The Council recognise that the current budget allocation is insufficient to manage the existing and growing level of backlog and the demands of a lifecycle planned approach to the maintenance of the Highway Assets.

The existing classified network has been reviewed and a more manageable maintenance hierarchy has been created which reflects the importance of routes and their use and takes a risk-based approach to the allocation of Levels of Service and associated performance.

However, despite taking these actions it remains impractical to rely on individual asset group prioritisation which effectively delivers a bit of everything but not necessarily what is required. For example, the highway network may be better served by prioritising carriageway maintenance by reducing maintenance to structures where the need may be greater but the individual costs higher.

As a consequence, cross-asset prioritisation will be utilised to understand the budgetary and maintenance requirements of all highway assets and how best to maintain the network in a safe, reliable and sustainable manner.

Cross-asset prioritisation relies on each asset owner understanding the maintenance needs of their asset stock and planning how this can be managed as budgets rise and fall to meet the needs of other asset groups.

For e.g., whilst carriageway and footway maintenance accounts for the largest annual expenditure requirements, the replacement of bridge decks, bearings, parapets and supports often represents a significant single asset expenditure requirement in a year.

4.12. THE CASE FOR INVESTMENT

Funding for local road maintenance provides good to very good return on investment, with much lower risk than major projects to construct new infrastructure, and the ability to quickly gear up to spend money and generate benefits via “shovel ready” schemes.

Additionally, increased capital investment into the highway network is shown to reduce the revenue burden and increase public satisfaction.

4.12.1. Historical expenditure and funding

Historically, capital maintenance grant falls someway short of the threshold required to achieve optimum whole-life-cost management of carriageways

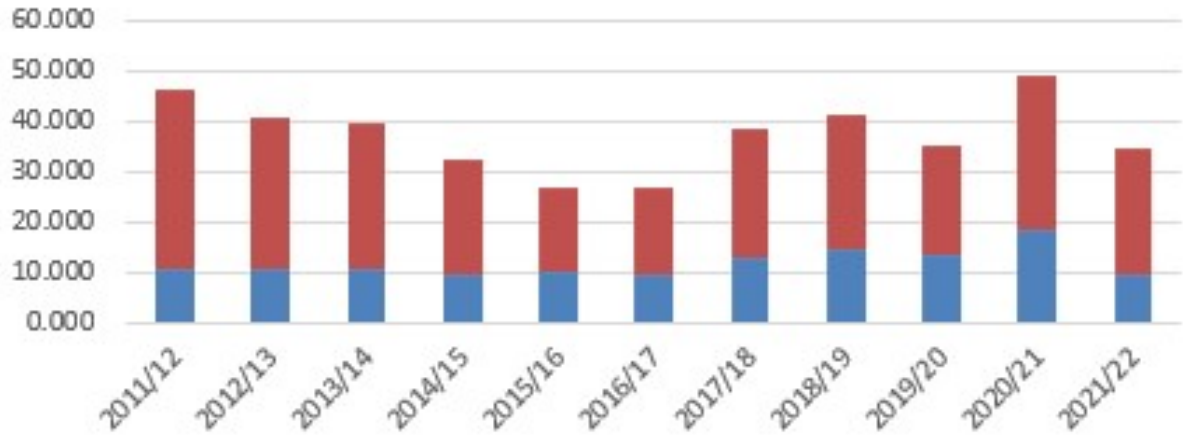
and footways. Since 2009/10 a number of actions have been taken to help address this:

- Between 2009/10 and 2013/14 an extra £50m capital was invested from the Council's own reserves.
- Between 2017/18 and 2020/21 an extra £21.9m was similarly invested from the Council's own funds.
- A limited amount of grant funding has been diverted each year from the Integrated Transport Block allocation

The impact of Staffordshire's HIAMP together with the additional funding from the Council between 2009/10 and 2013/14 was significant. The condition of Staffordshire's road network (proportion where maintenance should be considered) improved by more than 10% between 2009 and 2015, with the improved durability ensuring that the network was better able to withstand the increasing frequency of wet and cold weather that had a significant effect on road condition across the UK. Subsequent reductions in the level of funding available for asset renewal or preventative maintenance have since resulted in an increase in the percentage of roads requiring treatment (red plus amber).

As noted above, the highway maintenance service is funded through a variety of sources including revenue, the DfT highway maintenance grant and, additional investment from the County Council. The chart below indicates the total value of the highway maintenance works programme each year (revenue and capital) from 2011/12 onwards. The variable nature of Government funding year on year impacts on the ability of the service and its supply chain to plan and invest in resources and the future workforce.

Chart 8 – Total Highways Work Programme (£)



The revenue budget for the highway service in 2021/22 is £29.7m which equates to approximately 5% of the Councils total annual revenue budget. After commitments including the streetlighting PFI, School Crossing Patrols

and a range of statutory functions approximately £11.7m (2% of the Council's total revenue budget) remains for highway maintenance operations. This provides the following functions:

- Winter Service (£3.4m)
- Routine Maintenance of Structures (£0.9m)
- Cyclical Maintenance (Grass Cutting and Weed Control) (£1.7m)
- Gully emptying (£1.4m)
- Reactive Maintenance including Tree Works (£3.3m)
- Safety and routine highway inspections (£0.7m)
- Inspection of Structures (£0.3m

Carriageway asset modelling in 2019 carried out on behalf of the County Council by Yotta, a company who specialise in highway asset modelling for local authorities, estimated that based on the carriageway condition at that time, a network the size of Staffordshire's, required a one-off investment of around £75m to bring it up to target condition followed by £42m/year ongoing to achieve 'steady-state' condition in carriageway condition alone.

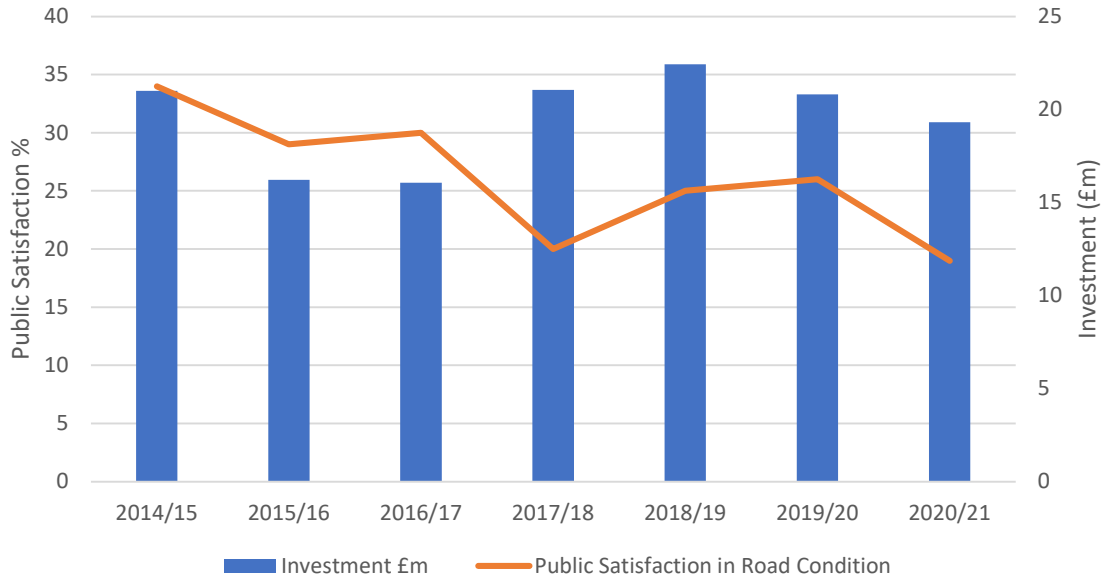
This figure rises to above £50m/year ongoing when taking account of other highway assets such as bridges and retaining walls. Similar condition modelling for structures estimates an average required annual spend on renewals of £6m per year compared to the circa £2m per year currently allocated via the government grant. This figure excludes other key asset groups such as drainage and footways where other similar information is not currently available.

Clearly the funding provided to local authorities via Central Government grants falls below that required to maintain local roads which is why we make our own investments into Highways.

4.12.2. The Effect of Investment on Public Satisfaction

Chart 9 shows the correlation between the capital investment in the carriageway asset with the public's satisfaction with the condition of road surfaces as measured by the NHT Survey.

Chart 9 – Capital Investment vs Public Satisfaction

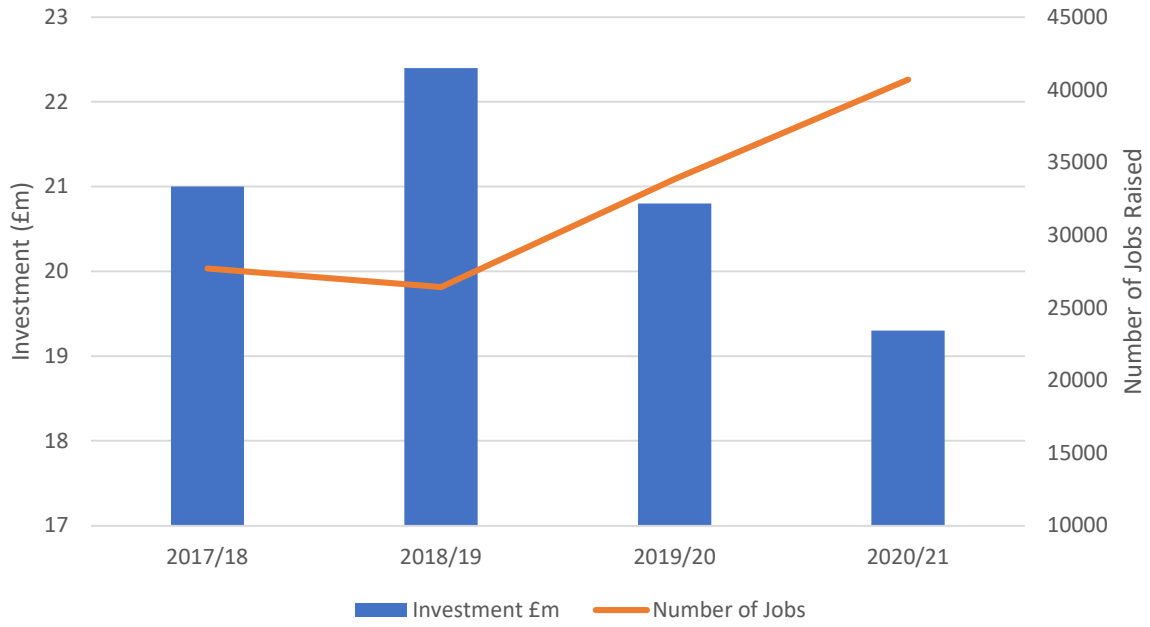


The graph shows a correlation between the level of investment and the level of public satisfaction. When investment increases public satisfaction appears to follow and similarly when investment is reduced public satisfaction decreases.

4.12.3. The Effect of Investment on Reactive Maintenance

Chart 10 shows the correlation between reducing capital investment and an increase in the number of jobs raised, many of which will be reactive maintenance repairs such as potholes.

Chart 10 – Capital Investment vs Number of Jobs Raised



The graph shows that as capital funding reduces the amount of reactive type work required to keep the network in a safe and serviceable condition increases.

There are ongoing concerns about the general state of the road network, the backlog of repairs and the cost of bringing these defects up to standard. For example, only 20% of respondents to the National Highways and Transport Public Satisfaction Survey were satisfied with how Staffordshire deals with potholes and damaged roads.

The public understandably focus on the formation of potholes (or rather what they call potholes) as these are particularly visible. There are numerous other defect types such as cracking, stone-loss, rutting, depressions, loss of texture/grip, etc. that are either indicative of approaching failure/end-of-life or present a more significant deterioration than potholes. These defects essentially make up the estimate of the road maintenance backlog.

4.12.4. National Policy Objectives

Contribution of the local road network towards national Government Policy objectives and socio-economic growth.

Figure 4 – Contribution of the Highway Network to National Policy Objectives

Build Back	Decline	Steady State	Gradual Improvement	Accelerated Improvement
Better				
Healthier				
Fairer				
Safer				
Stronger				
Greener				

Key:

Diminished contribution to UK Government's 'Build Back' Objectives:

- Significant unplanned service impacts and low level of network resilience
- Low levels of safety and customer satisfaction, causing increased injuries and claims

- Building a large renewals debt/backlog that will take years (5, 10 or more) to address
- Loss of experienced people and increase in the skills gap across the industry

Maintained contribution to UK Government's 'Build Back' Objectives:

- The service risks are managed through robust and defensible practices
- Reduced service resilience and reliability, with a focus on assets that support the economy such as carriageways and structures; less funding for assets such as footways, cycleways and street lighting
- Lower levels of customer satisfaction with limited focus on customer priorities

Improved contribution to UK Government's 'Build Back' Objectives:

- Adequate and acceptable service that is focused on safety, resilience and reliability, with risks being managed through mixture of planned and reactive works
- A broadly acceptable customer experience; reducing complaints and claims
- Increased level of investment in resources, to provide greater capability and capacity

Enhanced contribution to UK Government's 'Build Back' Objectives:

- A good/high-quality service that delivers parity across the regions
- High levels of safety, network service, sustainability and customer satisfaction
- Increased level of investment in people and equipment across the sector, supporting the development and adoption of innovations for future network usage, such as mass modal shifts to active travel, electric vehicles and Connected / Autonomous Vehicles

4.12.5. Outputs and outcomes per asset of accelerated improvement

Accelerated investment in an asset can provide the following benefits outlined in table 3.

Table 3 – Benefits of Accelerated Investment

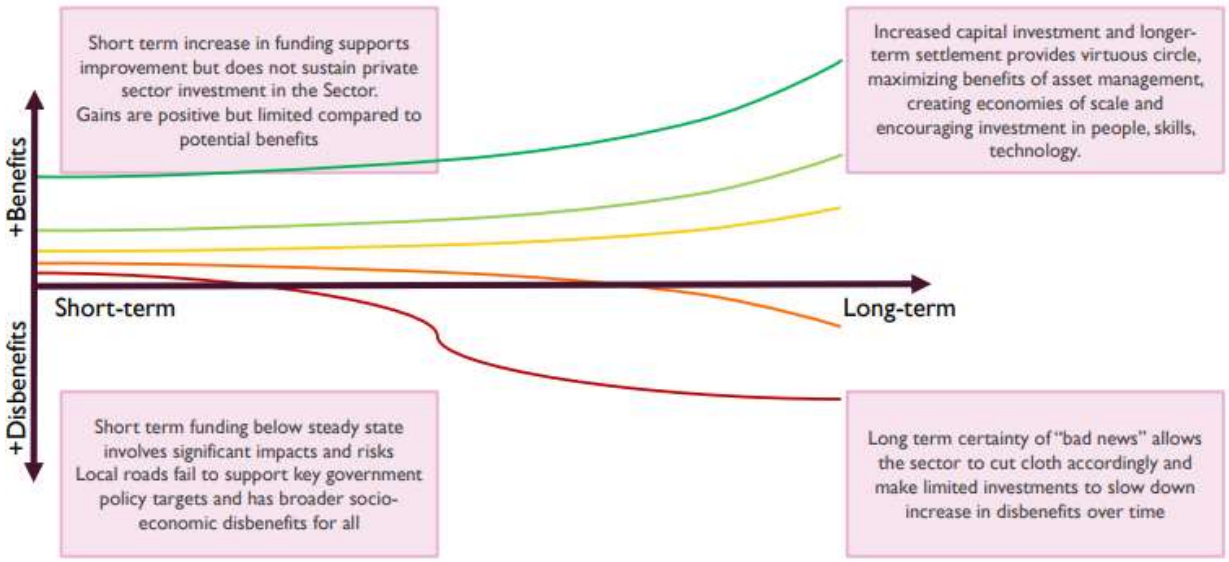
Asset	What do we get (output)		Example
Carriageway & Drainage	▪ Reduction in Potholes ▪ Reduction in Injuries/Claims ▪ Reduction in CO2 ▪ Quieter Road Surface ▪ Improved Safety ▪ Reduce reactive maintenance	▪ Improved Drainage ▪ Improved Road Markings ▪ Improve Aesthetics ▪ Reduction in Backlog ▪ Improve network resilience ▪ Improved coordination of works	▪ West Midlands: £45m invested in carriageways with BCR of 6.51 [91] ▪ Norfolk: £10m invested in drainage with BCR of 6.6
Footway & Cycleway	▪ Improved condition ▪ Improved Aesthetics	▪ Reduction in Backlog ▪ Reduction in Injuries/Claims	▪ Commons Library Briefing estimates BCR of active travel investment of 5.6
Structures	▪ Reduction in unexpected structural failures ▪ Reduction in Backlog	▪ Reduction in diversions and journey times ▪ Reduction in Restrictions	▪ Portsmouth: £12m invested in bridge replacement with BCR of 114
Lighting/ITS	▪ Reduction in unexpected structural failures ▪ Increase EV Charging Infrastructure ▪ Increase Active Travel Infrastructure ▪ Improved safety and security	▪ Increase in LED's / Reduction in OpEX and CO2 ▪ Connected Intelligent Traffic Systems (ITS)	▪ Lancashire: £20m invested in LED street lighting with BCR of 4.91

4.12.6. Investment certainty

The reduction in the highway maintenance grant and short-term settlements from Government causes short- and medium-term issues including, reductions in efficiency and effectiveness in programmes of work and the ability of the supply chain to plan and invest in both their workforce and equipment for the future.

National Highways for example receive a five-year settlement. With the amount of work for major projects such as HS2 in and around Staffordshire starting to increase, there is a risk that local suppliers seek other longer-term arrangements which would impact on the ability of the service to scale back up following any additional investment.

Figure 5 – Effects of Long-term Funding



4.12.7. Summary

Each of the asset life cycle plans present the future budgets with a forecast of asset condition where available. The asset management approach set out in this plan requires that the demand for funding across all key assets is considered as one. Considering each of the life cycle plans the following observations can be formed:

- The condition of carriageways is forecast to decline over the period of this plan at the expected levels of funding.

- The condition of other assets such as footways, structures and traffic signals are also forecast to decline. Structures is an area of real concern with each of the top 5 individual asset risks relating to highway bridges.

The indicative future budget profile increases the amount of funding for design and replacement of structures from 2022-23 onwards to reflect the increasing risk to a number of structures including Moss Pit Footbridge, School Lane Footbridge, Chetwynd Bridge, Burndhurst Bridge and Stafford Railway Bridge.

Unless there is opportunity to secure grant funding in future years this will mean a reduction in spend on other highway assets including carriageways, footways and drainage.

Overall, the current budget is insufficient to maintain all highway assets in their current condition. If appropriate levels of investment in the asset are

not available, the levels of service and other outcomes of this plan are at risk.

The asset management approach will continue to be developed to update these funding aspirations and the Council will work to identify additional sources of funding to address any deficiencies or to revise its long-term service aspirations.

Part 5: Managing our Assets

The Highway Infrastructure Asset Management Plan covers specific issues and themes regarding highways themselves, and includes the following asset types:

Volume 1 – Carriageways

Volume 2 – Footway & Cycleways

Volume 3 – Drainage

Volume 4 – Structures

Volume 5 – Vehicle Restraint Systems

Volume 6 – Street Lighting and Illuminated Signs

Volume 7 – Intelligent Transport Systems

Volume 8 – Soft Landscapes

Volume 9 – Trees and Hedges

Volume 10 – Signs and Lines

Volume 11 – Heritage Assets

Volume 12 – Street Furniture

Volume 13 – Emergencies and Adverse Weather Events

Volume 14 – Mines, Tips and Quarries

Volume 15 – Land acquired for highway purposes

Volume 16 – General Highway Management

Volume 1 – Carriageways

6.1. INTRODUCTION

The primary objective of our 6,200km's of carriageway asset is to enable a network that is safe and accessible for all users and provides a high degree of street-scene quality for local residents, businesses and visitors alike. To achieve this our road assets, need to:

- Transfer vehicle weights from the road surface through to the underlying ground without unnecessary deformation of the road surface.
- Maintain an acceptable level of skid resistance.
- Maintain their structural integrity and maximise their lifespan to provide maximum value for money from investment.
- Use materials sympathetic to the street scene and environment.

6.1.1. Stakeholder Expectations

There are many stakeholders who interact with and are impacted by the condition of carriageways.

Much of the County Council's highway network has evolved over a very long period of time and therefore much of it was not designed or constructed to the standards that would be expected of a newly constructed highway today. As a consequence, many carriageways are less resilient to changing environments and adapt poorly to severe weather events.

Potholes are one of the public's main local concerns, as they are highly visible defects. The public perceive that the quality of local roads may be at risk of deteriorating, with potholes being one of the main causes.

The key messages from the recommendations made in the Government's 'Pothole Review' (published by HMEP in April 2012) were:

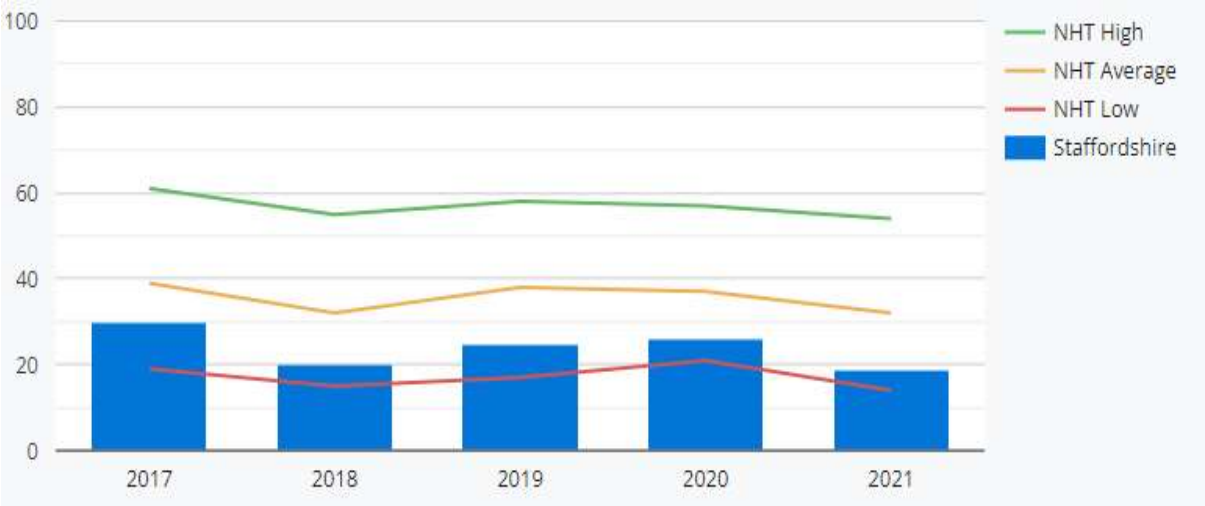
- Prevention is better than cure – intervening at the right time will reduce the number of potholes forming and prevent bigger problems later.

- Right first time – do it once and get it right, rather than face continuous bills. Guidance, knowledge and workmanship are the enablers to this.

6.1.2. National Highways and Transportation Public Satisfaction Survey

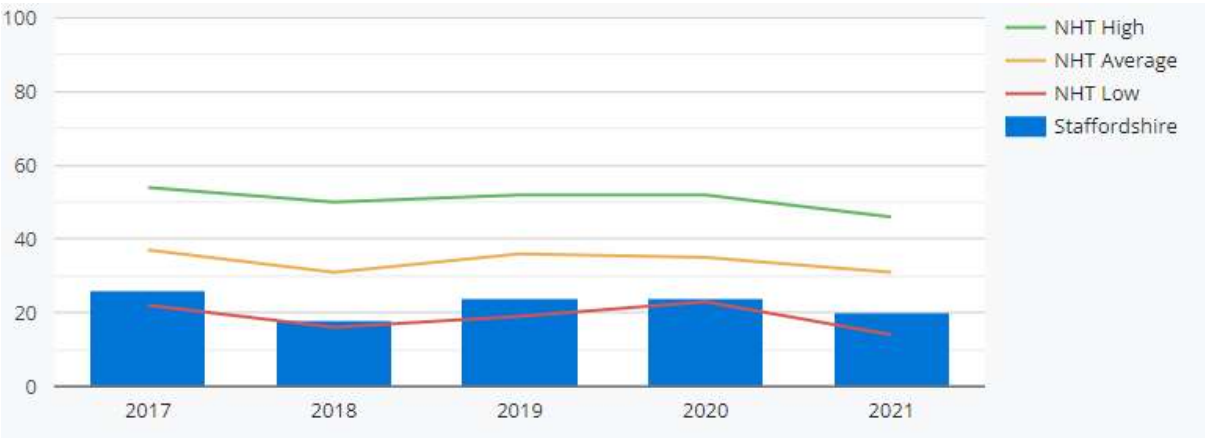
NHT public satisfaction survey data shows that satisfaction with the condition of Staffordshire's roads is relatively low and well below the national average. The gap between SCC public satisfaction and the national average is increasing.

Chart 11 – Public Satisfaction with the Condition of Road Surfaces



As stated in 4.1.1. public perception in the condition of roads is considered to be informed by the prevalence of potholes and the response to their inspection and repair. Chart 12 shows that public satisfaction is similarly low with how the public perceive the authority deal with potholes and damaged roads.

Chart 12 – Public Satisfaction with how SCC Deals with Potholes and Damaged Roads

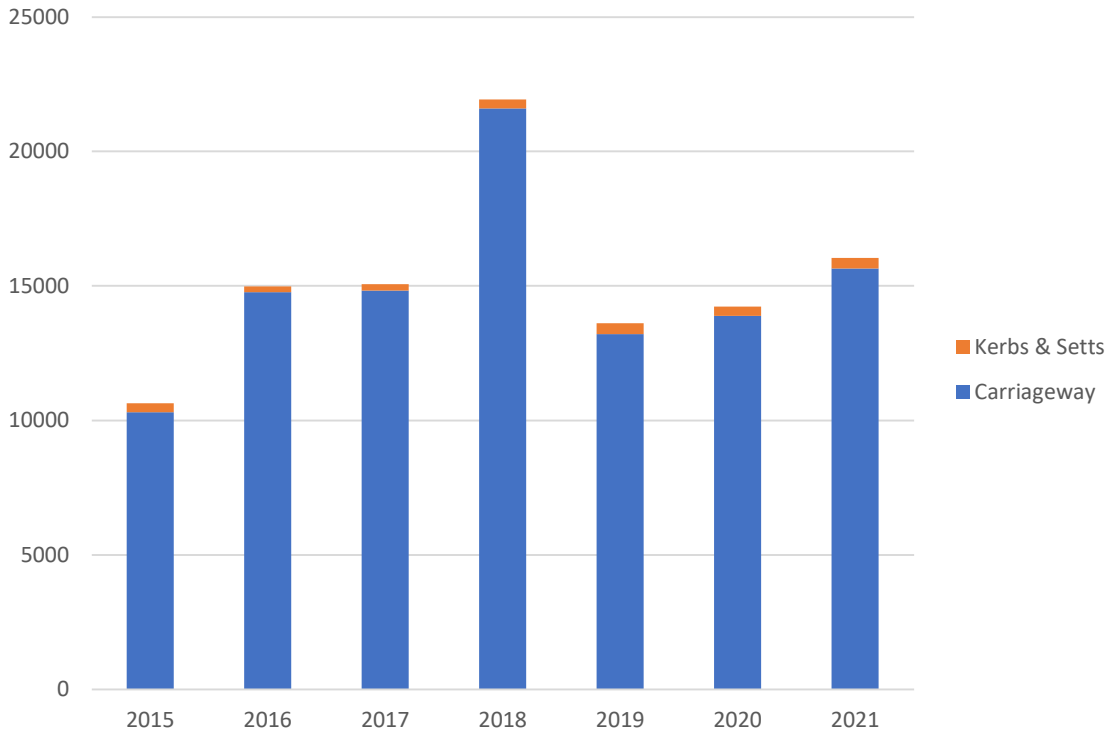


6.1.3. Customer Reports and Enquiries

Customer enquiries made via 'Report It' are recorded in the Confirm system. On average, since 2015 around 50% of the total highway enquiries made relate to the carriageway including ironwork and kerbs.

Whilst still significantly lower than the peak in 2018, carriageway enquiries are steadily growing with circa. 2,500 more enquiries in 2021 compared to 2019 placing additional demand on the reactive inspection team resulting in an increasing response time.

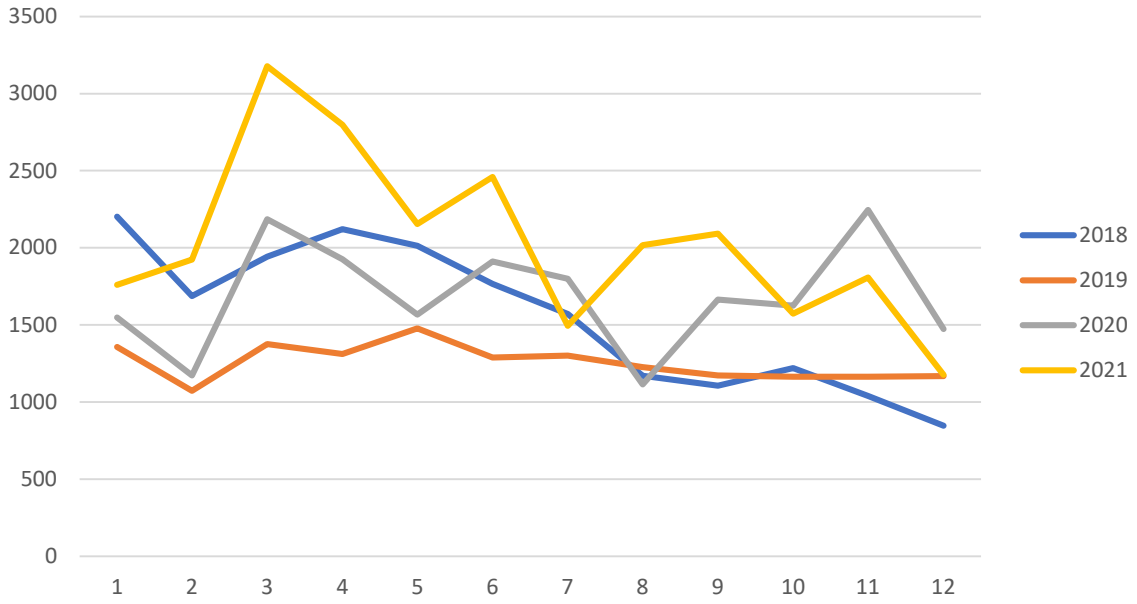
Chart 13 – Carriageway Customer Enquiries



6.1.4. Defects

Chart 14 shows that the number of jobs being raised is increasing year on year.

Chart 14 – Number of Carriageway Defect by Month and Year

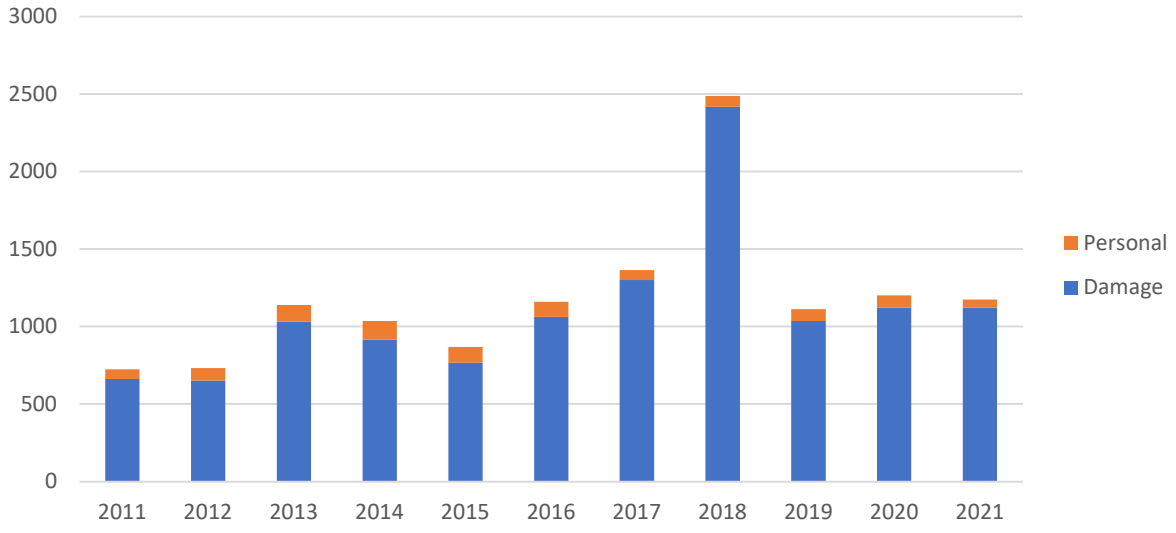


The increasing number of jobs is reflective of the increasing maintenance backlog and the deteriorating condition of the carriageway asset. 9,000 more carriageway maintenance jobs were raised in 2021 when compared to 2019 and over 4,000 more than in 2020.

6.1.5. Claims

This data illustrates the variation in the number of claims over the last 10 years. As a claim can be received up to 3 years after the date of the accident, the data will change as further claims may occur relating to previous years.

Chart 15 – Number of Highway Claims



6.2. ASSET MANAGEMENT

6.2.1. Network Hierarchy

Primarily, the carriageway asset network is categorised in terms of type or general purpose of the road as Hierarchies. The definition of the road classifications remains generally unchanged, although in practice the usage and importance of roads does change over time. In accordance with 'Well Managed Highways: A Code of Practice' (2016), SCC have developed a functional network hierarchy.

6.2.2. Inventory Data

Accurate and up to date inventory of the asset is an important element to good asset management and this will be a continued focus to enhance modelling in future years, as inventory records continue to build and used to support the decision-making process.

SCC maintain inventory data collected through various condition surveys, which has been utilised in the lifecycle modelling process.

6.2.3. Asset Condition

The carriageway asset is our most significant highway asset and consequently we invest significant resource into understanding its condition and likely future deterioration.

Each year Staffordshire County Council commissions a County wide carriageway and footway condition survey assessment which allows a transparent and accountable data driven process to underpin the selection of schemes across the County.

This year the Council have employed Gaist Solutions Ltd to undertake a high-resolution video survey and processed by their surveyors to generate digital condition data.

The survey examines all adopted public carriageway on a County wide basis. It identifies the condition of the carriageway, the nature of the damage and type of defects which determines the treatment type required.

6.2.4. Data Management

Carriageway asset data is currently held in a number of different data management systems with information kept in the Horizons, Confirm, Gaist AssetView and WDM pavement management systems.

Horizons is the analysis software aimed at preparing programmes of work based on current condition and at forecasting the future condition of a road

network by making use of condition projections that are modified by planned interventions.

Confirm is where the day-to-day aspects of carriageway maintenance are recorded such as inspection routes and job details.

WDM pavement management system is the software used to manage the local street gazetteer (LSG) and process skid resistance data.

Gaist AssetView is the software that holds the imagery-based condition assessment data.

6.2.5. Applying Asset Management Principles to the Carriageway

We have excellent condition data on our roads asset, and a good understanding of how the asset deteriorates, based to a large extent on past deterioration rates. The data has been collected over many years. Originally the primary driver for this data collection was to develop evidence-based maintenance programmes; however, due to its comprehensive nature, the data can also be used for lifecycle planning and for modelling the effects of different levels of investment.

Our current strategic asset management system is Yotta's Horizons. The software presents a significant improvement in our ability to accurately understand and forecast the condition of our road network.

This software enables us to assess the current condition of our road network, to develop works programmes, and to model the effects of various investment strategies on the future condition of our network. Future forecasting and the scheme identification models are intrinsically linked. This allows the outputs from one element to be checked against the other to increase accuracy and confidence in the results.

Horizons selects optimum treatments based on a range of user defined interventions and triggers. When the deterioration of a road, as measured by our condition surveys, reaches predetermined trigger levels, Horizons identifies the most appropriate treatment, and can be used to rank maintenance schemes on either a 'worst-first' or an economic basis. This list is sense-checked on site by our pavement engineers before being used to develop our forward works programme, which also takes into account local needs through liaison with the community highway team.

6.2.6. Maintenance Treatment Options

Carriageway Patching and Minor Repairs

Patching and minor repairs will be undertaken to ensure that all highways are maintained in a safe condition, to arrest deterioration and also in readiness of a surface treatment.

Carriageway Surface Treatments

Surface treatment in the form of surface dressing with bitumen and chippings will be carried out to give an appropriate riding surface, to seal against water penetration and to reduce collisions caused by lack of adequate skidding resistance. Surface dressing is a cost-effective means by which the surface condition of the road can be maintained to a satisfactory standard whilst enabling the full structural service life of the carriageway to be utilised.

Micro surfacing (also referred to as 'micro asphalt') is a 'surface treatment' for roads. It is laid over the top of the existing surface to seal and protect it. It consists of a water-based mix of aggregate and bitumen which is spread over the existing surface. It can resolve minor surface irregularity; restores grip and texture and creates a new, waterproof surface.

Structural Micro asphalt is a is a stronger and more robust treatment and is usually used on busier low speed roads.

Recycling processes usually involve removing the top layers of the old road surface and remixing the material with fresh binder to be re-laid in the same location.

Resurfacing and Overlay

In areas where patching or surface treatment is not appropriate, resurfacing or overlay will be used to strengthen the carriageway, reduce surface irregularity and improve skid-resistance.

Resurfacing or overlay can be carried out as a treatment to restore carriageway condition or as a preventative measure. Intervention at the right time can avoid much more costly reconstruction work having to be carried out later. If the repairs are confined to the surface course, then resurfacing may be sufficient, otherwise reconstruction may be necessary.

Reconstruction

Reconstruction of the carriageway will be carried out where it would be uneconomic and/or unacceptably inconvenient to the road user to continually undertake repairs to the carriageway.

Maintenance engineers will scrutinise the nature and extent of the required work to determine if an appropriate recycling technique may be used. Wherever a recycling option is technically feasible and will have equivalent engineering properties; and will not cost more than conventional reconstruction techniques, then that option will be adopted.

When a carriageway has deteriorated beyond its useful life, the continued need to visit an area to patch the carriageway, is not cost effective and also leads to unnecessary inconvenience to the public. In these cases, partial or total reconstruction works will be carried out, as appropriate, subject to funds being available.

6.2.7. Preventative Maintenance

Preventative maintenance treatments such as surface dressing and micro asphalt are used to preserve and extend the life of roads that are already in a reasonable to good condition.

It is crucial that these treatments are undertaken before serious deterioration has taken place rather than repairing inevitable deterioration through routine and reactive maintenance works and eventually, structural maintenance schemes which cause increased traffic congestion and are much more expensive and time consuming.

If roads did not benefit from preventative treatments, they would require replacement three or four times as often. Most preventative treatment applications are usually completed at each site within the same day although some preparation works might be required beforehand with subsequent lining and cat's eye replacement works following after.

The carriageway preventative maintenance season is from late March or April to September. Footway preventative treatments are carried out all year round and these may take place outside of normal working hours or on restricted working days. All preventative treatments are weather dependent which can affect the length of the working day or when they commence.

6.2.8. Unsurfaced Roads

Although unsurfaced highways historically were used for transporting people and goods, it is widely accepted that they are now predominantly used for recreational purposes. They are also an important asset to the landscape, and often have a historic and wildlife interest.

The maintenance standards applied to the highway network in terms of the level of service and the frequency of cyclic operations are set out in each individual asset volume detailed in part 5 of this plan. However, the

management of unsurfaced roads are covered in a specific strategy document as an annex to the HIAMP.

6.2.9. Use of Coloured Surfacing

Coloured surfaces are useful for various traffic management purposes, but they should only be used where their need is demonstrable. Where coloured surfacing is used the future maintenance needs to be funded from the scheme costs or limited time installation agreed.

If it is necessary to provide a coloured surface there are a number of naturally occurring coloured aggregates in the UK that could be used, and these provide colours that are not bright and glaring and they could be incorporated in surfacing materials which would have long life and would maintain their colour throughout their lives.

6.3. ASSET CONDITION

6.3.1. Asset Condition

The most significant financial investments in highway maintenance will be in repairing, reconditioning and reconstructing carriageways. Condition surveys identify the current condition of the network, and from this condition both long-term and short-term maintenance funding decisions can be made. Repeatable condition surveys allow trend analysis to be used to confirm the original decisions or allow for changes as a result of the changing network condition and inform lifecycle planning.

There are a number of types of survey, each providing information from a differing perspective, and which in combination can provide a comprehensive picture of the condition of the asset. SCC undertakes a comprehensive regime of carriageway network level surveys to assist with:

- Maintenance Scheme Identification and Planning
- Performance Monitoring
- Detailed Scheme Design

The Asset Management Team are responsible for processing and analysing the results of condition surveys to assist them to target and prioritise maintenance.

6.3.2. Monitoring of Skid Resistance

The maintenance of adequate levels of skidding resistance on carriageways is an important aspect of highway maintenance, and one that contributes significantly to network safety.

The skid resistance of the highway network is monitored by SCRIM survey. The measurement, and management of the skid resistance of the highway network is detailed in the County Highways Skid Resistance strategy.

6.4. ASSET INSPECTION

6.4.1. Safety Inspections

Our team of highway inspectors carry out visual checks to make sure highway assets are in a safe condition. This includes checking for defects in the road surface that present a safety concern. We carry out this kind of check at least once every twelve months.

The frequency of inspection on each hierarchy of carriageway is detailed in the SCC Highway Safety Inspection Code of Practice.

6.5. ASSET PROGRAMMING

6.5.1. Prioritisation of Investment

Investment decisions are made based on a robust understanding of their effect on the future condition of the asset and the whole-life cost of maintaining it. Within the funds available for planned road maintenance, we prioritise the works we do to ensure that they will have the greatest benefit, taking a whole-county approach. To do this we consider the condition of each road, the amount and type of traffic it carries, its importance to our economy, as well as the cost of the optimum treatment identified by our pavement management system and its effect on lifespan and the whole-life cost of maintaining the asset.

Where the need for treatment is identified a long candidate list of proposed schemes for the whole of the highway network maintainable at public expense is produced.

Once a list of schemes has been produced a series of other prioritisation criteria is considered. This includes the number of, reported potholes, customer complaints and other unplanned maintenance interventions. Factors which affect the strategic importance, such as network resilience gritting routes are applied as well as potential risk factors such as footfall and to proximity schools and hospitals.

6.5.2. Accountability

Having a data driven approach allows any decisions to be made in maintenance prioritisation to be transparent. The reason schemes have been included in a programme of works can be evidenced by the prioritisation criteria used. The use of data to justify the inclusion of schemes within the capital programme removes the risk of scheme selection through subjective decisions made by officers and stakeholders.

6.5.3. A 'Whole of Network' Approach

A true data-led asset management approach allows us to gain a much wider appreciation of where works need to be done, and at what scale. Despite best efforts by officers and members it is impractical to have a thorough knowledge of the condition of every carriageway and footway in the County. The use of condition data and video imagery supplemented by stakeholder submissions allows an overview of all carriageways across the whole County.

6.5.4. Carriageway prioritisation value management scoring

Budget will be split at a ratio determined through deterioration modelling in order to achieve a cost-effective balance of preserving roads that have not yet fully deteriorated and fixing those that have. A long-term programme of work will be published giving opportunity to achieve efficiency through cross asset priority. Early contractor engagement can then seek to achieve innovative solutions for further cost savings.

Through programme coordination and visibility of future SCC schemes which may affect other key highway asset or major improvement scheme, we are able to adjust its place in the programme so that we can combine activities in order to maximise financial efficiencies.

6.5.5. Investment Scenarios

Five investment scenarios have been produced using our strategic asset management system, Horizons. The below analysis projects the condition impact on the network based on the national condition performance indicators over a ten-year analysis period. The five investment scenarios have been presented using the accredited national indicators separately for the A roads (130-01), B and C roads (130-02) and the Unclassified roads (formerly Bv224b).

Chart 16 – Investment Options – 'A' Class Roads

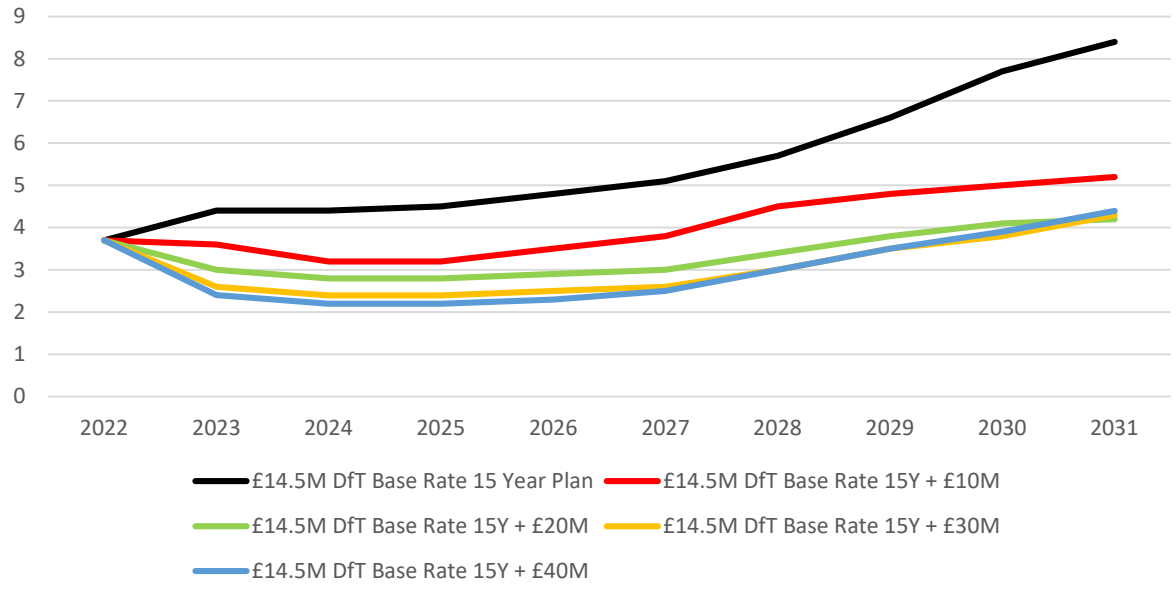


Chart 17 – Investment Options – 'B' Class Roads

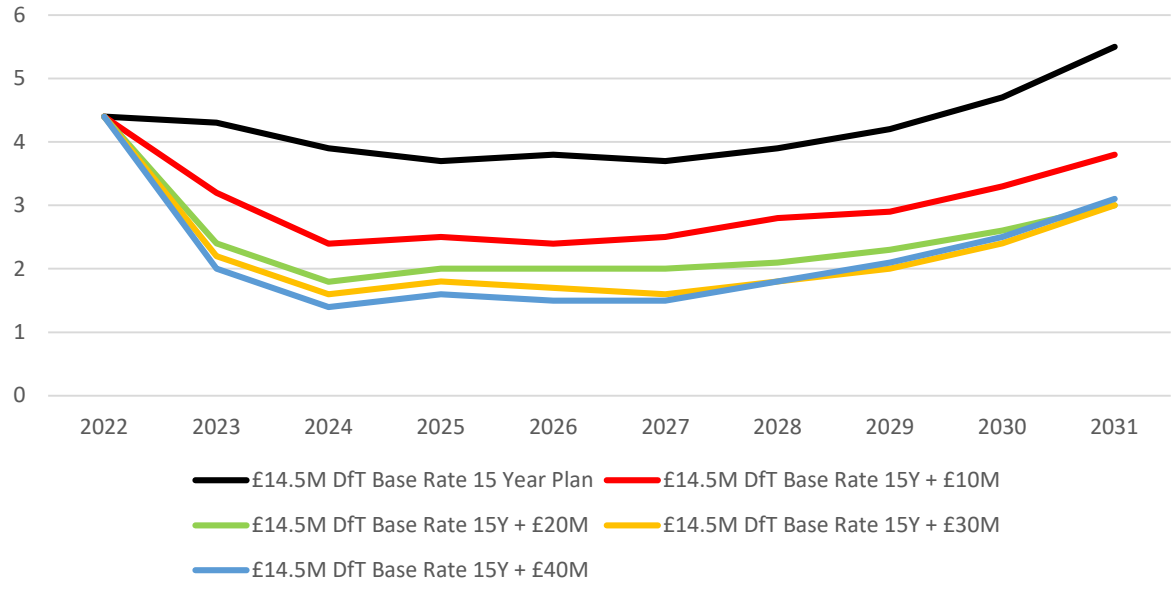


Chart 18 – Investment Options – 'C' Class Roads

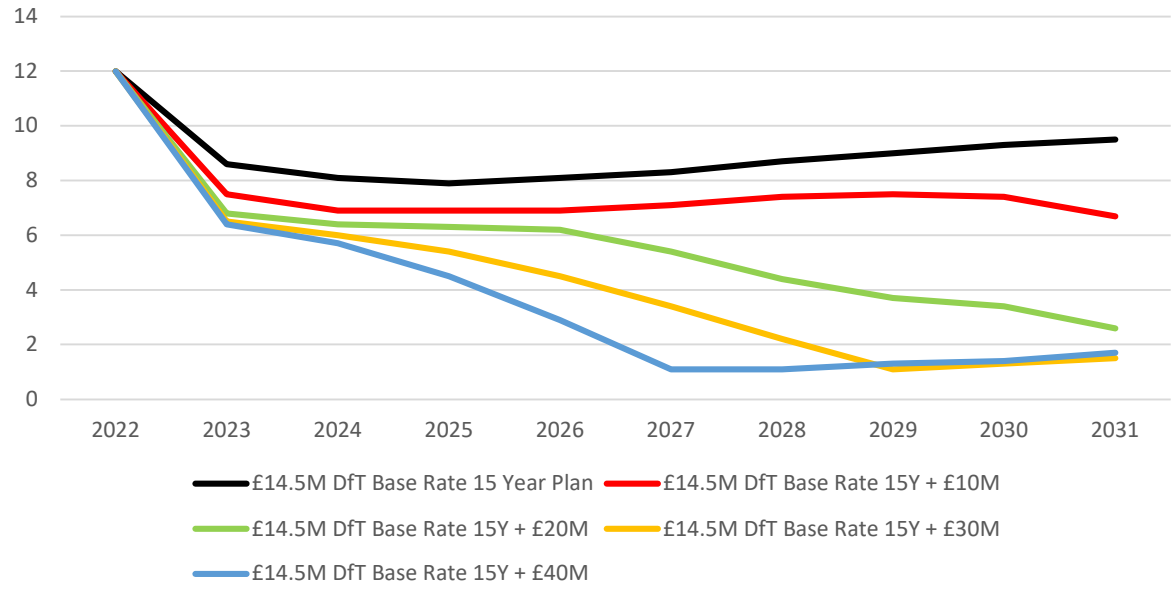
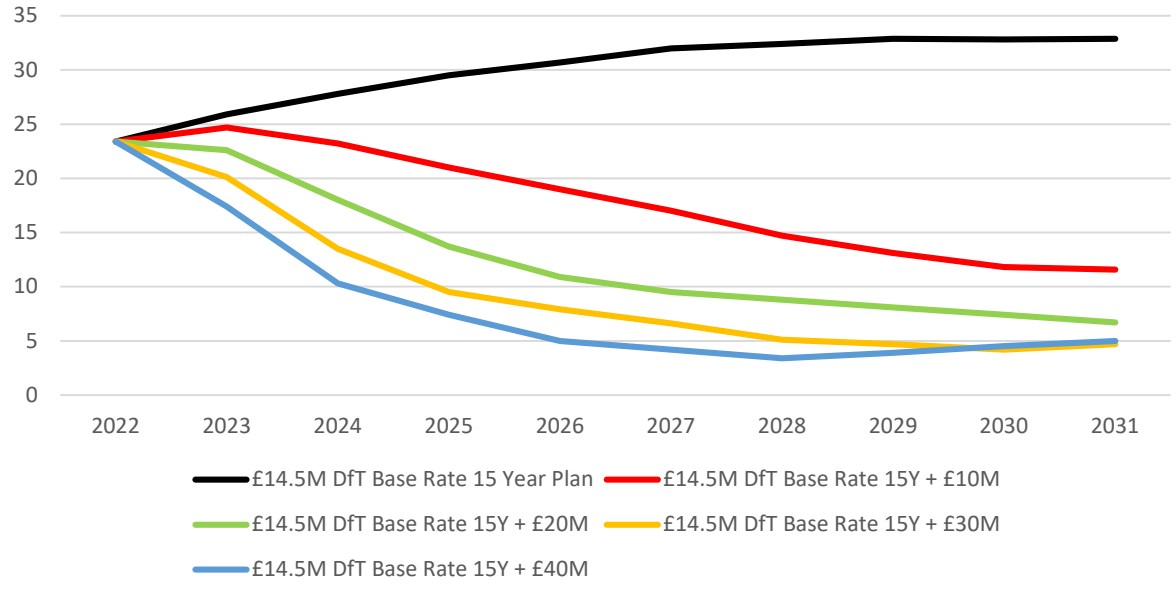
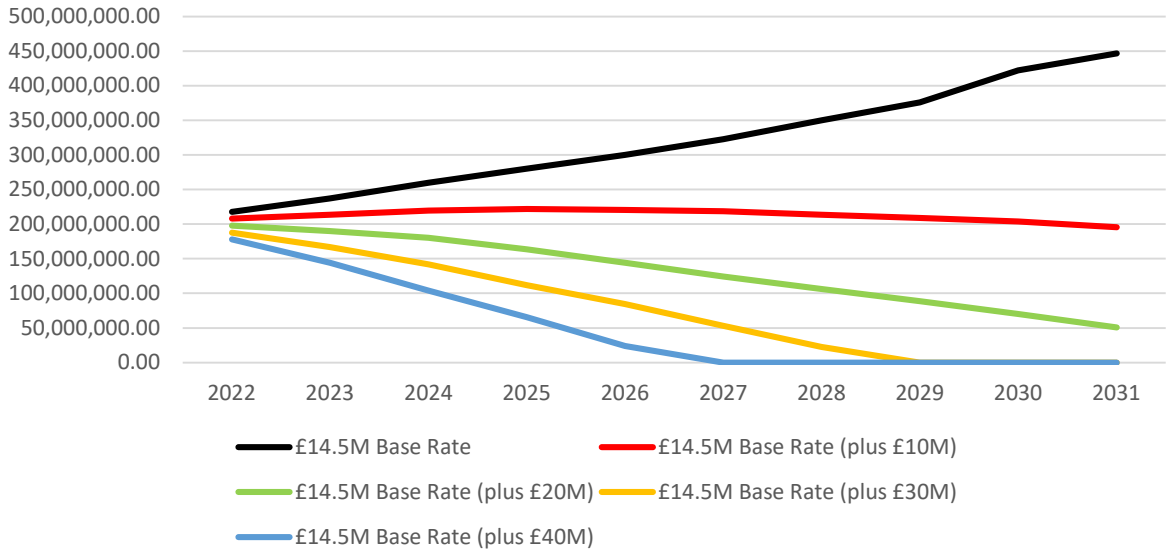


Chart 19 – Investment Options – 'U' Class Roads



The current estimated spending required to bring the most deteriorated road surfaces into good condition is over £200 million. The projections are based on current investment levels, inflation, deterioration and short-term funding strategies. Increase in backlog is based on 'annual need' calculations.

Chart 20 – Investment Options – Carriageway Maintenance Backlog



6.5.6. Investment Scenarios Summary of Impacts and Benefits

Table 4 provides a brief summary of the expected impacts and benefits of each investment scenario. It effectively provides an overview of what to expect in the future based on each investment approach.

Table 4 – Investment Scenarios Summary of Impacts and Benefits

Investment Scenario	Description
1. **Decline** - investment levels remain at 2021/22 levels	• Backlog unsustainable and growing by c.£20m per annum. • Network condition will decline, will be evident through more defects, claims and a higher reactive maintenance burden.
2. **Steady State** – Investment required to maintain a basic highway service	• Backlog holds at current level and prevents increase. • Condition generally remains as is.
3. **Gradual Improvement** – start to address backlog and gradually improve network	• Backlog reduces by c.£15m per annum. • Reduces risk and starts to move to a more planned/proactive maintenance strategy.
4. **Accelerated Improvement** – Accelerate backlog reduction and improve condition	• Backlog reduces by c.£25m per annum, removed in 8 years. • Evident improvement to asset condition and performance.
5. **Rapid Acceleration** – maintenance backlog addressed	• Backlog reduces by c.£40m per annum. • Rapid improvement in network condition, manageable reactive maintenance burden. Funding potentially available to other assets.

Based on current funding allocation the deterioration will be managed for now, however this will accelerate in future years if current levels of underinvestment are not addressed imminently.

6.5.7. Work Programme

Forward works programmes provide an effective and efficient way of delivering maintenance, repairs, and improvements. They enable prioritisation and optimisation of schemes to meet available budgets.

Developing a works programme is a seven-stage process:

Identification

Potential schemes may be identified from a range of sources including inspections, surveys, local knowledge, customer enquiries, complaints, risk and wider transport or corporate objectives. These schemes are collated into an initial works programme for each asset group.

Prioritisation

The following things are considered when prioritising schemes:

- the maintenance hierarchy of the road
- the safety of road users
- the impact on the movement of traffic if the asset fails
- value for money
- the cost of bringing forward or delaying works
- the lifecycle cost of our highway asset
- the environmental impact
- the impact on the community including damage to property or impacts on local businesses
- integrate all modes, especially active travel, and support modal shift
- local development plans
- planned and potential utility and third party works

Selection

A candidate lists of schemes is combined, costed, and listed in priority order. A notional “cut off” point is then determined by totalling up the cost to the point where each year’s expected budget is fully utilised.

Member Engagement

In order that local priorities are reflected in the planned maintenance programme the candidate list will be consulted on with Local Committees so that members have sight of current and future years work programmes and can prioritise schemes with a particular local importance.

Programming & Optimisation

Selected schemes are optimised within the works programme, based on many factors including deliverability. This is done by coordinating or combining works to minimise both cost and disruption.

Utility companies are key consultees to manage not only short term and mid-term co-ordination but to also determine where utility companies may have assets that are towards the end of their life but not programmed for replacement at that time.

Approval

Cabinet members will be asked to approve the Highways Capital Programme each year.

Delivery

Finally, a multi-year works programme is confirmed and delivered from the available budget.

We will publish our programmes of work on our website, so that members of the public can see where and when we plan to undertake works.

6.5.8. Other Significant Factors Affecting Carriageway Maintenance

Utility Works

Road failures are often also caused or exacerbated by damaged or failed utility reinstatements.

Utility companies have statutory rights to lay, maintain and improve their apparatus within our highway network in order to provide water, sewerage, gas, electricity, and telecommunications services to our residents, visitors, businesses and public services.

Our role as highway authority is to ensure that these works are coordinated and managed in a way that minimises inconvenience and disruption. The permit scheme commenced in April 2020 and in the 18-month period following its introduction the authority processed around 29,000 permit

applications. This provides an idea of the scale of the incursions on our network by third parties.

In line with national guidance, we also carry out a substantial programme of inspections each year to ensure that our roads are properly reinstated after third party works have been completed in order to minimise damage to our network.

Notwithstanding our inspection and testing regime, any works which involve cutting into an unbroken and otherwise sound road surface, even if carried out to a high standard, will affect a road's structural integrity. This will accelerate its deterioration and shorten its life, resulting in the need for premature maintenance which increases the pressure on highway budgets. It should also be recognised that many of the highway maintenance issues linked to utility works relate to reinstatements carried out many years ago.

Adverse Weather

The impact of adverse weather conditions on the highway network, particularly relating to ice, snow or flooding but also including high winds and extreme heat is causing rapid deterioration and damage to the highway network which are both costly and time consuming to repair.

The increased frequency of adverse weather events means we have experienced a rise in unforeseen expenditure in response to deterioration and damage caused.

6.5.9. Maintenance of Laybys

Laybys on the County's roads are needed and used by the public as essential rest facilities.

Encouraging motorists to use these facilities is important for safety reasons, and the laybys should, therefore, be kept in a condition which will encourage use. The County Council is responsible for verge maintenance, and District/Borough Councils for litter bins, litter clearance and cleansing.

All laybys on HMPE will be maintained to ensure a neat and tidy appearance.

6.5.10. HS2

The construction of HS2 has the potential to have a significant impact on the road network serving the county. The capacity and structural make-up of sections of the road network is not constructed to accommodate the extra heavy goods vehicular traffic associated with HS2. Work is required to understand the impact of HS2 on the County's road network and wider regional highway network.

6.5.11. Natural Environment

Our Regeneration and Highways teams continue to enhance the County's prosperity through schemes including i54 and highways improvements, such as the Western relief road in Stafford. This year as part of these schemes, thousands of native trees were planted to form woodlands and hedgerows for the enhancement of local landscape and biodiversity habitats, along with enhancing wetlands/ponds. All of which will have a positive effect on reducing our carbon impact.

6.5.12. Forecast Future Funding

To maintain the carriageway network in a steady state would require £42m per annum. This represents a 260% increase in the base level of funding. However, the expected level of funding for 2024/25 shows a 17% reduction in the level of funding available for our carriageway in comparison to 2021/22.

Volume 2 – Footways and Cycleways

7.1. INTRODUCTION

This asset group includes footways, footpaths and cycle routes that are highway maintainable at public expense. It does not include Public Rights of Way (PRoW), which are managed separately.

The footway, footpath and cycleway asset in roads terms is one of the most valuable highway infrastructure asset groups. The Gross Replacement Cost (GRC) is calculated at £765m.

The primary objectives of our footway and cycle track assets are to:

- enable our residents, businesses, and visitors to travel the county on foot, in wheelchairs and mobility scooters, or by cycle safely and efficiently, thereby contributing to improving outcomes and opportunities for our people and businesses.
- withstand normal usage by pedestrians and, where appropriate, cyclists and vehicles (via appropriately constructed vehicle crossings) by transferring loads through to underlying ground without deformation of the surface, maintaining safety and minimising nuisance.
- maintain their structural integrity and maximise their lifespan to provide maximum value for money from investment.

7.1.1. Stakeholder expectations

As well as our statutory duty to ensure our footways are safe, we also need to maintain the confidence and positive perceptions of the travelling public using our asset. We also need to ensure our footway network is maintained to protect against insurance claims resulting from injuries or damage caused by incidents on our network.

To ensure the most benefit to our footway network we seek, where possible, to address sites of local need, and we do so via our value management criteria along with input from community liaison officers' knowledge who liaise closely with local elected representatives and other groups.

Nearly 1 in 3 older adults (aged 65+) are discouraged from walking more due to a concern regarding the condition of footways in their local area. The provision of good quality and safe footways is a significant contributor to the health and wellbeing benefits of residents and their ability to access essential goods and services.

7.1.2. National Highways and Transportation Public Satisfaction Survey

With the incomplete level of condition and inventory information available on footways and cycleways to date the NHT survey has been key to ensuring the Council prioritises services that local residents demand.

The Council value being part of the NHT survey and have found the resulting information extremely useful. The Council have participated in this survey for a number of years.

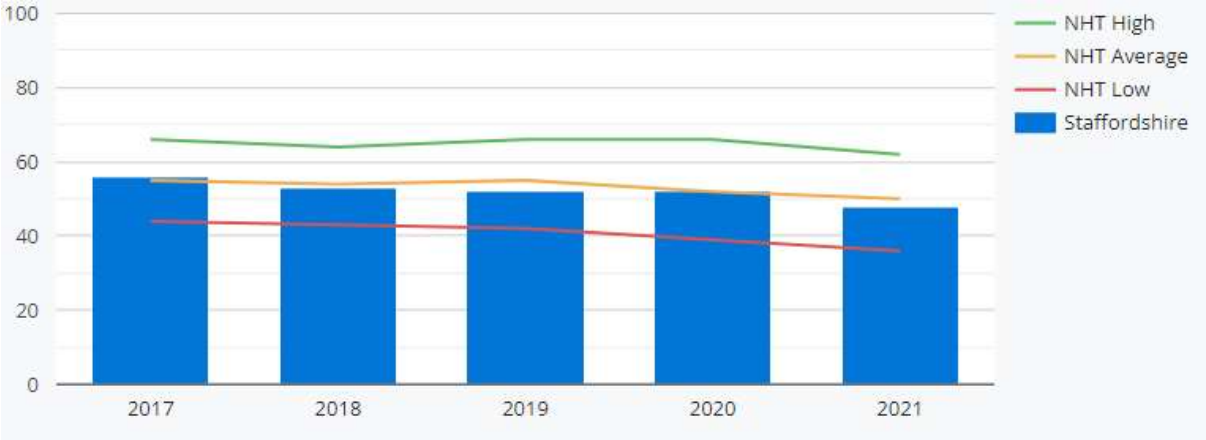
With regards to footway maintenance, the Staffordshire public consistently prioritise good condition pavements as one of the highest priorities, often only behind road condition and road safety.

Footways are also one of the key areas that the public would least find acceptable to reduce the level of service by spending less.

This would suggest that residents place great importance in the footway/path infrastructure and desire a higher quality provision.

Chart 21 shows that the level of satisfaction in the condition of SCC footways is below average and satisfaction is falling in line with the national trend.

Chart 21 – Public Satisfaction with the Condition of Pavements



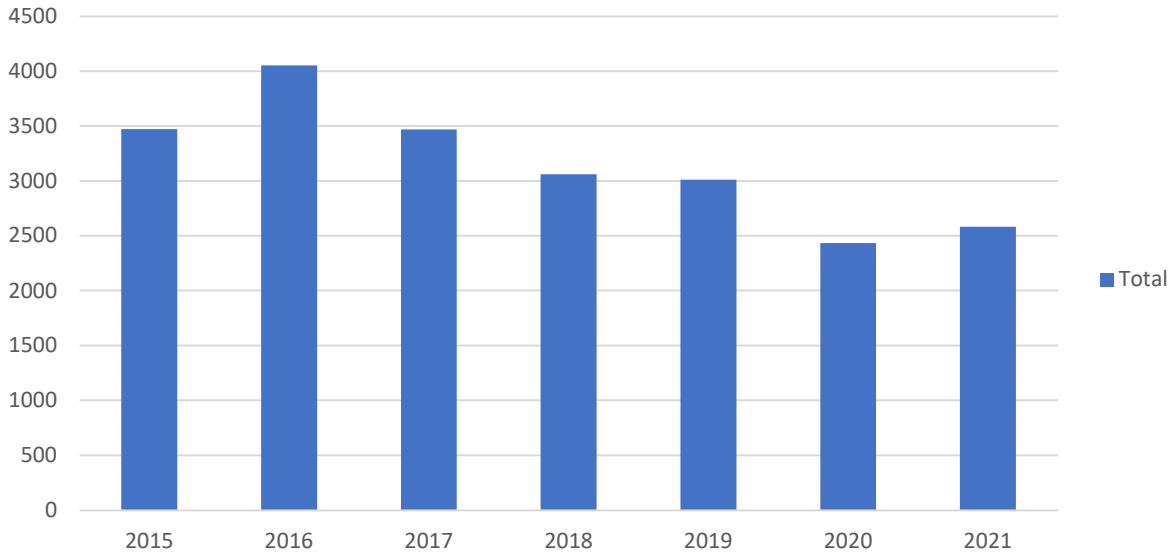
7.1.3. Customer Reports and Enquiries

Customer enquiries made via 'Report It' are recorded in Confirm. On average, since 2015 around 13% of the total enquiries made relate to footways and cycleways including ironwork and kerbs/setts.

After a period of seeing a reducing number of enquiries about footways and cycleways from a peak of circa four thousand in 2016, there are early signs that the number of enquiries may be starting to grow again with an

increase of around 150 in 2021 compared to 2020 albeit it is too early to see whether this trend will continue.

Chart 22 – Number of Customer Enquiries Footways and Cycleways



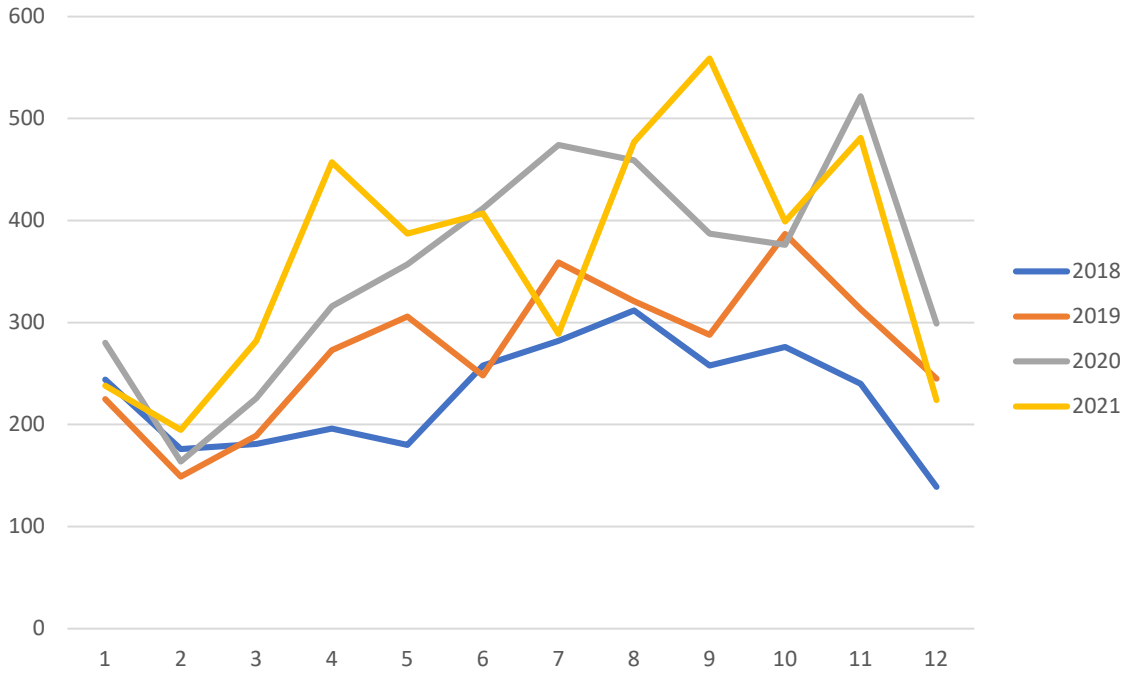
7.1.4. Defects

It is difficult to forecast accurately how much we will need to spend on reactively fixing surface defects each year; however, we know that, as footways deteriorate given lack of investment, the number of defects will increase. This will lead to an increasing amount of resource being spent on such repairs. If that resource is taken from that used for planned maintenance, the problem would be exponentially exacerbated.

As a result of this, the condition of overall footway network is likely to deteriorate over the short, medium and long term.

Chart 23 shows that the number of footway jobs is increasing year on year. This is reflective of the underinvestment in the footway asset, the increasing maintenance backlog and the deteriorating condition of the asset. 1,600 more footway maintenance jobs have been raised in 2021 than in 2018 and over 1,000 more than in 2019.

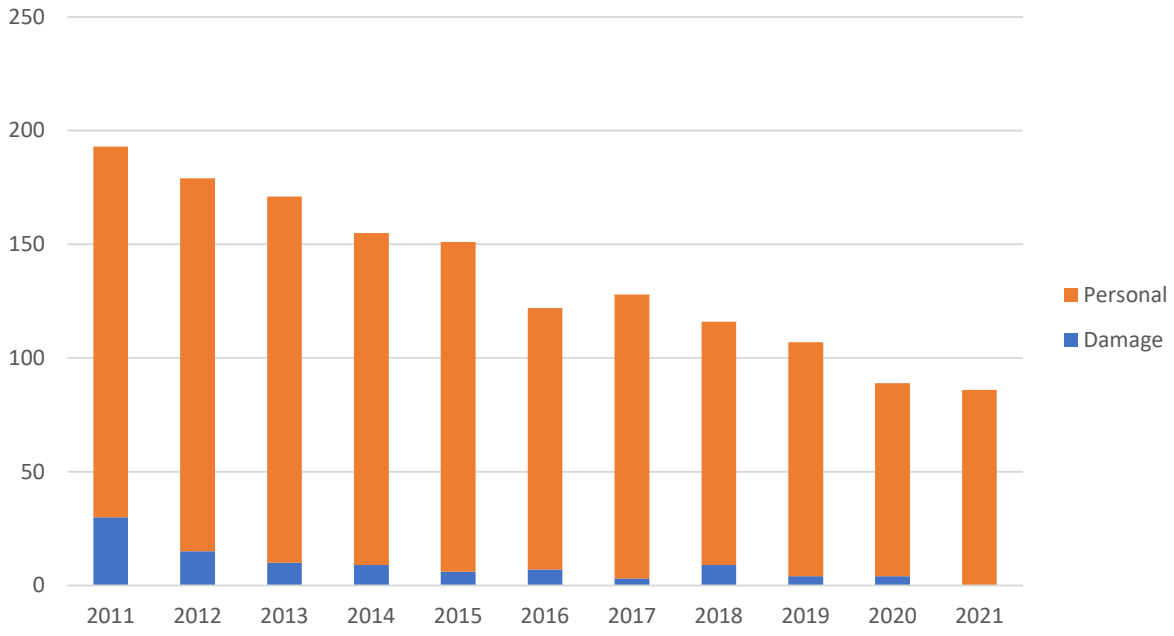
Chart 23 – Number of Footway Defects Year on Year



7.1.5. Claims

Whilst the number of defects and the maintenance backlog is increasing the number of claims is reducing. Chart 24 shows the number of claims year on year and the split between personal injury and damage claims.

Chart 24 – Footway Claims – Damage Only vs Personal Injury



7.2. ASSET MANAGEMENT

7.2.1. Asset Condition

Our footway network is a substantial highway asset and consequently we invest significant resource into understanding its condition and likely future deterioration.

Historically, footway asset information was collected via Footway Network Survey (FNS). The Footway Network Survey (FNS) was intended to provide a cost effective, efficient and consistent approach to footway surveys, based on a linear basis. The survey was carried out by a single surveyor walking along the footway, referencing the network against four defect categories:

- As new
- Aesthetically impaired
- Functionally impaired
- Structurally impaired

The FNS survey was resource intensive and took a minimum of 5 years to cover the network. This meant that we were modelling footway condition using an outdated view of the network.

Gaist Solutions Ltd have now been commissioned to perform a footway condition survey of the entire highway network. The survey includes providing the authority with HD quality 360-degree imagery of all the highway network accessible by vehicle. The survey started in November 2021.

The footway and cycle track asset group are continually extended to include segregated cycle tracks that are publicly maintainable. These segregated cycle tracks have been generally constructed for use by cyclists and are not alongside a road or footway. We do not currently have detailed knowledge of the extent of segregated cycle tracks or their condition, though we are considering commissioning work to address this during the coming year.

We are continuing to refine the quality and completeness of the condition and inventory data in order to produce reliable lifecycle plans.

7.2.2. Other Significant Factors affecting Footway Maintenance

The footway, footpath and cycleway network in Staffordshire has been developed over many years. Much of the asset has evolved over time and the increase in car ownership and the competition for car parking space means that many sections of the footway are subject to overriding. In

addition, many are affected by root penetration and disruption from adjacent landscaped areas which have matured over the years.

Parking and Tree Root Disruption

Generally, the condition of the footway deteriorates slowly and is more likely to be affected by external stresses, typically because of parking and vehicle over-run issues and tree root disruption. This particularly affects older residential urban areas that are tree lined or were not designed to accommodate the number of vehicles per household that is now typical. The narrow nature of many of these locations does lead to residents parking either wholly or partly on the footway.

These issues disproportionally affect people with visual or mobility impairments, those assisted by guide dogs, families with pushchairs and wheelchair and mobility scooter users.

The principal risk on footways is from trip hazards, particularly in high footfall locations. However, where vehicles do regularly park on or traverse our footways even small defects can escalate quickly. This both increases the replacement costs and shortens the life of the asset.

Footway Detritus

Detritus comprises of small, broken-down particles of synthetic and natural materials which arrive at the site through the same displacement effects associated with mechanical, human, animal and natural actions, most of which also determine the distribution of litter. Detritus includes dust, mud, soil, grit, gravel, stones, rotted leaf and vegetable residues, fragments of twigs, glass, plastic and other finely divided materials.

It is recommended but not a duty that detritus should be removed alongside litter and refuse by duty bodies from all other hard surfaces as well. Therefore, the District/Borough Council will have a duty under s89 to remove detritus from metalled highways, but it is only recommended and not a duty of the District/Borough Council that detritus be removed from other hard surfaces.

7.3. ASSET MANAGEMENT

Bituminous footways make up the major proportion of the footway network and in general stand up well to traffic in all locations; however, regular preventative maintenance work is required to prevent long-term deterioration.

Preventative maintenance is not generally an option on our rigid footways. Rigid footways are also those most susceptible to external stresses such as tree root disruption or vehicle over riding. This makes it difficult to target

maintenance as failure is usually rapid and necessitates some form of reactive repair in the first instance.

7.3.1. Maintenance Treatment Options

Our approach to footway, footpath and cycle route asset management is a balance between asset renewal, where such assets have reached the end of their serviceable life, and asset preservation, where we apply a treatment to seal the surface and extend the life of assets that would otherwise need replacement at considerably higher cost.

7.3.2. Management strategy for minimising whole-life costs

Whole life costs include the direct costs of works, design, supervision, surveys, and the indirect costs including inconvenience to users, environmental impacts and third-party claims. The main factors which will affect the whole life cost of an individual footway are:

- Type and quality of original construction.
- Degree and type of damage and degradation caused by environmental factors, traffic, and levels of utility work.
- Speed, quality and type of response to damage and degradation.
- Timing of intervention treatments.

At present, the links between these have not been fully quantified.

7.3.3. Quality Health, Care and Support

We recognise that the quality and condition of our footway and cycleway network impacts on the ability of people to travel to health and care services, to receive support in their homes, and to engage in leisure activities which promote good mental and physical health.

In particular, we are aware that the condition of footways can have a disproportionate impact on disabled and older people, a demographic continually increasing both in size and as a proportion of Staffordshire's population, and we intend to review the way we prioritise footway maintenance to take into account areas used by a higher proportion of older or disabled people.

Securing continuous improvement in the safety and serviceability of cycle routes, in particular network integrity, is a necessary component for encouraging cycling as an alternative to the car. Cycleways are included within the Gaist asset database to be surveyed and assessed. This only applies for combined footway/cycleway assets, which signifies the majority

of the cycleway network. We are considering the use of alternative assisted technology to capture segregated cycle infrastructure.

7.3.4. Pedestrian Crossing Facilities

Dropped kerbs will be provided at all identified pedestrian crossing points where re-kerbing or new works are being carried out, and at other crossing points where a particular need has been identified.

The crossings shall be constructed in accordance with the County Council's standard detail drawings. Crossings will be provided with a corresponding crossing point on the opposite side of the road.

Coloured and tactile paving will be provided at all pelican and zebra crossings, and at all junctions with positive pedestrian control by traffic signals.

7.3.5. Vehicular Crossings

Wherever a footway or kerbing maintenance scheme is carried out, residents who currently cross the footway illegally will be offered the opportunity to contribute to the cost of providing a vehicular crossing at a cost equal to the extra cost of providing the facility over and above the normal cost of the footway works.

Where footway crossings are constructed at other times, then the full cost of the construction works will be payable by the frontage.

In cases where any crossing is required at an access to industrial works, petrol filling station, or other premises attracting heavy traffic, the specification to be employed shall be specifically designed for the site conditions.

The council has a number of formal options under Section 184 of the Highways Act 1980[23] available to it to prevent unauthorised vehicular crossing of the footway. These include considering installing physical barriers to prevent access to the driveway where a crossing is not permitted. The council can also recover the cost of any damage caused to the footway as a result of unauthorised driving over it.

Constructing a crossing without the Council's consent is illegal. Where a footway crossing has been constructed without consent the council can rebuild the footway and recover the cost of the works from the resident.

[23] Highways Act 1980 - Section 184

Crossings over Highway Margins and Verges

- The existing margin or verge shall be excavated to the formation level required and the whole excavation area sprayed with a total weedkiller.
- The crossing shall be constructed in accordance with SCC specifications.

Piping of a Ditch under Vehicular Access Crossing

Where the access crosses a roadside ditch, this shall be piped with (glazed stoneware/concrete) pipes on a carefully prepared bed, free of large stones, which shall conform to the gradient of the existing ditch. The pipes shall be laid to approved levels and appropriate headwalls shall be provided.

The work shall not be commenced until the levels have been determined and pipes must not be covered until they have been inspected and approved by an SCC appointed engineer. For details of size of pipe, level and gradients, Staffordshire County Council must be contacted before any work is commenced, as the work involved may include a regrading of the ditch on each side of the access. All of the above shall conform to SCC specification

7.3.6. Temporary Access Works on the Highway

Where a temporary footway is provided, its surface will be of an adequate standard for use by elderly and disabled people.

Temporary footways will always be kept clear of mud and other loose material and pedestrian access to properties will be maintained.

7.4. ASSET INSPECTION

7.4.1. Safety and Service Inspections

In addition to the condition surveys, we carry out safety inspections.

Our team of highway inspectors carry out visual checks to make sure the highway assets are in a safe condition. This includes checking for defects in the footway surface that present a safety concern. We carry out this kind of check at various frequencies dependant on the hierarchy of the section of footway concerned.

Reactive inspections are carried out in response to enquiries from the public or other stakeholders and generate ad-hoc and emergency works, for example repairing footway potholes and other surface failures.

The frequency and process for undertaking routine highway safety inspections is detailed in the SCC Highway Safety Inspection Code of Practice.

7.5. ASSET PROGRAMMING

7.5.1. Prioritisation of Investment

The application of asset management principles and the development of lifecycle planning provide the ideal opportunity for greater co-ordination of programmes over a longer period.

Prioritisation of the footway programme is a seven-stage process that mirrors that of the carriageway.

7.5.2. Forecast Future Funding

As the indicative future budget profile increases for design and replacement of failing critical structures the amount of available funding available for the footway and cycleway network reduces.

The real term reduction in the base level of funding provided by the DfT and the necessity to support the management of high-risk structures means that the forecast budget available for planned cycleway and footway works in 2024/25 is calculated to be 14% less than in 2021/22.

Volume 3 – Drainage

8.1. INTRODUCTION

Drainage is provided to ensure that surface water is removed from carriageways, footways and cycleways as quickly as possible to avoid ponding and flooding which can be a danger to the public. This is achieved through a combination of preventative maintenance and action to deal with reported flooding where this occurs. Known problem sites will be the subject of regular inspections and preventative maintenance to minimise flooding problems. The highway drainage system in Staffordshire is designed to take water away from the road surface, but even with a well-maintained system, problems can arise during periods of heavy or prolonged rainfall.

This asset comprises all highway drainage features including gullies, kerb offlets, grips, backdrains, soakaways, catchpits, associated pipework and outfalls.

The drainage asset's primary objectives are:

- removal of highway surface water (from our roads) to maintain road safety and minimise nuisance
- effective sub-surface drainage to prevent damage to the structural integrity of the highway and maximise its lifespan, and
- minimise the impact of highway surface water on the adjacent environment, including properties.

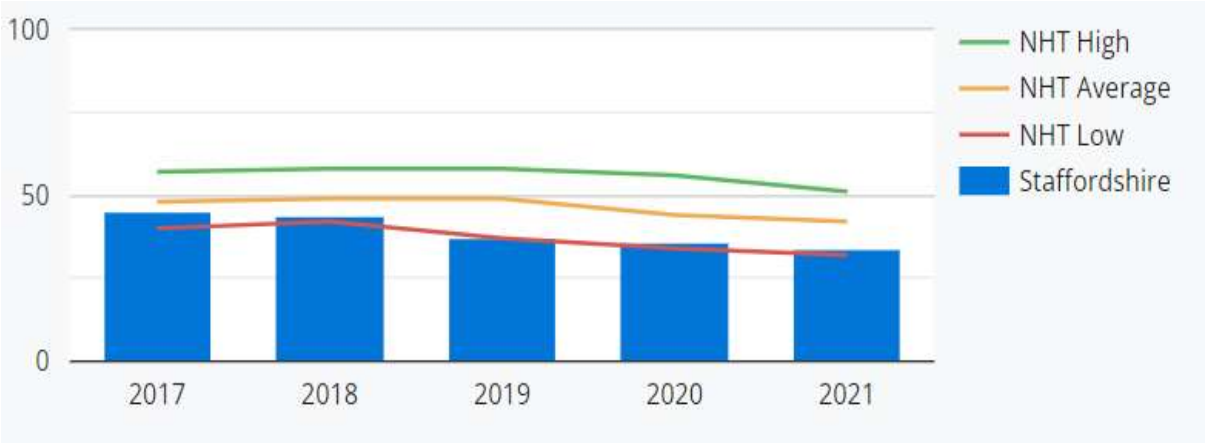
8.1.1. Stakeholder expectations

Stakeholders expect a provision that ensures where practicable unobstructed and safe passage of the highway and that the authority implement measures to reduce the risk of highway related flooding.

8.1.2. National Highways and Transportation Public Satisfaction Survey

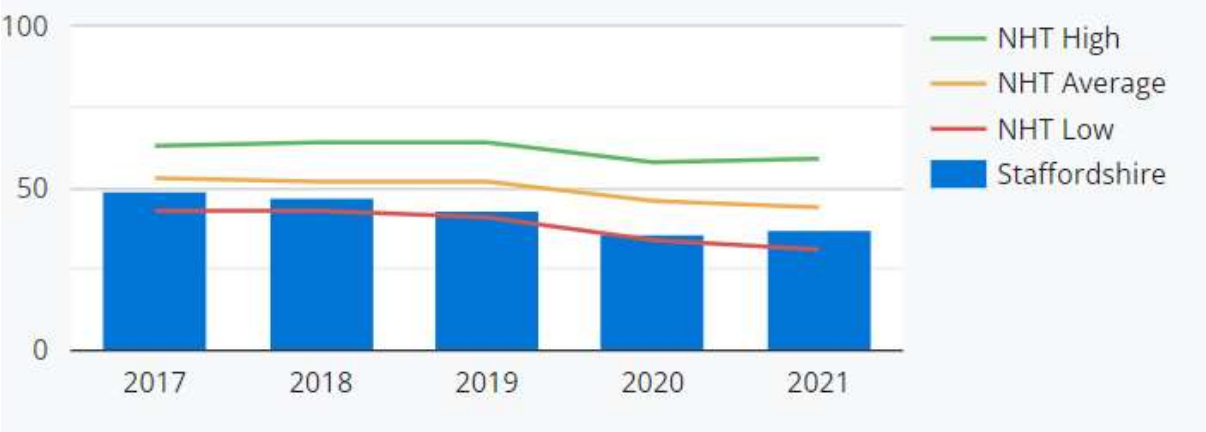
The headline conclusion for our drainage asset is that in terms of public satisfaction, the authority has generally followed national trends but is still currently well below the national average. Chart 25 shows that the level of public satisfaction with how the authority deals with flooded roads in one of the lowest amongst participating authorities.

Chart 25 – Public Satisfaction HMBI 12 – Deals with flooding on roads and pavements



Similarly, chart 26 shows satisfaction is well below the national average in keeping drains clear and working. However, the downward trend in satisfaction was arrested in 2021 with satisfaction improving marginally.

Chart 26 – Public Satisfaction HMBI 12 - Keeping drains clear and working



8.1.3. Customer Reports and Enquiries

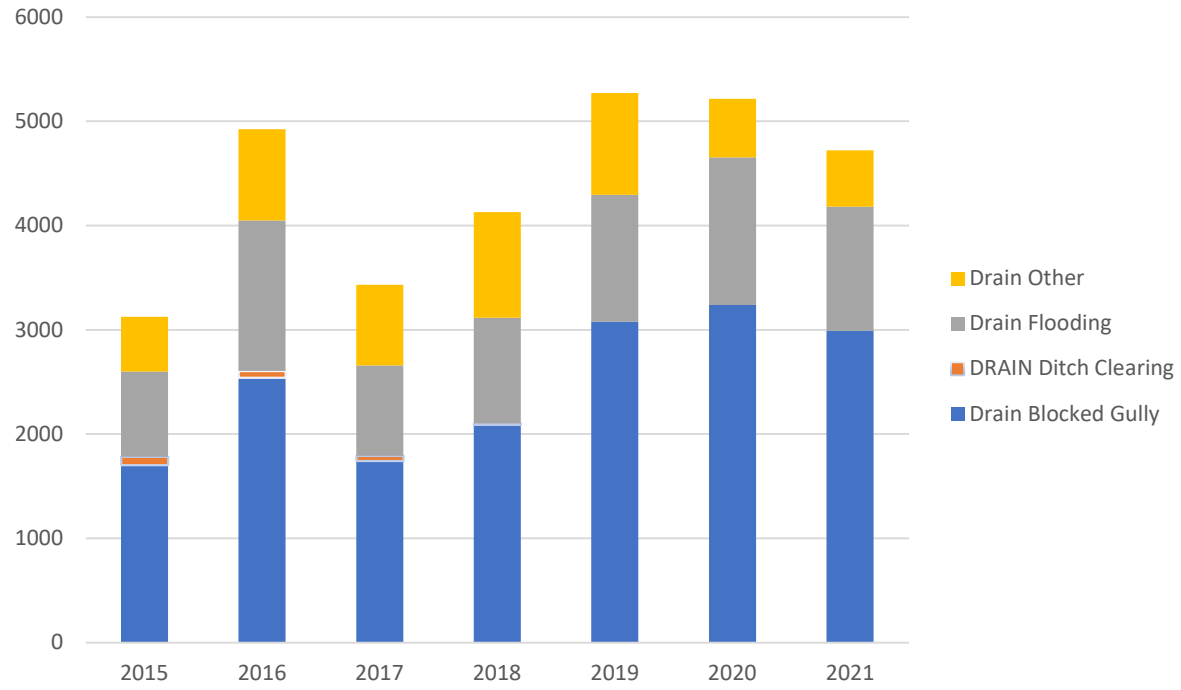
Customer reports and enquiries about drainage issues are second only to those about the carriageway with around 14% of the total volume. The majority of customer reports made relate to blocked gullies and the percentage has increased from around 50% before 2018 to over 60% in 2021. This could be due to improvements in reporting with 'drainage other' reducing as a percentage rather than an actual increase in issues with blocked gullies but does suggest an increasing issue with blocked gullies.

An additional one-off targeted investment of £1.9M[24] on local highway priorities of which £0.95M was focussed on known gully hotspots affecting communities appears to have supported a reversal of the upward trend

[24] Cabinet Meeting 16th September 2020 - Additional Investment in Community Highway Issues

seen prior to 2019. Drain ditch clearing was removed as a category for collection of data in 2018 and its use will be reviewed during the period of this plan.

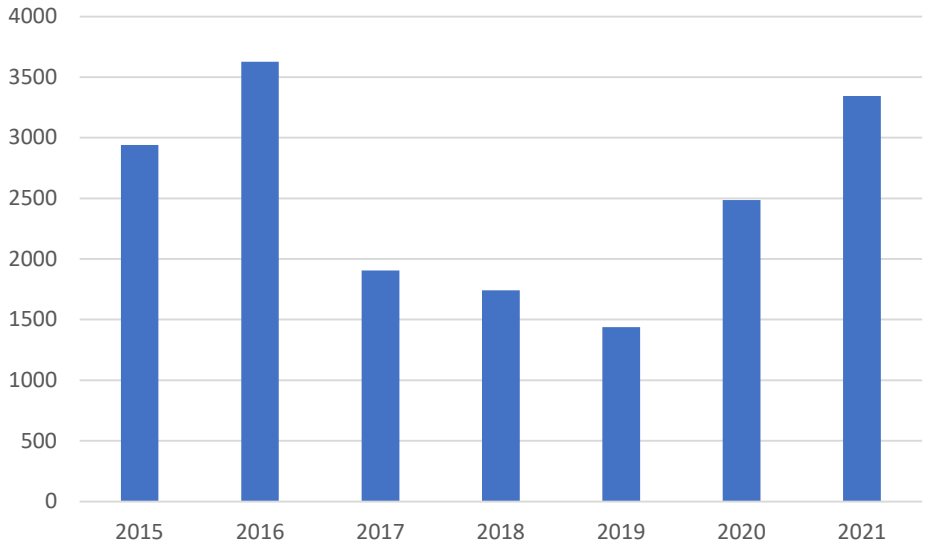
Chart 27 – Drainage Related Customer Enquiries



8.1.4. Defects

Drainage related jobs have more than doubled in the last three years and the upward trend is expected to continue in 2022 with frequent storm events occurring in February meaning a particularly wet start to the year.

Chart 28 – Drainage Related Jobs Raised



8.2. ASSET CONDITION

8.2.1. Asset Inventory

Currently we only have a limited number of inventory items complete in extent and with enough reliability to give a high or medium confidence. Our records of our underground systems such as soakaways, catchpits and pipes are limited or incomplete. As a result, we are still largely using historical data to justify routine budget profile.

We do not hold condition data on the individual elements of the asset. They are inspected upon safety inspections and those requiring treatment prioritised for replacement depending upon the severity of the defect of the location.

8.2.2. Other Significant Factors affecting Drainage Maintenance

Damaged and Ageing Infrastructure

Much of the County's drainage infrastructure was installed when the roads were originally constructed, some of which date back to late 1800s/early 1900s. Over time settlement, ingress of tree roots and roadworks by third parties has caused widespread deterioration and damage. Years of under-investment have exacerbated this problem.

Limited Capacity

In recent years prolonged and heavy rainfall events appear to have become a more frequent occurrence. Development and changes in land use have also resulted in increased volumes of surface water being discharged into the drainage system which is designed to cope with moderate to heavy rainfall. In many places drainage systems are now running at capacity.

Where capacity is insufficient the only options are to divert the highway drainage elsewhere or install an entirely new, larger system. This requires significant investment and in the past cost had tended to make this kind of scheme unaffordable for providers.

In future years we expect that even drains that are fully functional may have some capacity issues due to the unprecedented but now regular high rainfall events where current drainage and sewer capacity cannot cope with the amount of surface water run-off.

Reliance on Third Party Infrastructure

In many places the highway is drained into public sewers, which are owned and maintained by the waste water authority, or privately-owned third-

party assets such as ditches or ponds. In these instances, our influence over maintenance regimes and improvements is limited.

Land Drainage

Water being discharged from adjacent land onto the road is also becoming an increasingly common cause of highway flooding. A more stringent enforcement process utilising our Highways Act powers needs to be implemented. However, to date the vast majority of cases have been resolved via constructive discussion with the landowner.

Reductions in other services

A frequent cause of highway flooding is debris obstructing drain covers, particularly during autumn and winter. The need for financial savings has necessitated reductions in services such as street sweeping, delivered by District/Borough Councils, and soft landscaping services. These have resulted in increased debris collecting on the highway and finding its way to the roadside drains.

8.3. ASSET MANAGEMENT

Effective drainage management includes the periodic removal of silt and debris from drainage systems including grips and ditches. This includes the removal of any vegetation obstructing the flow of drainage. Also included is the testing of short lengths of piped drainage systems, and any rodding or jetting necessary to keep the system clear.

Drains are defined as pipes or culverts less than 1.5m. span or diameter, specifically provided for the drainage of the highway, or for watercourses crossing the highway. Generally, the Highway Authority is not responsible for the cleansing of ditches, unless they are on land which has been specifically acquired for highway purposes. However, grips (drainage channels cut through the verge to lead water off the carriageway) will usually be the Highway Authority's responsibility.

Drains which carry other water including foul water may be sewers or combined drains and are the responsibility of the water authority or the local District/Borough Council. Roadside gullies are maintained by Staffordshire County Council and are usually cleaned a minimum of one every three years on a targeted approach.

It is evident that an increasing frequency of severe flooding events due to climate change is impacting upon on our infrastructure. Highway drainage is a key factor to providing network resilience, and the safe movement of goods, people and services around the county.

Our major challenge is asset deterioration due to historical under-investment. In addition, the location and condition of this asset in roads, footways or third-party land has been poorly recorded.

As a result, we have a system which is outdated and that we hold very little information on sub surface assets. This has resulted in a lack of prioritised capital investment and has reduced our ability to target maintenance effectively. Our existing practice to maintaining this asset is mainly reactive, which is costly and does not address the issue of understanding where to invest to halt deterioration of the asset or reduce the risk of flooding from surface water.

A good understanding of the inventory and lifecycle of drainage assets informs risk based routine maintenance works. This will also aid us in complying with Recommendation 22 of Well Managed Highway Infrastructure Code of Practice:

"Drainage assets should be maintained in good working order to reduce the threat and scale of flooding. Particular attention should be paid to locations known to be prone to problems, so that drainage systems operate close to their designed efficiency".

Water soaking into the road foundation can cause structural damage. Water standing on carriageways, footways or cycleways can freeze and be slippery and also causes considerable inconvenience to the public, because of damage to clothing and property, by splashing.

The number of drainage assets is currently increasing by roughly 150 each year due to new housing and business developments.

Material arising from all road drainage emptying and cleansing operations has potential implications for pollution and shall be disposed of correctly in accordance with Environment Agency, or equivalent authority, requirements.

Where despite effective maintenance operations, flooding of the highway occurs, with implications for safety or serviceability, relevant warning signs will be placed in position as quickly as possible, and users advised as per the highway asset communications strategy. The cause of the flooding shall be determined and addressed as appropriate.

The highway may flood if the surrounding land is in flood and there are limitations to the action that can be reasonably taken. If it is subsequently determined that the flooding is attributable to deficiencies in infrastructure or the maintenance regime, given the nature of the weather conditions under which it occurred, then action to permanently relieve the problem shall be considered which may involve consultation with other public bodies

and/or third parties. If the event is attributable to the actions of a third party, the matter shall be taken up with them at the earliest opportunity.

Ironwork comprising covers, gratings, frames and boxes set in carriageways, footways and cycle routes has the potential to compromise safety and serviceability, and in certain cases cause noise and disturbance to local residents. Responsibility for defective ironwork will usually lie with utility companies.

8.3.1. Gully Cleansing

Gullies are cleaned on a frequency of at least once every three years on a targeted approach. Some gullies, which due to their location, are prone to silt up are cleansed on a more frequent basis, usually twice or three times a year. Such gullies should be included on a schedule which details the road number and the brief justification for the need for a second emptying. Typical justifications would include those gullies at the bottom of gradients, or at low spots, and gullies near quarry entrances.

We operate a cleaning schedule to routinely clean the gullies throughout Staffordshire, using data collated in recent years the frequency of the cleansing is determined by the silt levels readings and road classification.

Urban class A and B roads

- Generally, have higher silt levels and because of traffic speeds and volumes
- Require more frequent (annual) cleanses

Rural class A and B roads

- Feature high traffic volumes and accommodate higher speeds
- These will be cleansed on an annual basis

Rural class C class and unclassified routes (D and U)

- Typically have lower silt levels than Urban A and B class routes but higher silt levels than Urban C, D and U class routes
- These gullies will be cleansed once every two years

Urban class C and unclassified roads (D and U roads)

- Typically have lower silt levels due to lower traffic speeds and volumes
- These routes will be cleansed once every three years

In addition to a routine cleaning schedule, ad hoc cleansing operations take place 1 to 2 days a week in targeted locations based on risk assessed priority.

Trials are currently being undertaken to recycle gully waste into commercial grade topsoil.

8.3.2. Flooding

Under the Flood and Water Management Act 2010, County Councils and Unitary Authorities are designated as Lead Local Flood Authorities. The County Council is the strategic leader for flood risk management within Staffordshire and our responsibilities include:

- Developing a Local Flood Risk Management Strategy.
- Ensuring that all organisations involved in flood risk management are aware of their responsibilities.
- Monitoring progress and activity by all parties involved in flood risk management.
- Coordinating communication, both with the public and between organisations.
- Preparing reports and plans to meet the requirements of the Flood Risk Regulations 2009.
- Carrying out flood investigations where appropriate and publishing reports.
- Keeping an asset register of structures and features which may have a significant effect on local flood risk.
- Designation of third-party assets where appropriate.
- Regulation of ordinary watercourses, including permissive powers to require landowners to maintain ordinary watercourses on their land/property.
- Providing technical advice to Local Planning Authorities on surface water drainage strategies for major developments.

We also have permissive powers which allow us to carry out works to manage flood risk from surface water and groundwater.

More information on our approach to managing flood risk can be found in our Local Flood Risk Management Strategy.

In cases of severe and widespread flooding, problems will be dealt where possible in accordance with the hierarchy of roads with a focus on the resilient network. The cause of the flooding will be investigated, and preventative action taken where practicable, to prevent a recurrence of the problem.

Officers will maintain a register of known problem sites which are liable to flooding. This will enable maintenance resources to be directed in an effective manner.

8.3.3. Other parts of our drainage system

We also look after ponds, lagoons, pumping stations, catchpits and soakaways which drain water from the road.

Ditches and grips

Ditches or watercourses are the responsibility of landowners (often called riparian owners). Roadside ditches normally belong to the adjoining landowner and not the highway authority, except where land has been acquired for new road building. The highway authority can discharge highway water to a roadside ditch and may maintain it but is under no obligation to do so.

Landowners may drain their land to any ditch or watercourse on the property. They have a duty to maintain their ditches or watercourses in such a way that nuisance is not caused to neighbours. The County Council's Flood Risk Management Team and the Environment Agency will be able to provide further advice on land drainage issues.

Grips cut in verges are the responsibility of the highway authority, they are cut to assist with road drainage. Drainage grips are used to channel water away from the carriageway and into ditches, where there is an absence of or limited number of gullies or other positive systems that can drain the highway water away.

Grips are essentially dug or cut out of verges adjacent to the road and they can therefore be easily damaged if driven over at tight passing points on rural lanes. Improper grass cutting maintenance can also reduce their effectiveness as vegetation dies back and adds to the presence of earth.

The digging out or renewal of drainage grips does not generally form part of our routine drainage maintenance operations, since that usually involves jetting/gulley emptying machinery which is not required to resolve a problem with grips. Where locations require the attendance of a crew and manual equipment to dig out drainage grips, this has to be scheduled in accordance with a risk assessed category of priority. Unless the problem is

posing an imminent risk to safety, this type of work will be carried out as resources permit.

Ditches and the law

The common law imposes a duty on the occupier of the land adjoining the highway to clean ditches, drains etc which are necessary for draining the highway.

There are two categories of ditches that run alongside the highway:

- Those provided and maintained by the Highway Authority for the sole purpose of draining the highway.
- Those existing for the purposes of land drainage, and which are privately maintained.

Where a ditch is used jointly for highway water and land drainage then the law presumes that the adjoining landowner is responsible for the maintenance unless there is conclusive proof to the contrary.

Work on ditches

Ditches should be cleared, and the depth maintained as necessary to ensure that the efficiency of the system is not impaired. Any excavated material must be removed from the vicinity of the ditch so that it is not washed, or pushed back in.

Piping ditches

No ditch adjacent to the highway should be piped until the local highway authority and adjacent / riparian landowner have been consulted.

Protection of the public and operatives

Works on ditches or other features adjacent to the public highway should be carried out in such a way that no operative or item of plant encroaches onto the carriageway unless appropriate and advance signage is used.

Ponds and lagoons

Some highway drainage systems drain to roadside ponds and lagoons. These are inspected and maintained in response to reports of flooding.

Pumping stations

We own 16 highway pumping stations. These are serviced every 6 months with additional maintenance done if needed.

Soakaways

Soakaways are large underground tanks. Water drains from roadside drains, through pipes and into these chambers where it gradually soaks into the ground. If cleaning roadside drains doesn't clear the flooding, we investigate if nearby soakaways may also need cleansing.

Trash Screens

A trash screen is a type of fencing used to filter out debris in the path of a waterway. Known trash screens are inspected and cleared on a monthly cycle.

Catchpits

Catchpits are installed to collect silt before it discharges into more vulnerable parts of the drainage system

Swales

A Swale is a shallow channel lined with vegetation, usually grass, used to convey stormwater. The objective of a swale is to minimise the use of piped stormwater drainage system. It also functions to slow down stormwater flows and remove coarse to medium sediments.

8.4. ASSET INSPECTION

There are two types of checks carried out on the drainage system: planned inspections and reactive inspections.

8.4.1. Planned Inspections

Planned inspections include highway safety inspections and condition checks carried out as part of our cyclical maintenance regime:

- Our team of highway inspectors carry out visual checks to make sure that highway assets are in a safe condition. This includes checking that drain covers are not blocked, broken or missing. We carry out this kind of check at least once every twelve months.
- Our drainage cleansing crews look at the condition of the drains on main roads and ensure they are flowing.

- Our pumping stations are serviced every 6 months to check they are working properly and ensure that any faults or damage are repaired quickly.
- Trash screens are inspected a minimum of once per month or at a greater frequency dependent on the likelihood of severe adverse weather conditions.

We do not undertake planned inspections on our other drainage assets (underground pipes, culverts, soakaways, ponds, lagoon and ditches). These are all checked on a reactive basis.

8.4.2. Reactive Inspections

Reactive inspections are carried out in response to enquiries and generate ad-hoc and emergency works, for example, cleaning blocked drains that are causing the road to flood and repairing collapsed road drains. They may also result in us serving notice under the Highways Act 1980 requesting the landowner maintain their ditch or prevent water flowing from their land onto the highway. Where this is not completed in the required time, we may undertake the work and seek to recover the costs from the landowner.

Although responsibility for defective ironwork may lie with Utilities, defects identified during inspection or from users will therefore be formally notified to the Utility with a follow up procedure to ensure that dangerous defects are remedied within the prescribed timescale.

The standards outlined can be varied where necessary to deal with problem locations where more frequent treatment may be required.

8.5. ASSET PROGRAMMING

8.5.1. Prioritisation of Investment

As with all our assets, we take a risk-based approach to deciding where to invest our funding and some of the things we consider for this asset group include:

What is the risk to road users if the road floods?

- Is the road a high-speed road or on the Resilient Network, a main road, an estate road or a country lane?
- Is the road used by high volumes of traffic?
- Does the road layout increase risk, for example, is the flooding on a blind bend?
- Does the speed of traffic increase risk?

How much disruption is caused if the road floods?

- Is the road a high-speed or on the Resilient Network, a main road, an estate road or a country lane?
- Is the road used by high volumes of traffic?
- Are there suitable alternative routes available to road users?
- Is access to critical infrastructure such as powers stations or hospitals affected?

How are homes and businesses affected by the flooding?

- Are buildings being internally flooded?
- Are businesses prevented from operating?

Investment is prioritised where the risk is highest. We then consider how to invest our budget.

Having assessed each site, we collate a prioritised list of works which are included in forward works programmes.

We do not undertake works to mitigate minor nuisance factors. We prioritise works at locations where highway surface water presents a risk to highway safety or a risk of internal flooding to inhabited areas of property.

Through programme coordination and visibility of future SCC schemes which may affect other key highway asset or major improvement scheme, we adjust its place in the programme so that we can combine activities in order to maximise financial efficiencies.

8.5.2. Forecast Future Funding

Public satisfaction is low in the delivery of our highway drainage service. This is in part due to the historic underinvestment in managing this asset. The effects of climate change means that road flooding is likely to become more common and this will bring further pressures on an already inadequate budget.

The reduction in the base level of funding provided by the DfT and the necessity to support the management of high-risk structures means that the forecast budget available for structural drainage schemes in 2024/25 is estimated to be 77% less than in 2021/22.

Volume 4 – Structures

9.1. INTRODUCTION

Highway Structures comprise critical infrastructure that supports the safe passage of highway over rail, river and other features. The structures asset is widely varied in form and age, many of which go un-noticed by the travelling public. Structures asset also support essential utilities apparatus and the resilient network.

There are approximately 5,000 assets identified on the structures database, with sub-asset types including bridges, tunnels, culverts, retaining walls, and sign gantries. The Highway Structures team also manage the County dam asset and support the maintenance of structures on the Public Right of Way Network.

In the context of this HIAMP, the structures asset includes larger bridges over 1.5m clear span, retaining walls with a retained height over 1.5m and some PRoW structures with a clear span over 6.5m. Smaller culvert assets are maintained by Amey Highway Operations as part of the drainage asset.

Given limited funding available the asset strategy is to slow the rate of structural deterioration to prevent the closure of structures and their associated routes. Unfortunately, we now have structures that have reached the end of their serviceable life and require replacement, or removal.

9.1.1. Stakeholder expectations

As Highway Authority the County Council has a duty of care to all road users who expect the network to be:

- Fit for purpose, good condition, well maintained and safe to use
- Accessible for reliable journey times with minimal disruption due to maintenance
- Maintained efficiently with minimum whole life costs

Structures are provided to support highway and travelling public over a wide range of scenarios and in differing environments which interface with many external stakeholders. For example:

- Canal and River Trust
- Network Rail
- Railway Trusts
- National Coal Board
- Utility Companies
- Abnormal load hauliers

- Environment Agency
- Lead Local Flood Authority
- Historic England
- Natural England
- Planning Authorities
- Housing developers

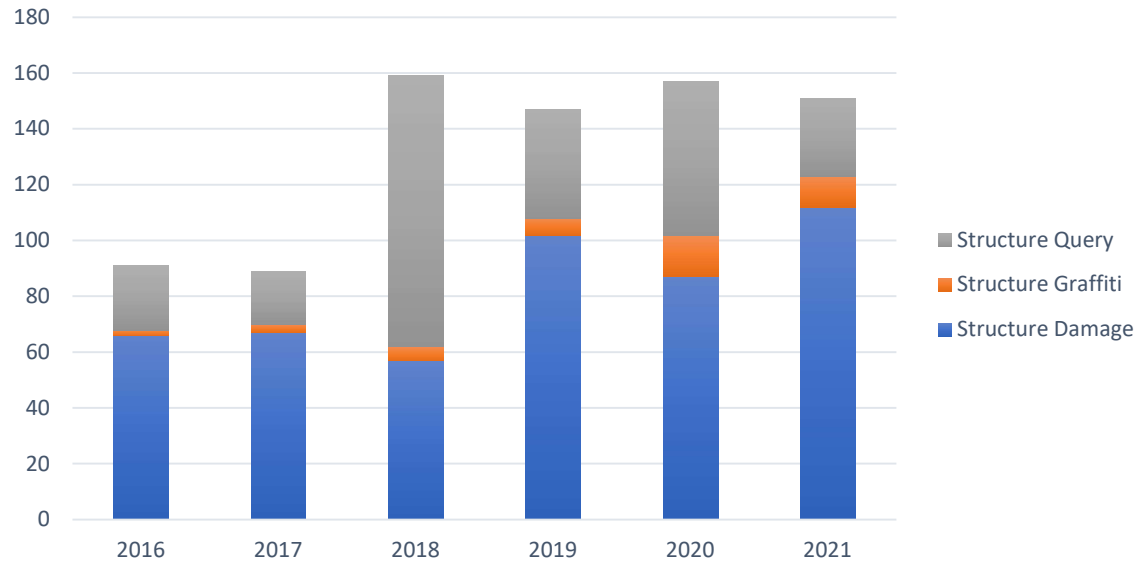
9.1.2. National Highways and Transportation Public Satisfaction Survey

There are no customer satisfaction measures in the NHT public satisfaction survey that directly relate to the management of highway structures.

9.1.3. Customer Reports and Enquiries

The number of customer enquiries relating to highway structures have been relatively static in the last 4 years. However, the number relating to structural damage has increased by 90% in the last 3 years.

Chart 29 – Public Satisfaction HMBI 12 – Deals with flooding on roads and pavements



9.1.4. Claims

Claims relating to highway structures are generally recharges for damage to our asset rather than claims for personal injury or damage as a result of a fault of the asset.

9.2. ASSET PERFORMANCE

Structures asset systems are tailored to managing risk of structural failure, network disruption and optimisation of investment.

The 2007 Guidance Document for Performance Measurement ranks the Staffordshire road bridge assets as in Fair condition for critical load bearing elements with the commentary *'A number of critical load bearing elements may be in a severe condition. Some structures may represent a significant risk to public safety unless mitigation'.* This statement is supported by individual high-risk assets requiring urgent repairs as detailed in the recommended maintenance programme. See section 9.5.2 Investment Aspirations.

Visual condition is one of a range of tools to compare performance and is based on the ADEPT Bridge Condition Indicators for each asset type, where:

BSCIave: measure of average condition of all structural components
BSCIcrit: measure of critical condition of high importance load bearing components

The trend of bridge condition score is shown below in Table 5.

Table 5 – Bridge Condition

Condition Score/Year	2004		2022		Trend
Road Bridge Average	86.7	Good	83.5	Good	↓
Road Bridge Critical	76.5	Fair	70.2	Fair	↓
Footbridge Average	86.2	Good	79.9	Fair	↓
Footbridge Critical	80.5	Good	70.1	Fair	↓
Retaining Wall Average	x	x	x	x	x
Retaining Wall Critical	x	x	x	x	x

Notes:

- x – condition data not available due to lack of inventory
- Average condition indicator includes all structural features
- Critical condition indicator limited to high importance load bearing components

All condition indicators have fallen over the recorded period. It is important to note the condition of critical load bearing elements is deteriorating at an increased rate when compared to other more visible items, for example painting. The replacement of critical components requires increased investment and advanced programming.

Highway structures are currently required to support the EC 40/44 tonne vehicle. There are currently over 50 sub-standard structures that do not meet this performance level and have interim protection measures.

Approximately 45% of the road bridge stock comprises masonry arches. This older form of construction includes some assets over 200 years old that do not meet current design specifications for vehicle containment.

9.2.1. Maintenance Backlog

Based on the condition information collected at each inspection, continual structural reassessment, and performance review a work bank of repairs and maintenance works is held for each structure.

The total value of the work bank currently stands at approximately £90 million although this is considered to be a significant underestimate. An enhanced programme of reassessment, structural investigation and feasibility work is required to improve this assessment.

9.3. ASSET MANAGEMENT

The structures asset is currently valued at £1.4 billion with annual depreciation of £15.5m, which supports the strategy of managed deterioration with an annual internal investment of approximately £3m. Opportunities for additional external funding are progressed where available.

This asset group is particularly complex and varied in composition when compared with other asset groups, and this makes accurate modelling challenging. Unlike other asset groups the age range of the assets is vast, ranging from medieval bridges to modern day structures. Structures comprise numerous types and construction forms, from simple timber and masonry structures to complex steel and post-tensioned concrete multi-span structures.

There is an extensive inventory database and well established, nationally recognised inspection regimes for structures. This has resulted in a wealth of information on this asset group held on the Confirm database, which can be integrated with other highway assets to optimise cross-asset programming.

9.3.1. Applying Asset Management Principles to the Structures Asset

The structures asset is managed in accordance with the principles set out in ISO55000, the recognised standard for asset management, to manage risk and cost, whilst complying with legislation. An asset management framework is established to manage the inventory of structures through their serviceable life from construction, through maintenance to disposal. Health and safety files are held for each asset which contain a specific identification reference, ownership, capacity, condition and construction

details. An electronic register of assets is held in the Confirm database, with other supporting electronic files and paper archive.

The Highway Structures Asset Project Quality Plan further describes the asset management processes and scheme delivery requirements in further detail, defining project gateways best practice scheme management and design guides.

9.4. ASSET INSPECTION

In line with the national guidance document Inspection Manual for Highway Structures published in May 2007, a pragmatic approach to structural inspections has been adopted.

9.4.1. Structural Inspections

Structural inspections are a key source of information that feed into the asset management process such that up-to-date condition data can be obtained to evaluate maintenance needs. The frequency of structural inspections is shown in Table 6.

Table 6 – Structural inspection frequency

Structural Inspections	
Type of Inspection	**Inspection Frequency**
Routine safety surveillance	Dependent on classification of route
General inspection	2 years
Underwater inspection	2/4 years
Principal inspection	Risk based programme
Special inspection	As required
Inspection for assessment	As required
Acceptance inspection	As required

9.4.2. Routine Surveillance

Undertaken by County Highway Inspectors who report any defects observed to the Structures Asset Team. This is a programmed inspection generally undertaken from a slow-moving vehicle, therefore only a limited range of defects on structures are generally visible.

9.4.3. General Inspections

General Inspections are undertaken by inspectors who are supervised by a Chartered Engineer. This is a remote visual inspection that reports on the condition of all visible structural elements, notes obvious defects and suggests maintenance requirements. These inspections also report the Bridge Condition Indicator as developed by ADEPT, The Association of Directors of Environment, Economy, Planning and Transport.

9.4.4. Underwater Inspections

Underwater inspections (including access to confined spaces) are undertaken by specialist access contractors who employ qualified divers.

9.4.5. Principal Inspections

Principal Inspections require close detailed examination of all structural components, often requiring specialist access to remote elements. Principal Inspections provide a detailed report of structural condition, recommend maintenance works and also report the Bridge Condition Indicator. Principal inspections are undertaken on structures which have an individual span of length 9.0m or over.

The programme of inspections is risk based to consider known structural defects and element composition. These inspections are undertaken by experienced bridge engineers.

9.4.6. Special Inspections

Scheduled where a defect requires inspection at shorter intervals than facilitated by General or Principal Inspection, or in response to the report of a defect which may affect the safety or stability of a structure. Substandard structures are recorded and monitored on the BD79 schedule.

9.4.7. Inspection for Assessment

Comprising a thorough examination of a structure to determine structural condition and also confirm dimensions of elements such that quantitative structural calculations can be undertaken to determine loading capacity. It may also involve sampling and non-destructive testing of materials and components to determine material properties and condition.

9.4.8. Acceptance Inspection

Undertaken upon acquisition of an asset, either when a new structure is built and received from the constructor, or when an existing asset is transferred from a third party to the County Council for future maintenance. The Acceptance Inspection will review structural condition and quantify any maintenance liabilities and associated costs.

9.5. ASSET PROGRAMMING

9.5.1. Prioritisation of Investment

SCC use the London Bridges Engineering Group prioritisation of bridge maintenance guidance as the principal prioritisation tool. The outputs are

then viewed against strength/capacity factors, then finally against deliverable programme.

The Confirm asset management software allows interaction of data and maintenance needs with other highway assets and network management functions. This allows efficiency in programming and reduction in collective scheme costs. Confirm allows cross functional integration between highways, network, inspection and structures disciplines to maximise utilisation of scheme programming and customer contacts.

Top 5 Asset Risks

Summary

The top five highway risks currently identified in the Highway Asset Risk Register are bridge structures in poor condition. These are summarised below:

Table 7 – Top 5 High Risk Structures

Route and crossing	Structure	Risk	Funding
A449 over West Coast Mainline (Railway)	Moss Pit Footbridge	Failed parapets connections and structural capacity	£2m
School Lane over railway	School Lane Footbridge	Fail structural capacity assessment and rapid deterioration of concrete deck	£1.5m
A513 over River Tame	Chetwynd Bridge, Alrewas	Unstable of Grade 2 listed structure Bypass Structure	£3m £13m
A518 Stafford to Uttoxeter Road	Burndhurst Bridge	Sub-standard parapets	£20m
A449 Wolverhampton Road	Stafford Railway Bridge	Original construction issues – reduced capacity and poor condition of service bay	To be determined

It is important to note that rapidly deteriorating structural assets cannot simply be closed to highway trafficking to remove risk and liability. Without highway loading structures are subjected to ongoing deterioration and climatic effects whereby failure can still occur.

1. Moss Pit Footbridge, Stafford (F2400)

Location

The footbridge was installed to carry pedestrians over the West Coast Railway line, given there is no footpath available on the adjacent road bridge due to limited carriageway width. This route supports the A449 Wolverhampton Road, south of Stafford, with connectivity to junction 13 of the M6. Network availability for maintenance is severely restricted due to commuter demand. This route also forms part of the M6 emergency diversion and is of strategic importance for the movement of heavy abnormal load vehicles.

Figure 6 – Moss Pit Footbridge Images

Asset Risk

The footbridge has now reached the end of its serviceable life and requires removal.

A recent structural assessment concluded the structure should not be accessed by pedestrians in conjunction with wind speeds greater than a 50mph gust due to exceeding its safe loading capacity.

The parapets have deteriorated rapidly over recent years and poses a high risk to highway and rail safety. Parapet replacement is further complicated due to the extensive presence of asbestos.

Required Intervention

The structure requires replacement. Site access is severely limited given the combined restricted access to railway and A449.

Figure 7 – Moss Pit Bridge Construction Drawing

Constructing a replacement in highway land to the southwestern embankment will allow works advanced works to be programmed efficiently for the installation of foundations. A replacement superstructure can be installed overnight in a single rail possession. Following the diversion of utility equipment, the redundant structure can then be removed in a further railway possession.

Proposed Solution

It is recommended that the scheme be completed within five years with an estimated total cost of £2m. Advanced design work is currently progressing and estimated at £200k.

Network Rail have expressed their concern regarding the rapidly deteriorating condition of the parapets, and we have worked with them to installed emergency bracing.

2. School Lane Footbridge, Stafford (F0163)

Location

The footbridge was constructed in 1964 to provide a pedestrian route along School Lane where it passes over West Coast Mainline railway. There is limited carriageway width for pedestrians on the adjacent road bridge, owned by Network Rail.

Asset Risk

Components of the metallic superstructure have failed a structural assessment which concluded it is not capable of supporting its self-weight, therefore required factors of safety are not met and whilst the structure remains in place it is a substantial risk to both highway and rail.

Figure 8 – School Lane Footbridge Deterioration

As shown in Figure 8 there has been extensive deterioration of the concrete deck panels such that loss of support is likely. This represents an additional risk to highway and rail.

Highway alignment is poor given the close proximity to the junction of School Lane and Gravel Lane, with a lack of forward visibility. There has been repeated damage to the adjacent road bridge resulting from vehicle collisions. The steps arrangement at the western approach are not DDA compliant and require vulnerable members of the public to avoid the footbridge and walk in the path of vehicles.

Required Solution

In the interests of public safety, it is recommended to remove the bridge deck from service within 12 months. Required funding is estimated at £500k.

Temporary works are currently being progressed, through discussion with Network Rail, to consider the stability of the bridge abutments once the deck has been removed. Whilst the bridge is out of service it is envisage pedestrians will be diverted on the road bridge, with the protection of temporary traffic management.

Greater efficiency can be achieved by implementing a permanent solution including the installation of a new steel bridge deck, strengthening to the existing abutments and footpath connectivity to the adjacent network. Both temporary and permanent solutions are estimated at £1.5m and recommended for completion within two years.

3. Chetwynd Bridge, Alrewas (B0153)

Location

The Grade 2* Chetwynd Bridge was built in 1824 carrying the A513 Croxall Road over the River Tame. This route is a strategic link from the A38 to National Memorial Arboretum and Catton Park which host many significant public events. Access over Chetwynd bridge is essential during storms of high-water levels given other routes are impassable.

Figure 9 – Chetwynd Bridge, Alrewas

Asset Risk

As a Grade 2 listed structure Historic England impose significant limitations on any modifications or maintenance interventions that may affect the original fabric or appearance. Further environmental restrictions are imposed on the site and surrounding area given the designation of Site of Special Scientific Interest.

The ornate cast iron parapet is primarily a decorative pedestrian handrail and does not provide the required level of containment for unrestricted highway traffic. There have been multiple occurrences of vehicle passing through the parapet with a repetitive maintenance cost and the potential for fatalities.

Figure 10 – Chetwynd Bridge Vehicle Strike

Loading due to greater vehicle weights have increased since construction such that the deck has been replaced twice. Following the introduction of the 40-tonne vehicle a concrete strengthening slab was also installed in 1997. Conservation limitations prevented any strengthening to the cast iron parapet and the impeded the effectiveness of the strengthening slab.

Figure 11 – Chetwynd Bridge Iron Parapet Deterioration

The cast iron parapet has continued to deteriorate through repeated collision damage. The cast iron arch work has become severely cracked and now considered unstable. It is not possible to further strengthen the existing bridge deck.

Emergency concrete barriers were installed in December 2019 in conjunction with the carriageway being reduced from two lanes to one under traffic light control, with speed restrictions reduced from 60 mph to 40 mph.

Historic England have placed Chetwynd Bridge on their Heritage at Risk Register, reference 1038893.

Required Solution

A two-phase strategic plan has been developed for both immediate and medium-term implementation:

Year 1

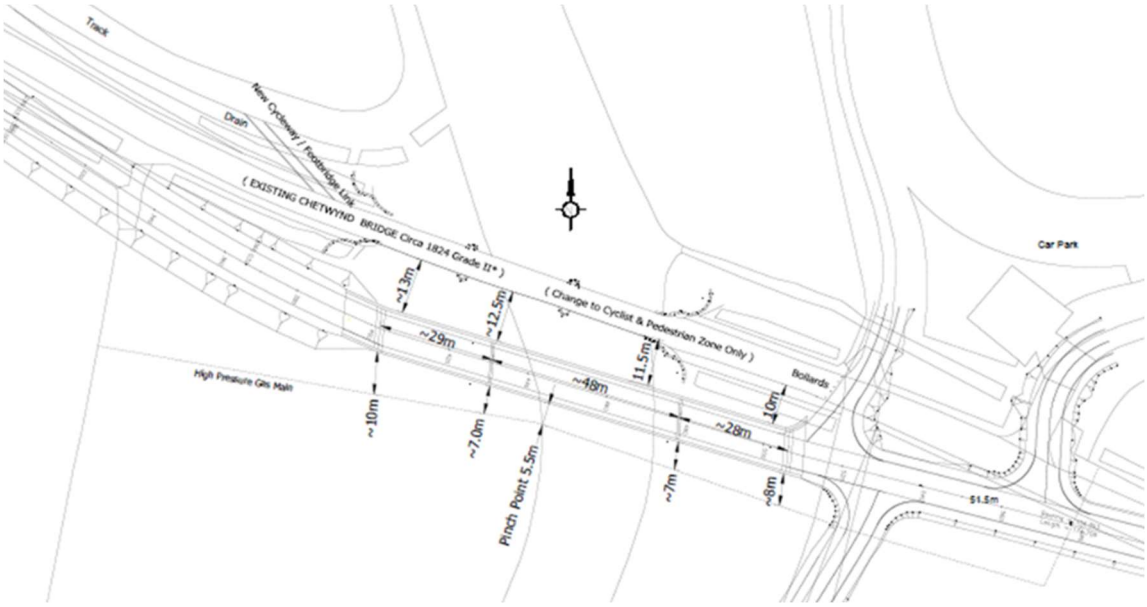
Listed Building consent has been obtained to undertake urgent stabilisation and structural refurbishment of the existing Grade 2 Listed structure, estimated at £3m. SCC has secured a contribution on £2.35m towards this scheme as part of a DfT Challenge Fund bid. These works will stabilise the ornamental parapet suitable for pedestrian restraint, also bearing replacement, essential cast iron and masonry repairs. The metalwork will be repainted.

This is a temporary solution and will continue to be managed as a sub-standard structure, requiring extensive regular inspections and stability checks. The original cast iron elements will continue to be over-stressed requiring the implementation of an 18-tonne restriction. The diversion route for heavier traffic is via Tamworth and incurs a considerable time delay and increased carbon emissions, severely disrupting access to local communities, farming, Catton Park and the National Memorial Arboretum. Access for emergency services will be maintained.

Years 2 to 4

An outline scheme proposal has been agreed with Historic England and Lichfield District/Borough Council as Planning Authority for the construction of bypass structure to restore the network to full availability, with conversion of the Grade 2* Listed structure to a pedestrian and cycle route.

Figure 12 – Chetwynd Bridge – New Design



The design phase can be progressed throughout 2022-23 in parallel to the immediate stabilisation works. The 18-tonne route restriction will remain with increased monitoring until completion of the pass structure, with a cost estimate of £11m, not including optimism bias.

4. Burndhurst Bridge, Loxley

Location

Grade 2 Listed structure supporting the A518 Stafford to Uttoxeter road and key utility equipment over the River Blithe. This route is part of the resilient network with a divisionary route of 35 miles.

Figure 13 – Burndhurst Bridge, Loxley

Asset Risk

Poor horizontal and vertical profiling of the carriageway, combined with restricted carriageway width appear to have contributed to 12 accidents since 2004, resulting in repeated demolition of the heritage parapets. The parapet has sub-standard parapet containment and width restrictions preventing the installation of safety barriers.

Fortunately impact damage has been confined to the parapets, however the frequency of significant damage to this vulnerable aged arch structure may worsen such that the structure and network is taken out of commission without notice for an extended period. This would severely impact the economy and access for emergency services.

Required Solution

Land was acquired by Staffordshire County Council in December 1996 to construct a bypass structure as shown in Figure 14.

Figure 14 – Burndhurst Bridge, Land Acquired for Bypass Construction

Further to the draft alignment and land purchase the scheme requires progression through detailed design and consultation. It is recommended to deliver this scheme within a 10-year period with a current estimated cost of £20m.

5. Stafford Railway Bridge, Stafford

Location

Supporting the de-trunked A449 Wolverhampton Road over West Coast Mainline railway near Stafford Station, this structure forms part of the M6 diversion, plus abnormal load and resilient networks.

Asset Risk

Prior to the transfer of this structure from National Highways to Staffordshire County Council as part of the de-trunking programme, the present defects were identified. It appears original construction issues have resulted in the reduced capacity and poor condition of the service bay located beneath the verge. High containment kerbs have been installed to restrict access; however, the condition of the concrete soffit continues to deteriorate with the risk of material falling onto the railway.

Figure 15 – Stafford Railway Bridge Failure

Reinforcement bars have been removed from vulnerable areas of the soffit to prevent contact with overhead electrification. Catenary supports now further complicate access for maintenance.

Required solution

An effective repair is currently difficult to accurately define given restricted access to the rail environment and variable condition of defects. Working time is limited to only several hours within a possession, which may be suspended by Network Rail without notice. Multiple possessions are required to undertake reinforcement and concrete repairs to the soffit. Further reinforcement within the highway verge is required to stabilise the parapet, protect utility equipment and increase loading capacity.

Throughout 2022-23 track possessions will be utilised for restoration of supporting steel trestles, also taking this availability to further plan soffit repairs for completion within five years. A scheme costs estimate is not currently available.

9.5.2. Medium to Long Term Forecasting

The authority is also looking to use the Structures Asset Valuation Investment Toolkit (SAVI). SAVI is a multi-functional, condition-based decision support tool.

It was developed for the UK Bridges Board through the /DfT/UKRLG research funding to assist local authorities and asset operators. It can be used to:

- carry out valuation of structures stock,
- develop prioritised short-term programmes of work, and
- develop long-term asset management plans

We take a risk-based approach to decide where to invest our money and use the asset information we have about the bridges and highway structures to do this. Some of the things we consider include the following:

- Where is the defect? Is a "critical element" (a part of the asset that is vital to its structural integrity) affected?
- What is the risk to highway users?
- Does the structure carry/support a road on the Resilient Highway Network, high-speed road, main road, minor road or footway?
- Does the structure span a high-speed road, main road, minor road or footway?
- Does the structure carry high volumes of traffic?
- Are there suitable alternative routes if the structure fails?
- What is the risk to third party assets? Does the structure support or span a railway, river, watercourse or other third-party asset? Is access to critical infrastructure such as powers stations or hospitals affected?

Investment is prioritised where the risk is highest.

We also consider how to invest our budget based on the condition of our assets. This enables us to determine how much work is needed to restore them and whether it is more cost effective to replace them completely. In many cases we can protect our bridges and highway structures and maximise their lifespan by undertaking minor maintenance, cleaning, painting and waterproofing them. This work requires a commitment to repeat investment but can significantly reduce costs in the longer term. Nevertheless, in some instances the asset has been damaged beyond repair or simply reached the end of its useful life. In these instances, renewal is the only option.

Investment is also directed by network availability. For example, where maintenance is necessary in the vicinity of a rail line we are required to apply for permission for occupation.

Finally, we need to consider our investment in the wider context of the highways service.

Having assessed each site, we are able to collate a prioritised list of works.

9.5.3. Investment aspirations

The delivery of bridge and other structural maintenance schemes can take several years to plan, given the extensive investigation, testing, design and consenting processes. Confidence in funding is required to delivery schemes, with greater certainty in network utilisation and to meet environmental requirements. It is often not possible to delivery quickly.

Table 8 – Short Term Capital Funding Need

Capital Funding	**22/23** £,000's	**23/24** £,000's	**24/25** £,000's
Asset Management	300	300	300
Capacity Assessment	65	65	65
Scour Assessment			
Forward Design Programme	250	250	250
Abnormal Load Management	95	95	95
Laboratory Testing	38	38	38
Low Headroom Signage	15	50	50
Essential Minor Maintenance	200	200	200
Principal Inspection	65	65	65
Coley Lane Parapet Strengthening			
Yoxall Trent Stabilisation			
Chetwynd Bridge 18T Limit / Stabilisation	3,000		
Chetwynd Bridge Bypass Structures	100	100	13,000
School Lane Footbridge Strengthening	300	1,200	
Moss Pit Footbridge Replacement	100	1,900	
Dunston Bridge Replacement	100	300	
Greensforge Bridge Strengthening	100	250	500
Swythamley Landslip Stabilisation	100	400	
Total	**4,828**	**5,213**	**14,563**

Excludes external contribution from DfT

Table 9 – Short Term Revenue Funding Need

Revenue Funding	**22/23** £,000's	**23/24** £,000's	**24/25** £,000's
Routine Maintenance	60	60	60
Preventative Maintenance	350	350	350
Reactive Maintenance	350	350	350
Subway Maintenance	20	20	20
Dam Management and Maintenance	110	110	110
Van Running Costs	32	32	32
Highway Bridge General Inspection	185	185	185
Underwater Inspection	100	100	100
Total	**1,207**	**1,207**	**1,207**

Not included for inflation

Volume 5 – Vehicle Restraint Systems

10.1. INTRODUCTION

The main purpose of Vehicle Restraint Systems (VRS) is to prevent vehicles impacting hazards or leaving the highway on to critical third-party infrastructure. A high percentage of VRS is located within the central reserve and ensures segregation between traffic travelling in opposite directions, preventing high-speed head-on crashes.

Additionally, objects next to the road can present a significant hazard to the road user and there is a clear need to ensure that they are reasonably protected. Examples of such objects would be structures, large signs, lamp posts, or where there is a large difference in level near to the road edge.

Vehicle restraint systems do not stop accidents from occurring and they should only be used when other measures are considered inappropriate or ineffective.

10.1.1. Stakeholder Expectations

VRS is an asset that generally goes unnoticed by most road users until it is required in event of a vehicle leaving the carriageway.

10.1.2. National Highways and Transportation Public Satisfaction Survey

There are no customer satisfaction measures in the NHT public satisfaction survey that directly relate to the management of highway vehicle restraint systems.

10.1.3. Customer Reports and Enquiries

Requires further development and subject to data verification.

10.1.4. Defects

Requires further interrogation of job coding and data verification.

10.1.5. Claims

Claims relating to vehicle restraint systems are generally recharges for damage to the asset rather than claims for personal injury or damage as a result of a fault of the asset.

10.2. ASSET CONDITION

There is currently no recorded inventory of the location, extent, type and condition of VRS. However, Gaist Solutions Ltd have been appointed to carry out a full inventory collection in 2022.

The collection of a full inventory will provide the foundation for a risk-based approach to the management and maintenance of existing VRS to ensure a consistent and optimum performance across Staffordshire. This will ensure:

- new vehicle restraint systems are only installed after all other measures have been considered.
- vehicle restraint systems are to be recorded on the Confirm Highway Asset Management System.
- maintenance of vehicle restraint systems will be prioritised following a risk-based approach.
- where we propose a departure from national standards or guidance this decision is fully risk assessed and signed off by appropriate personnel.

10.3. ASSET MANAGEMENT

VRS will be maintained in a sound structural condition and to the correct height, so that they fulfil their purpose and do not, in themselves, constitute a danger to road users or pedestrians.

VRS are provided for the protection of the travelling public both vehicular and pedestrian. Effective maintenance is essential to meet these requirements.

10.3.1. Future Management of the VRS Asset

We recognise that there has been limited asset management, including condition assessment of VRS. Funding Has been provided to survey the entire VRS asset in 2022 which will enable us to determine the condition, extent and maintenance backlog of the asset.

When we have the data and tools in place, we will be carrying out similar analysis as we have with other asset groups. This will enable us to determine more robustly the effect on asset condition of various funding scenarios and enable us to produce an evidence-based forward works programme.

10.4. ASSET INSPECTION

There are two types of checks, planned inspections and reactive inspections.

10.4.1. Planned Inspections

Planned inspections include general highway safety inspections and are carried out as part of our cyclical maintenance regime:

- Our team of highway inspectors carry out visual safety checks to make sure the highway assets are in a safe condition. This includes visually checking that the VRS is not damaged or missing. We carry out this kind of check at least once every twelve months.

- Our Highway Structures Team carry out cyclic inspections of highway structures and inspect VRS which are adjacent to the structure, for the purpose of the protection of that structure.

10.4.2. Reactive Inspections

Reactive inspections are carried out in response to enquiries and generate ad-hoc and emergency works orders for repair. These enquiries may be initiated by colleagues within partner organisations such as the Police or National Highways and from members of the general public.

10.4.3. Condition Assessment

Assessment of defect and historic spend does not reflect the true demand placed on the asset as there has been no defined cyclical condition survey regime.

10.5. ASSET PROGRAMMING

10.5.1. Prioritisation of Investment

When deciding where to spend our money we think about the risks posed to the road users, including:

- If the VRS fails, does it create a hazard to road users?
- If the VRS is breached, is there likely to be a secondary event, i.e., a structure, another road or railway?
- Serviceability of the VRS system.
- Compliance of the VRS system.

We also consider:

- The type of road, for example, the maintenance hierarchy, whether it is a high-speed or on the resilient network.
- The volume of traffic that uses the road, for example is it a main route in and out of a town or is it a minor road only used by a handful of drivers each day?
- The accident history of the road.

10.5.2. Value for Money

A long-term programme of work will be developed giving opportunity to achieve efficiency through cross asset priority. Early contractor engagement can then seek to achieve innovative solutions for further cost savings.

Through programme coordination and visibility of future SCC schemes which may affect other key highway asset or major improvement scheme, we adjust its place in the programme so that we can combine activities in order to maximise financial efficiencies.

Whilst it is recognised that the vehicle restraint systems provide an additional protection historically a few vehicle restraint systems have been erected that under current assessment would not meet with the criteria for new infrastructure. At these sites the works scheme may not replace a VRS as it may not be assessed to be required, or it may not be possible to install a new VRS compliant with standards at the location. Instead, the approach referred to in the UK Roads Boards Liaison Groups "Provision of Road Restraint Systems for Local Authorities" will be used and alternative measures may be installed if the level of risk justifies it. These alternative measures could include installing containment kerbing, bollards or additional signing/lining.

10.5.3. Other Significant Factors affecting VRS Maintenance

Proportion of asset at end of life

VRS, like many assets, have not historically been asset managed and as a result, a significant proportion could be considered life-expired or not meeting current standards. There will be VRS assets on the network that could be in excess of 40 years of age, especially on the lower classification of roads. Work will be prioritised on a priority basis which considers the risk of failure.

All vehicle restraint systems were installed to comply with the standard specification of the time, we will not automatically replace VRS that no longer conforms.

RTC damage and non-recoverable costs

Damage by third parties accounts for the majority of reactive repairs. Significant efforts are made to recover costs from third parties where driver details are available. There are, however, collisions where the VRS keeps vehicles on the road and drivers are able to leave the site without Police or our involvement.

High Speed Roads

The most critical VRS are on the high-speed strategic road network. This network is difficult to access without creating local congestion and therefore the majority of repair and upgrade works are undertaken at night, which has a cost implication.

Volume 6 – Street Lighting and Illuminated Signs

11.1. INTRODUCTION

In 2003 Lighting for Staffordshire were awarded a 25-year PFI (Private Finance Initiative) contract to carry out the renewal of life-expired road lighting and illuminated traffic sign equipment on the road and streets of Staffordshire (excluding trunk roads passing through the county), together with the ongoing maintenance activities including routine and emergency fault attendance and rectification. Operational delivery is provided by E.ON Energy Solutions Limited. The contract currently covers 108,000 pieces of apparatus.

The types of illuminated apparatus maintained are:

- Street lights
- Lit road bollards
- Belisha beacons
- School Amber Flashing Units
- Lit traffic signs
- Subway lights

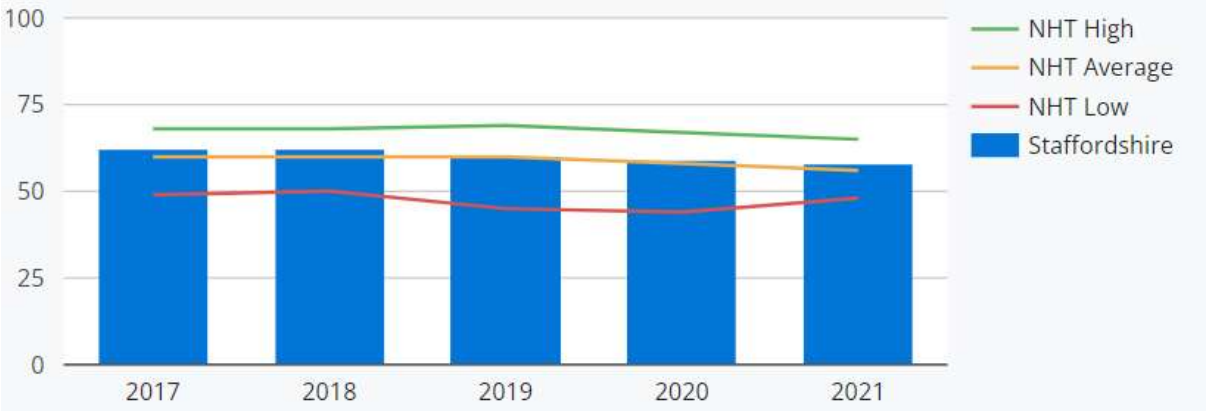
11.1.1. Stakeholder Expectations

Street lighting provides a number of important benefits. It can be used to promote security in urban areas and to increase the quality of life by artificially extending the hours in which it is light so that activity can take place. Street lighting also improves safety for drivers, riders, and pedestrians.

11.1.2. National Highways and Transportation Public Satisfaction Survey

The key street lighting measure within the NHT survey relates to how satisfied people are with the speed of repair of street lights. This isn't always in the authority's control as sometimes we require assistance from electricity providers. Customer satisfaction with the response to street lighting repairs is above national average and has been relatively consistent across the 5-year period shown in chart 30.

Chart 30 – Public Satisfaction with Speed of Repair to Street Lights



11.1.3. Customer Reports and Enquiries

Not available at time of writing.

11.1.4. Claims

Claims relating to street lighting are generally recharges for damage to our asset rather than claims for personal injury or damage as a result of a fault with our asset.

11.2. Asset Condition

11.2.1. Lighting Standards

When considering the provision of street lighting regard shall be given to the following aims:

- Increased safety for all users of the highway with special consideration being given to vulnerable groups such as pedestrians, cyclists, elderly, disabled and children. The reduction of night-time accidents is a principal aim.
- The convenience of all highway users and the enhancement of the night-time environment with special reference to lighting in sensitive areas.
- Increased personal security and the reduction of the fear of crime.
- Increased security to property including the deterrence of vandalism.
- The reduction of both night-time and day-time environmental intrusion.

- The provision of cost-effective lighting, which is energy efficient and takes account of whole-life costs.
- Choosing a design that is suitable for the context in question.
- Access, maintainability and longevity of the completed Lighting Scheme for the entire design life of the assets.
- New or replacement lighting shall be LED.

11.3. ASSET MANAGEMENT

All illuminated assets are recorded in a dedicated Asset Management System.

11.3.1. Apparatus Renewal and programming

All items of apparatus; street lights, illuminated signs and bollards, which exceed their anticipated lifespan or fail to meet structural standards, will be replaced.

The Asset Replacement programme is ongoing throughout the contract term.

For conservation or special interest areas, consultation will be held with appropriate local authority conservation offices, where appropriate, before renewal is undertaken.

Residents will be notified a minimum of one month before planned renewal work commences under normal circumstances, and details will also be published on the Council's website where it will be updated as required.

11.3.2. Routine Maintenance

All apparatus will be inspected at least once every three years to ensure its' electrical safety, optical performance, structural condition and decorative condition are acceptable.

Any apparatus not meeting acceptable standards will be repaired or replaced.

Lamps will be renewed on a planned basis to maintain lighting standards.

Inspectors carry out night-time checks on all units once a month to check that they are correctly lit. Any faults will be logged for repair.

11.3.3. Faults and Emergencies

We will endeavour to repair most faults within 5 working days of receiving notification.

Emergency faults, where there is a significant risk to the public or property will be attended with 2 hours of notification.

The site of any emergency will then be attended until the apparatus has been made safe. A full repair will normally be made within 25 working days.

Power failure faults relating to the electrical network will be referred to the relevant electricity supply company for repair within their respective standards of service.

Volume 7 – Intelligent Transport Systems (ITS)

12.1. INTRODUCTION

The term Intelligent Transport System (ITS) refers to the application of information and communications technology to transport infrastructure, enabling data to be collected and shared to maximise the efficiency of the highway network.

ITS comprises a variety of technologies, ranging in their complexity and functionality. They include technologies designed to; monitor and capture data, manage and control systems.

Traffic signal installations form an important part of the highway network, and the effective operation and maintenance of these installations are pivotal for the safe movement of traffic, pedestrians and cyclists. Road networks are becoming more and more congested and therefore the need for maintaining the traffic signal installations and indeed other highway infrastructure is becoming increasingly important. Congestion causes increased delays to journey times and this impacts on the economy and the environment (raised levels of carbon dioxide).

12.1.1. Stakeholder Expectation

Traffic lights, pedestrian crossings and traffic signs are designed to control the flow of traffic on the roads and help keep motorists, pedestrians and cyclists safe when moving around our city.

12.1.2. National Highways and Transportation Public Satisfaction Survey

There are no customer satisfaction measures in the NHT public satisfaction survey that directly relate to the management of ITS although there are measures indirectly related such as congestion.

12.1.3. Customer Reports and Enquiries

Not available at time of writing.

12.1.4. Claims

Claims relating to ITS are generally recharges for damage to our asset rather than claims for personal injury or damage as a result of a fault of our asset.

12.2. ASSET CONDITION

SCC have an in-depth inventory of our ITS assets. Assets are managed through a product called IMTRAC. IMTRAC is a sophisticated system that can calculate asset power draw, determine current site value and replacement cost and support development of replacement/upgrade strategies.

An all-in Contract for maintenance to traffic Signals and pelican crossings is in operation. Dynniq UK are responsible for the fault attendance, planned maintenance and traffic signals upgrades and refurbishments.

The traffic signals lifecycle planning considers the whole asset including the tactile paving, zig zag lines and the loop and the signal head.

Dynniq has worked alongside Staffordshire County Council and Ian Routledge Consultancy Ltd to complete an in-depth asset data collection of Intelligent Transport Systems (ITS) assets.

12.2.1. Emergency Service

A resourced answering service to receive and record faults notified in respect of the equipment is in operation. Cover is for 24 hours a day, 7 days a week, including all Public and Bank Holidays.

12.2.2. Response and Repair Times

In respect of urgent faults, attendance on site is to be within 3 hours of receipt of the fault notification. Where necessary “first-aid” remedial repairs, to facilitate safe signal operation, are to be carried out within 8 hours of receipt of the fault notification.

In respect of the non-Urgent faults, attendance on site is to be within 24 hours of receipt of the fault notification. Full repair of these faults shall be affected within 24 hours of the receipt of the fault notification except for detector loops/feeders, for which an order has been placed.

12.2.3. Urgent Faults

Urgent faults are attended to within 3 hours. The following shall comprise Urgent Faults:

- All signals unlit.
- Signals failing to change.
- Defective signals which, although not in accordance with the first two points, are likely to cause excessive queues and have caused abnormal traffic conditions which County Council/Agent Authority considers urgent.

- Signals damaged and in a dangerous condition.
- Any Red Lamp failure.
- Signals giving conflicting indications.
- Lanterns turned to give conflicting indication.
- Any fault in the control centre computers, or its peripherals, which can cause loss of control of the system, or cause excessive traffic congestion.
- Any data transmission fault involving loss of communication with one or more Outside Transmission Unit (OTUs).
- Remote monitoring installation defects.
- More than one lamp out on any approach.

12.2.4. Non-Urgent Faults

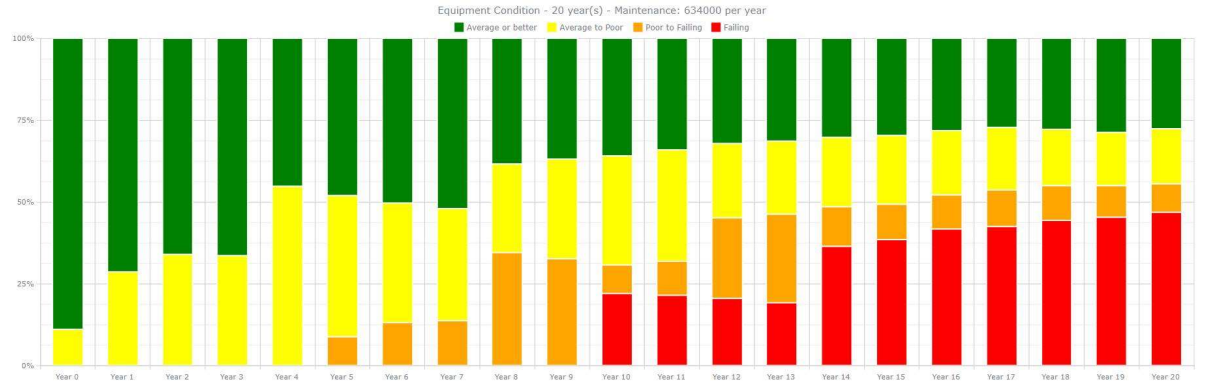
Non-urgent faults consist of all other faults not classed as urgent.

12.3. ASSET MANAGEMENT

Using the IMTRAC asset management system we have been able to predict the effect on asset condition of a range of maintenance strategies and budgets.

The current annual capital budget for ITS is £634k per annum. Chart 31 shows the projected condition of the asset when constrained by this budget whilst optimising our maintenance strategy.

Chart 31 – ITS Lifecycle Plan



	Year (Count per category)																				
Category	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Green (Average or better)	491	395	367	369	251	268	281	291	215	207	202	192	182	178	172	170	161	156	160	165	159
Yellow (Average to Poor)	61	158	188	186	304	240	204	192	151	171	168	192	128	126	121	119	113	110	98	94	97
Amber (Poor to Failing)	0	0	0	0	0	49	73	76	193	153	49	59	139	154	88	82	80	84	81	55	51
Red (Failing)	0	0	0	0	0	0	0	0	0	0	123	120	115	108	207	219	238	243	254	260	269

Based on the current budget the asset will continue to deteriorate.

Using IMTRAC we have been able to determine that to keep the network in its current condition will require a base budget of £1.2m per year.

12.4. ASSET INSPECTION

Inspections are carried out annually on all traffic signal assets.

12.5. ASSET PROGRAMMING

Traffic signals typically deteriorate on a linear basis and have an expected useful life of between 15 and 20 years. However, newer technology is making parts last longer, for example LED.

IMTRAC considers this lifecycle when prioritising sites for maintenance or upgrade. We also take into account customer contacts and the local knowledge of maintenance engineers when developing our prioritised candidate list of schemes.

Volume 8 – Soft Landscapes

13.1. INTRODUCTION

The County's soft landscape assets include more than 2.2 million square metres of urban grass and 5,800km of rural grass verges along with bushes, shrubbery and wildlife and habitat sites.

The Council recognise that highway verges are a valuable resource for wildlife and biodiversity and, as such, they need to be managed with care and attention. As well as being a wildlife refuge, they also contribute greatly to the visual appeal of the street scene and are easily accessible to all.

If managed appropriately Staffordshire's soft landscape can provide interconnected wildlife corridors supporting a wealth of wildlife including plants, bees, butterflies and reptiles.

13.1.1. Stakeholder expectations

These are viewed as important assets that contribute both to the quality of life in Staffordshire, its sustainability and its biodiversity and also helps define the nature of local communities.

13.1.2. National Highways and Transportation Public Satisfaction Survey

Public satisfaction in the management of the SCC green estate is below the national average and is decreasing in line with the overall national trend.

Chart 32 – Public Satisfaction in maintenance of highway verges/trees/shrub

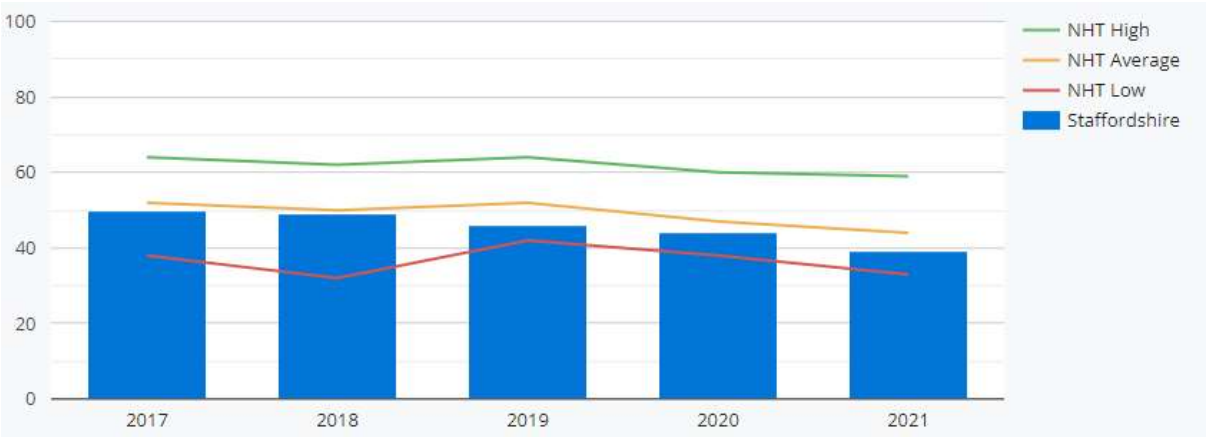
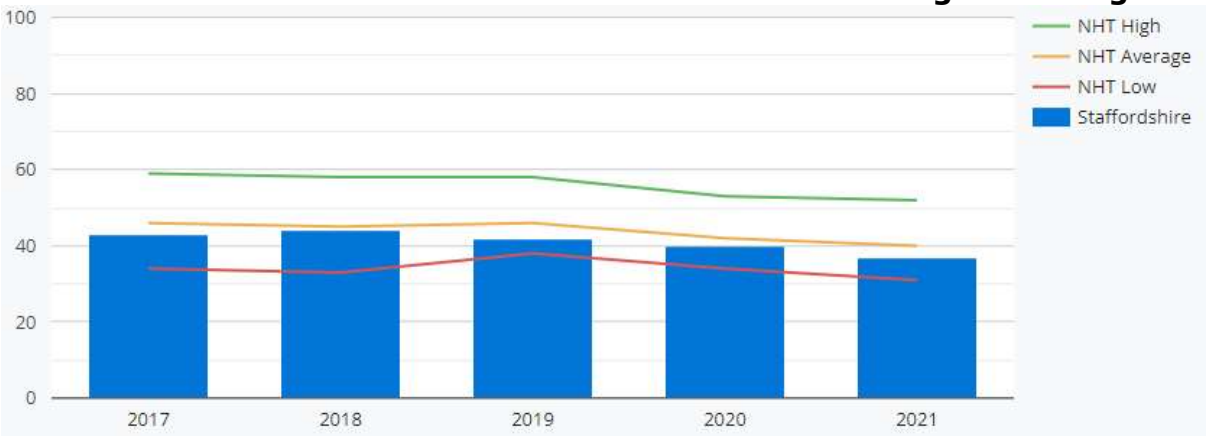


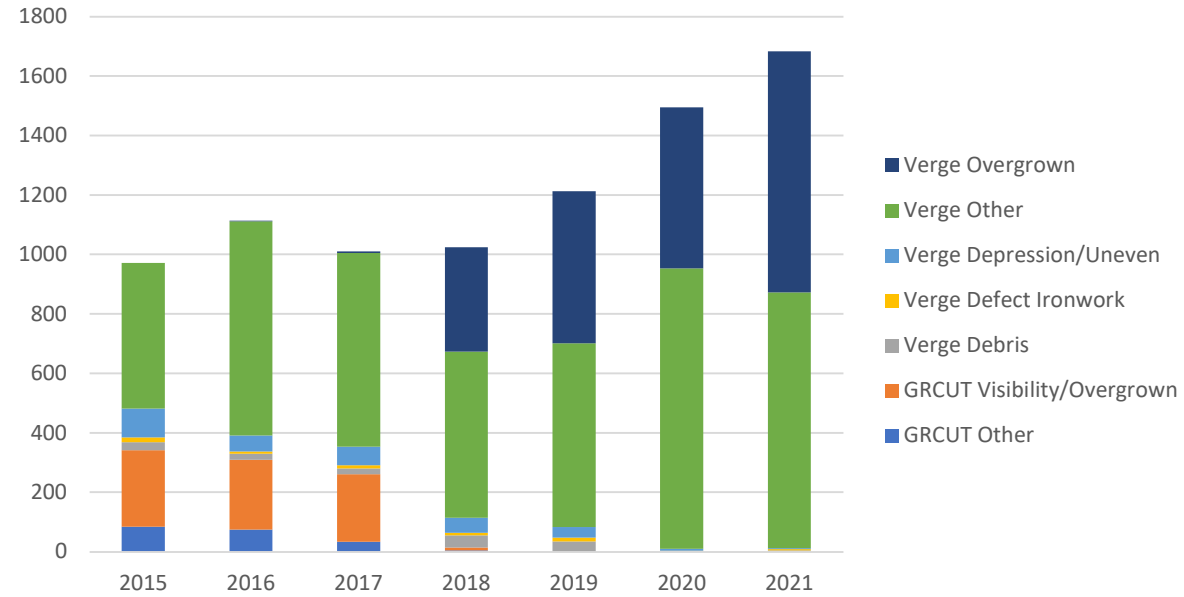
Chart 33 – Public Satisfaction in how SCC cuts back overgrown hedges



13.1.3. Customer Reports and Enquiries

Customer Enquiries and reports about soft landscaping have increased by over 50% from 2018. Before 2018 the number was averaging around one thousand per year but in 2021 this has grown to almost 1700. Changes to reporting have reduced the options available but the majority of the increase appears to be due to reports about overgrown verges.

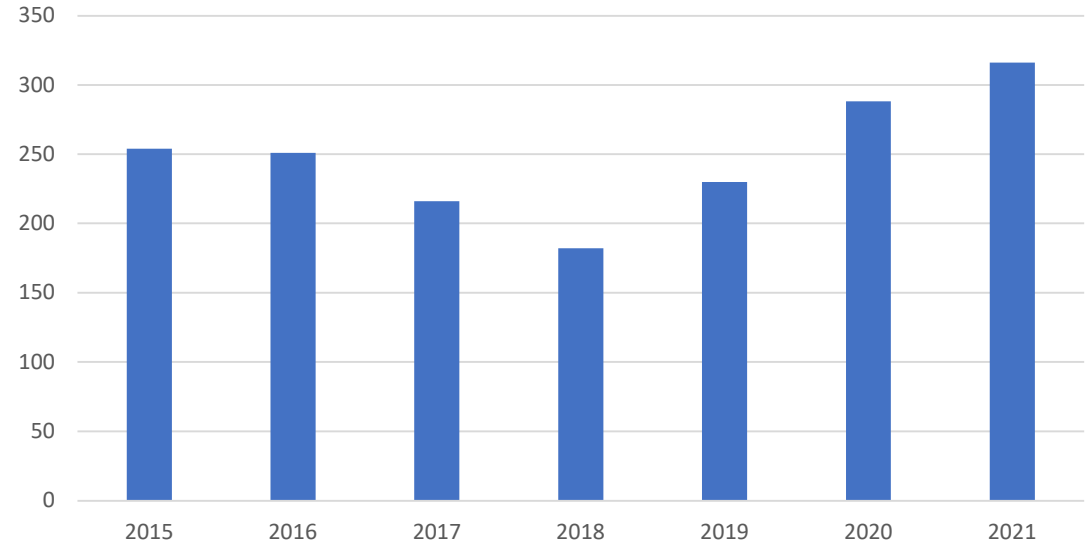
Chart 34 – Soft Landscaping Customer Enquiries



13.1.4. Defects

The number of jobs raised for highway verges has been increasing since 2018. A further 140 jobs have been raised in 2021 compared to 2018, this represents a 75% increase.

Chart 35 – Verge Defects Raised



13.1.5. Complaints

We often receive enquiries and reports about parking on grass verges.

Parking on grass verges is a widespread issue nationally across all local authorities and can have a big impact on people. It causes conflict between those residents who wish to park on verges and those who would like to see verges protected in order to care for and enhance the appearance of the area. Uncontrolled verge parking can reduce verges to an unsightly state, present a hazard to pedestrians and other road users, make it difficult to maintain and cause damage to street trees.

It is not against the law to park on a grass verge. Exceptions to this are:

- heavy goods vehicles (HGVs) that weigh more than 7.5 tonnes (section 9 of the Road Traffic Act 1988)
- when there is a bylaw to stop parking on a grass verge
- when parking on a grass verge breaks a traffic regulation order (TRO)

Where there are no waiting restrictions on the road, enforcement can only be carried out by the Police, but they are only likely to take action if the parking is causing an obstruction, such as a situation where pedestrians, pram or wheelchair users are being forced into a busy road as a result of parking blocking the verge or pavement. Such cases should be reported to the Police on the non-emergency phone number 101.

What action can SCC take?

Where stones or similar objects are placed on the highway, in such a way as to prevent or obstruct public use of the highway, then the Highway Authority may serve notice that the objects should be removed.

Where boulders or similar objects are placed on the highway verge, in such a way as to prevent or obstruct safe public use of the highway, then the County Council, may request and then further serve notice on the offenders that the obstructions be removed. If this course of action has no effect, then the County Council would seek assistance to obtain a Magistrate's Removal and Disposal Order, in respect of such obstructions. However, if they constitute an immediate safety hazard, the Council will arrange for their removal.

A boulder or similar object more than 100mm diameter is considered to be a potentially hazardous obstruction and any such item that has been placed on the highway verge to deter vehicles, or beautify a frontage, must be considered a hazard.

Where boulders or similar objects are placed to preserve the appearance of a well-maintained verge or grassed area and where they are clearly visible, well set back from the edge of carriageway and do not constitute obstructions of a hazardous nature (e.g., village green features etc.), the policy may be one of "non-disapproval". This still means that the County Council cannot authorise their presence, as technically, they are still classed as obstructions, but based on an assessment of risk the Council may decide that no action will be taken to remove them. Sites where obstructions can be ignored must be at the discretion of the County Council.

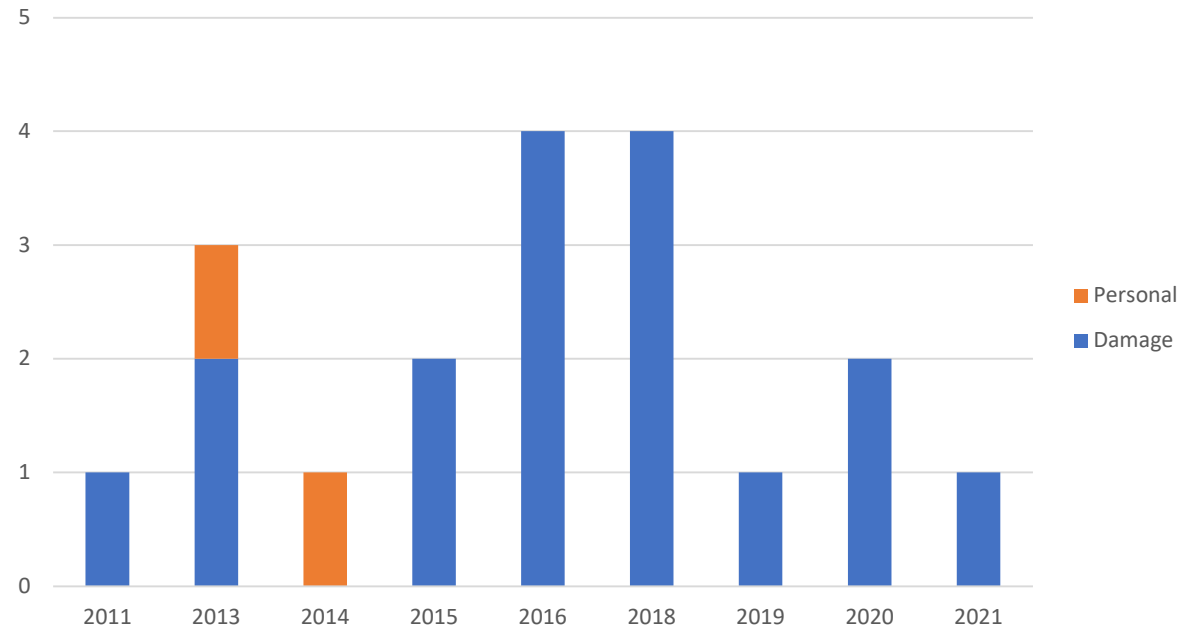
As a more sustainable and resilient alternative, we may accept the planting of trees or shrubbery in the verge to deter parking. Small, young trees (suitable for the public highway) can be planted at the required spacing for the type of tree. However, overhead cables, underground services, nearby street lighting columns and other street furniture often prevent this.

Section 96 of the Highways Act 1980 empowers a District, Borough or Parish Council to plant and maintain trees or shrubs in a highway maintainable at public expense, subject to the consent of the County Council. The District, Borough or Parish Council will be required to indemnify the highway authority against third party claims arising as a result of the tree being planted in the highway. The highway authority will not maintain such trees. The Parish/District should agree to maintain to SCC requirements at their costs ongoing prior to planting.

13.1.6. Claims

There are very few claims received each year which relate to highway grass verges and not enough to recognise any defined trend. Most of the claims received relate to the actual operation of cutting the verge rather than the use thereafter.

Chart 36 – Grass Cutting Claims by Type



13.2. ASSET CONDITION

There is no defined condition collection regime for verge assets. Records on soft landscape assets are currently maintained in plans mapped by district area but are not necessarily complete. Further information on assets will generally only be considered where this is required, for example to enable the implementation of a different maintenance regime or delivery arrangement.

13.3. ASSET MANAGEMENT & LIFECYCLE PLANNING

The authority commits a significant amount of resources each year to maintaining our soft landscape green infrastructure. The main focus of the maintenance regime is to ensure road safety, so for example we cut grass verges to ensure that vegetation does not restrict visibility for highway users and to provide a safe refuge for pedestrians.

We do not envisage developing lifecycle plans for soft landscaping at the current time although risk-based maintenance and environmental benefit is a consideration.

13.4. ASSET INSPECTION

Our team of highway inspectors carry out driven and walked highway inspections. As part of their inspection, they inspect grass, shrubs and vegetation for encroachment and obstruction which may affect visibility and safe use of the highway network. The frequency of inspections is dictated by road hierarchy.

We do not undertake planned detailed or condition inspections on our soft landscape assets as they are subject to cyclical maintenance activity which is then subject to a sample quality control inspection.

13.5. ASSET PROGRAMMING

Various routine operations are required to keep the highway verge, central reserves, cuttings and embankment slopes in a safe condition. These include inspecting and removing obstructions and cutting grass and vegetation to maintain visibility.

13.5.1. Siding of Verges

Siding of verges should only be considered where the encroachment of the verge onto the footway is likely to cause damage to a footway, or where encroachment is sufficient to cause a marked reduction in width. This work is usually only undertaken when there is planned footway works such as footway slurry or resurfacing.

Siding of kerbed roads should only be considered when the encroachment of vegetation obscures the kerb. It is anticipated that, in most cases, this will be achieved by chemical treatments. On un-kerbed roads, siding should only be carried out in advance of surface dressing, and only where absolutely necessary.

13.5.2. Grass Cutting

We carry out grass cutting on public highway verges predominantly to maintain visibility and enhance the safety of highway users. We are not responsible for grass cutting on public open spaces, village greens, verges which are not highway maintainable at public expense, or verges next to roads in Staffordshire which are maintained by other authorities - such as trunk roads.

Some housing associations also carry out maintenance on areas of grass that form part of their own land.

We separate our highway verge maintenance into two programmes; rural grass cutting and urban grass cutting and there are several delivery partners engaged in this work on our behalf.

Verges will be maintained in a safe condition with particular care being applied to ensuring that visibility is not impaired. Grass will be cut to standards designed to ensure that, in normal weather conditions, growth does not present a road safety hazard to any class of road user.

Urban Grass cutting

Urban grass cutting is a routine maintenance operation, broadly carried out on roads with a speed limit of 30 mph or less and is sometimes undertaken on our behalf by the District, Borough or Parish Council in whose area the road is located.

Since April 2020 urban grass is cut a minimum of six times throughout the growing season. Our duty is about maintaining safety and visibility and not about aesthetics or tidiness. We do not have the resources available to collect grass cuttings following this activity; instead, this is left to mulch down into the verge areas.

Whilst this grass will be cut to a minimum standard of six cuts per year, some local District/Borough Councils may choose to deliver additional cuts to improve the general aesthetic feel of an area. Advice and guidance are available to local councils on how to undertake grass cutting and other forms of roadside maintenance should they wish to do so.

Rural Grass Cutting

Our main priority for rural grass cutting is to maintain visibility and safety for road users. We do not have the resources available to collect grass cuttings afterwards, so these are left to mulch down into the verge areas.

The rural programme is generally undertaken on roads with a speed limit of 40mph and above and there are two regimes in operation depending on whether they are classed as Priority 1 or Priority 2 in the grass cutting programme.

The rural grass cutting programme involves a 1m wide single swathe cut three times per year for Priority 1 routes and a 1m wide single swathe cut twice a year for Priority 2 routes. Generally, the swathe will be adjacent to the carriageway but, in some locations it may be set back due to the presence of a footway or cycleway.

In some parts of the county, due to arrangements to protect local wildlife, some locations are only cut once per year.

Areas that need to be cut back at junctions and bends for good visibility are generally cut to full width.

All grass is to be cleared around columns, safety fences, signposts and walls, and grass which cannot be cut by machine, is to be trimmed by other means.

No grass is collected for removal. However, grass which is deposited on footways will be swept up and deposited on the adjacent verges.

Verge Maintenance

This item is to include the repair of verges in urban areas, only where the verge is a significant environmental feature, or to prevent damage to grass cutting machinery.

Roadside nature reserves

Designated roadside nature reserves will have bespoke cutting regimes as agreed by Staffordshire County Council. These will usually be Sites of Special Scientific Interest (SSSI) which is a formal conservation designation.

13.5.3. Weed Spraying

Weed spraying is a routine maintenance operation undertaken to mitigate structural damage to highway infrastructure and/or for safety/visibility reasons. It is not necessarily carried out to improve the aesthetics of an area.

A single weed spraying treatment takes place between June and August. In rural areas, for roads with a speed limit of 40 mph and above, existing weeds along the kerb and channel will be treated. In urban areas for roads with a speed limit of 30 mph and below, we will spray the kerb, channel and the back of the footway (pavement) where a hard edge such as a fence or wall exists, if weeds are present. No provision is made in the budgetary allocations for the treatment of weeds growing in flagged footways.

Due to regulations associated with the toxicity of weed spraying chemicals, the solution used by our contractors is very mild and is only effective on growing plants. Spraying is therefore only undertaken where weeds are present, and the solution's effectiveness can be drastically reduced if rainfall occurs after treatment. We do not have the resources to carry out additional weed spray visits.

Some District/Borough Councils undertake weed spraying operations in advance of their urban grass cutting programmes particularly around street furniture, to avoid the need for strimming operations.

In recent years the frequency of weed spraying has reduced from 3 times per year to once.

The growth of weeds in footways and cycleways, central reserves and along kerb lines, may cause structural damage, and the general perception of such growth is that it is untidy.

Weed treatment typically costs £75k per year. To increase this service to two treatments would require an additional £75k per year investment.

Weed growth attracts 1,086 customer enquiries per year.

13.5.4. Injurious Weed Control

The Noxious Weeds Act 1959 places a responsibility on the Highway Authority to take action to inhibit the growth and spread of injurious weeds growing within the highway.

In Staffordshire, injurious weeds are treated in accordance with a programme. Our control methods for injurious weeds are used to address known locations where there are accumulations of Japanese Knotweed, Himalayan Balsam or Giant Hogweed.

Japanese Knotweed will receive one treatment a year. Common Ragwort is very important for wildlife in the UK. It is a major source of nectar for many insects. However, all parts of the plant are poisonous and are a hazard to grazing livestock. SCC will only treat Common Ragwort where there is a clear hazard to grazing livestock.

Concerns about significant accumulations of injurious weeds on Staffordshire's highway network can be reported directly using the myStaffs app or Report It. In most cases however it is likely that we are already aware of the site and already have a regime in place to treat the location.

A specific injurious weed control strategy is under development.

13.5.5. Service Strips

A 'service strip' is an area of public highway grass verge, typically but not always the same width as a pavement, between the road and the private boundary. This is usually demarcated by a row of edging kerb or blocks.

The service strip can be used by the public utility companies (such as gas and water companies) to install and access their equipment. It also acts as a pedestrian refuge and, if necessary, vision splay (allowing a clear view of the road).

It is unlawful to alter the existing surface or erect any structure on it and this includes hedges or shrubs.

13.5.6. Other Significant Factors affecting the Soft Landscape Asset

Pest and Disease

Soft Landscape assets are natural living organisms in their own right. As such, they grow and are subject to disease or even death. Where this occurs on a large scale there can be unforeseen impacts on maintenance budgets.

13.5.7. Environmental matters

Climate change has meant that more flooding is seen through Autumn to Spring with hotter dryer summers. This impacts the ability of native species to grow and thrive in the local environment as well as increasing growth rates for grass and other vegetation.

Imbalance in this regard has the potential to impact on landscape safe useful life expectancy and lifecycle planning when installing new landscape assets such as wildflower verges and shrubs. The above factors all need to be balanced with available funding when planning future schemes, services and frequency of maintenance.

13.5.8. Conservation

When undertaking any works to the highway, the likely effects on landscape and nature conservation will be taken into account. In particular, works in the vicinity of a Site of Special Scientific Interest (SSSI) be carried out in a manner that is not detrimental to the site. In all cases of doubt, the advice of an Ecologist will be sought.

13.5.9. Environmental Focus

With the recognition of climate change there has been an increased focus on the highway soft landscape asset and how this can deliver the environmental benefits necessary to reach both the council's and government's targets regarding biodiversity.

As part of our approach to managing this asset we will do the following:

• Provide verge management regimes that actively encourage and enhance biodiversity for pollinators and wildlife.

Volume 9 – Trees and Hedges

14.1. INTRODUCTION

There are over 3,800 miles of road which are the responsibility of Staffordshire Council, and many of these roads have trees or woodlands close to the carriageway. There are estimated to be 475,000 trees on the highway with a further 128,000 on adjoining land but which could affect the highway, for example either due to the canopy overhanging or, the tree being within falling distance of the highway.

Trees in Staffordshire are an important asset that provides amenity value, carbon storage and sequestration, natural flood risk management and removal of pollution.

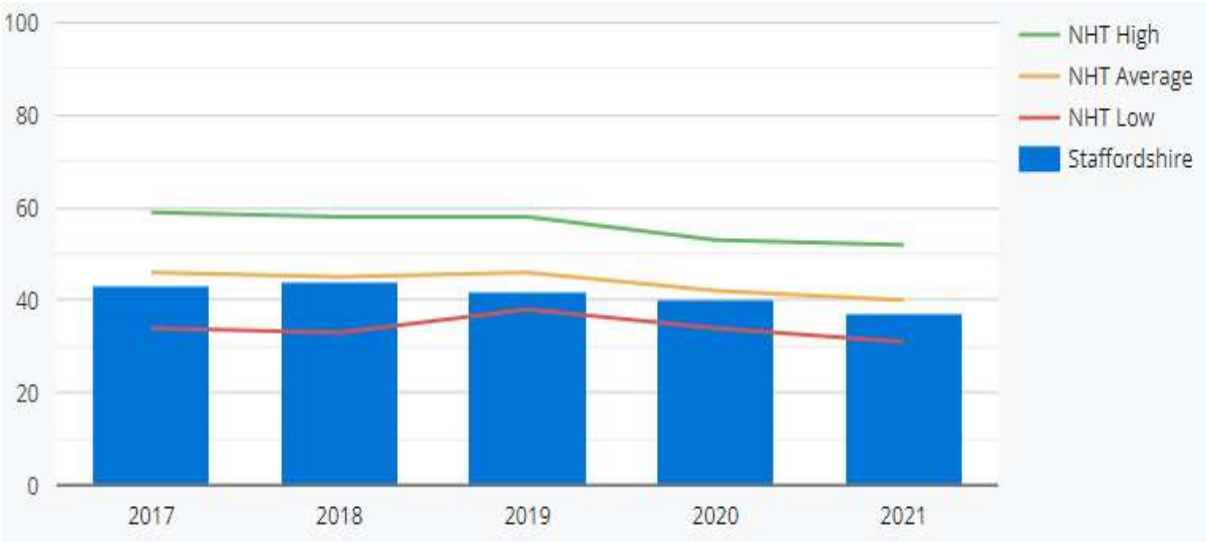
14.1.1. Stakeholder expectations

Stakeholders expect an amenity that is safe as far a reasonably practicable that also delivers the environmental and conservation benefits that are associated with trees.

14.1.2. National Highways and Transportation Public Satisfaction Survey

Public satisfaction in the maintenance of trees, verges and hedges is below national average and decreasing in line with the national trend.

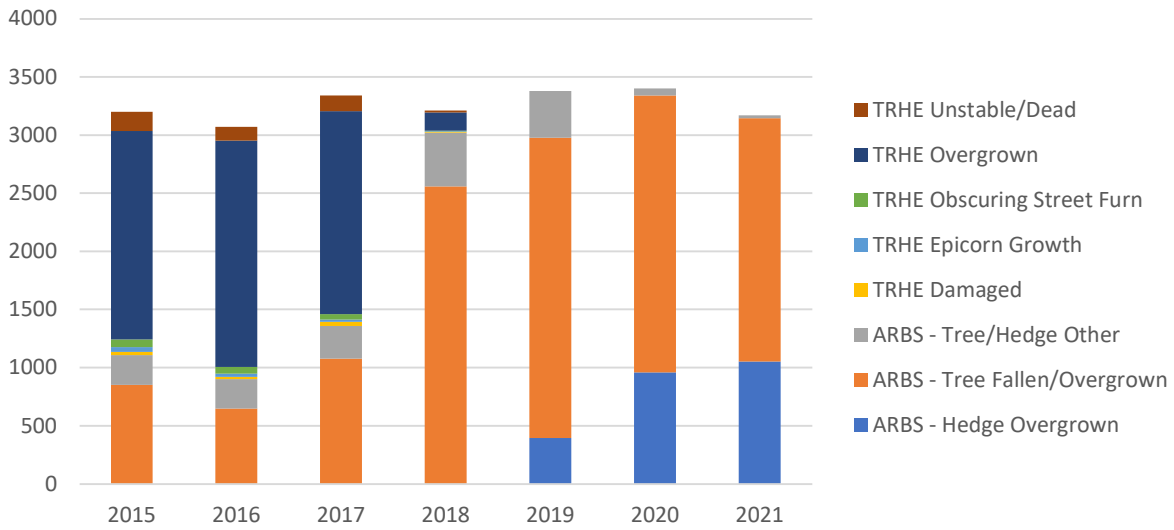
Chart 37 – Public Satisfaction in maintenance of highway verges/trees/shrub



14.1.3. Customer Reports and Enquiries

The overall number of enquires relating to highway trees and hedges remains relatively static over the last 6 years. In recent years the most common area of enquiry is fallen/overgrown trees.

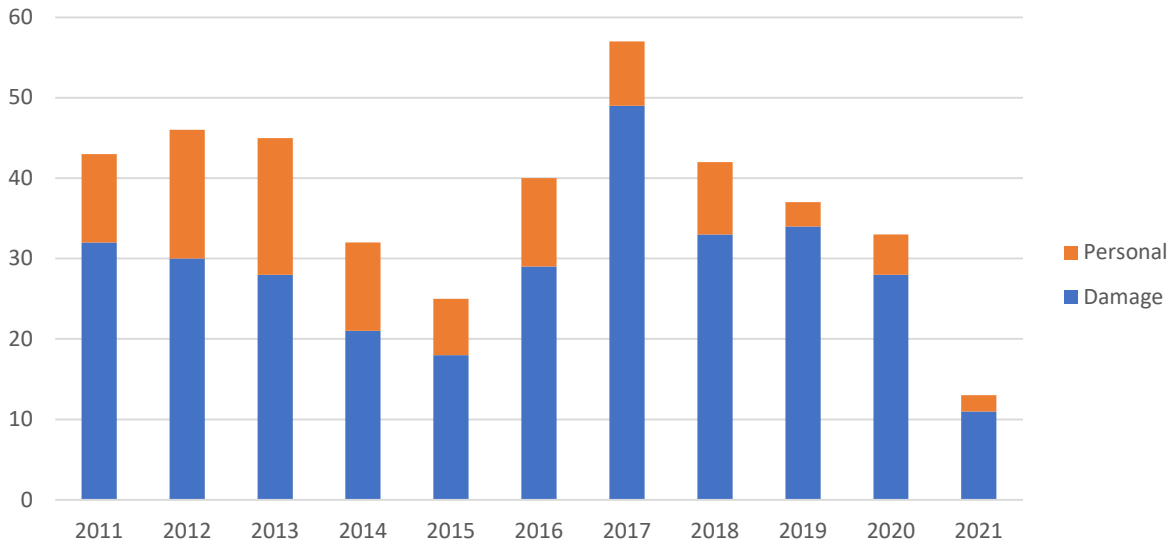
Chart 38 – Trees and Hedges Customer Enquiries



14.1.4. Claims

Claims against the authority relating to highway trees appear to be decreasing although we do not necessarily recognise a cause and consequence for this trend. The vast majority of claims received relate to damage to property. This is typically for damage caused by tree roots or falling branches rather than a structural failure of a tree.

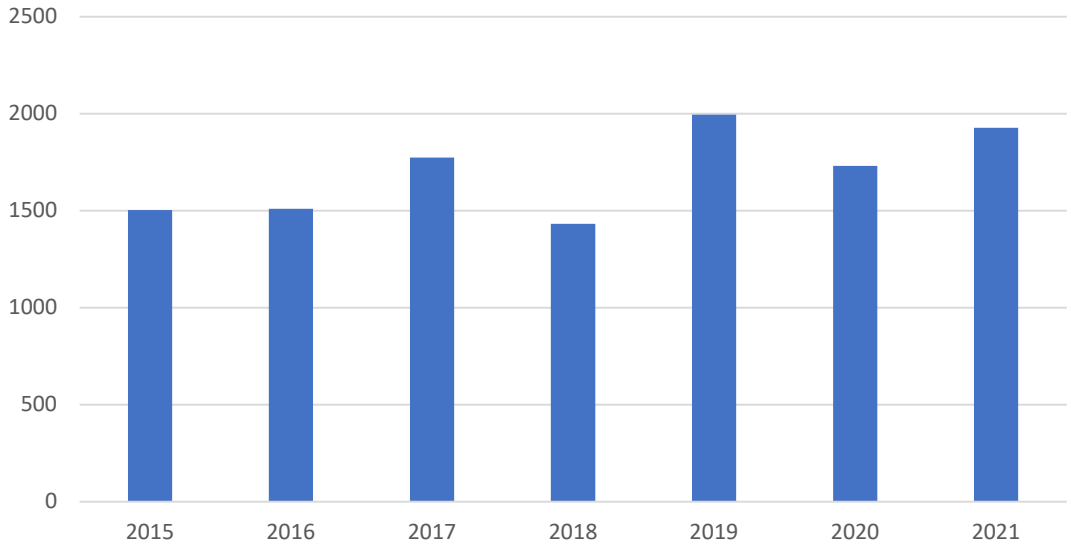
Chart 39 – Tree Claims Damage Only vs Personal Injury



14.1.5. Defects

Since 2015 there has been a very slight but steady increase in the number of defects raised for trees and hedges. There was a 30% increase in defects in 2021 when compared to 2015.

Chart 40 – Trees and Hedges Defects Raised



14.2. ASSET MANAGEMENT

14.2.1. Asset Identification

Trees situated within the boundaries of the Highway Maintainable at Public Expense (HMPE) are generally the responsibility of the highway authority unless they were planted under licence or by another authority such as a District, Borough or Parish Council.

Highway boundary trees and hedges will normally have been planted by, or on behalf of, the adjoining landowner, to define the boundary of his land with the public highway, and to contain his property. It is accepted by SCC that, unless there are specific agreements to the contrary, the maintenance of highway boundary hedges is the responsibility of the adjoining landowner. In the absence of evidence to the contrary, if a tree lies within the hedge line, then it is a non-highway tree that is considered to be an integral part of the hedge line and is therefore the responsibility of the adjoining landowner. For a tree to be deemed to be a highway tree, the tree trunk must lie, in its entirety, within the highway boundary (which is taken as the centre line of the hedge), or, in cases where part of the trunk has grown onto the adjacent landowner's side of the highway boundary, it must clearly be seen that the tree had originally grown/been planted inside the highway boundary.

14.2.2. Managing Risk

Tree risk management involves the process of inspecting and assessing trees for their potential to cause personal injury or damage to property.

HSE guidance on the management of risk from falling trees and branches refers to guidance produced by the National Tree Safety Group (NTSG) entitled Common Sense Risk Management of Trees (CSRMT)[25].

The guidance in CSRMT advises a reasonable and balanced approach forms the basis for sensible tree safety management and should cover three essential aspects:

- Zoning: appreciating trees in relation to people or property.
- Tree inspection; assessing obvious tree defects.
- Managing risk at an acceptable level: identifying, prioritising and undertaking safety work according to level of risk.

Details of this approach are included in the Management of Trees Strategy which is included as an annex to this HIAMP.

14.3. ASSET INSPECTION

All trees within the highway should be inspected annually for potentially dangerous conditions, or the likelihood of causing disruption or damage to adjacent property, during routine safety inspections. More frequent inspections may be necessary where individual trees give rise to concern regarding their structural integrity. If any necessary corrective measures need be carried out on trees, on highway land, they should be affected as soon as reasonably practicable.

SCC prioritise detailed inspections based on risk in an approach known as zoning. This methodology prioritises the most used areas, and by doing so contributes to a cost-effective approach to tree inspection, focussing resources where most effective. It is about appreciating tree stock in relation to proximity of people or property. Zoning contributes to sensible risk management.

14.4. ASSET CONDITION

The condition of the tree asset is determined by detailed inspections undertaken by an arboriculturist appointed by or acting on behalf of the authority. The detailed inspections will consider the overall condition of the tree and not just defects in relation to the likelihood of failure.

[25] NTSG - Common Sense Risk Management of Trees

14.5. ASSET PROGRAMMING

14.5.1. Trees

The priority programme of future tree works is based on the outcomes of inspections and the assessment of condition and risk of those defects identified.

If a tree is situated on private land, then landowners or occupiers will be warned of dangerous trees and given notice to take the appropriate action, when these are brought to the attention of, or observed by, the County Council. Where it becomes necessary for work to be carried out on behalf of a landowner or occupier, costs will be recharged to owners, where practicable.

Trees on private property adjoining the public highway are the responsibility of the owner/occupier BUT the Highway Authority has a duty, and powers of enforcement, to ensure that such trees do not endanger the Highway or its users under Section 154 of the Highways Act.

14.5.2. Hedges

We are not responsible for the maintenance of the majority of hedges alongside the highway. Unless there are specific agreements to the contrary, the maintenance of highway boundary hedges will be assumed to be the responsibility of the adjoining landowner. Any work carried out on such hedges to maintain visibility, or to remove obstructions to footways, will, wherever practicable, be recharged to the adjoining landowner. A small number of hedges are cut for amenity value.

Where hedges are the responsibility of the Highway Authority, trimming of seasonal growth for visibility purposes should be carried out annually (or more frequently, if required) on rural and urban roads. Trimming of other lengths of hedges are not cyclical and will be identified through the routine safety inspection process or customer enquiries (always providing that visibility sight lines, and road signs are not obscured). Significant nature conservation benefits will result from this practice. Such trimming should, as far as possible, be done in late winter, to avoid the bird-nesting season and to allow birds and mammals the maximum opportunity to take advantage of any fruits or seed present.

Where a hedge requires cutting between 1st April and 31st August, this will generally only be for safety reasons and following and ecological survey.

Shrubberies which are the responsibility of the Highway Authority should be pruned and trimmed for visibility purposes when the safety of road users is at risk. Work over and above this is deemed to be amenity work and is, therefore, the responsibility of the District/Borough Council.

The RSBP provides advice on the best time of year to carry out any trimming to avoid the nesting season. Any hedge cuttings that fall into ditches or grips should be removed as soon as possible. Cuttings that fall onto the carriageway should be removed immediately since they cause a nuisance to highway users.

The Highways Act 1980 Section 161 states:

"…If a person without lawful authority or excuse, deposits anything whatsoever on a highway in consequence of which a user of the highway is injured or endangered, that person is guilty of an offence and liable to a fine…"

"…If a person, without lawful authority or excuse, allows any filth, dirt, lime or other offensive matter or thing to run or flow on to a highway from any adjoining premises, he is guilty of an offence and liable to a fine…"

If the hedge is to be cut from the field side and there is little to no verge, then signs advising the highway user that work is in progress should be used even if the carriageway is not going to be obstructed.

If the hedge is to be cut from the highway side and the tractor must run wholly or partly on the carriageway then relevant signs should be used to advise the motorist that the carriageway may be restricted.

Any warning signs used should be placed at either end of the length to be cut but they must not be more than 1 mile apart. If the working length exceeds this then the signs must be moved as the work proceeds.

For further detail regarding the management of highway trees please refer to the Highway Tree Management Strategy included as an annex to the HIAMP.

Volume 10 – Signs and Lines

15.1. INTRODUCTION

This asset group comprises unlit traffic signs (lit signs are managed as part of the street lighting asset group), road markings and road studs.

Traffic Signs are categorised into four types; warning, regulatory, direction and information, and are provided to convey messages to highway users including equestrians, cyclists and pedestrians. The message must be clear and at the right time for users travelling at the normal speed for the road, footway or cycle facility. They are therefore sited at appropriate distances for the speed of the road and the message they convey and should be reflective or lit as required.

Road markings are used to define boundaries for pedestrians and vehicles and guide them when using our public highway.

The implementation of all traffic orders, including the positioning of notices, the provision and erection of new signs any carriageway markings, services, unmasking of new signs and removal of obsolete signs together with major resigning schemes is not to be included under this heading.

Partner agencies are also responsible for some signing on our highway network, and we liaise closely with National Highways and District/Borough Councils to influence a consistent approach within the county.

15.1.1. Stakeholder expectations

Road markings and signs on our roads are an essential aid to assist in road safety, providing directions and other information. Stakeholders expect this to be clear, concise and informative.

15.1.2. National Highways and Transportation Public Satisfaction Survey

Public satisfaction in the condition of road markings and the condition and cleanliness of road signs is around the national average.

Chart 41 – Public Satisfaction in Condition of Road Markings

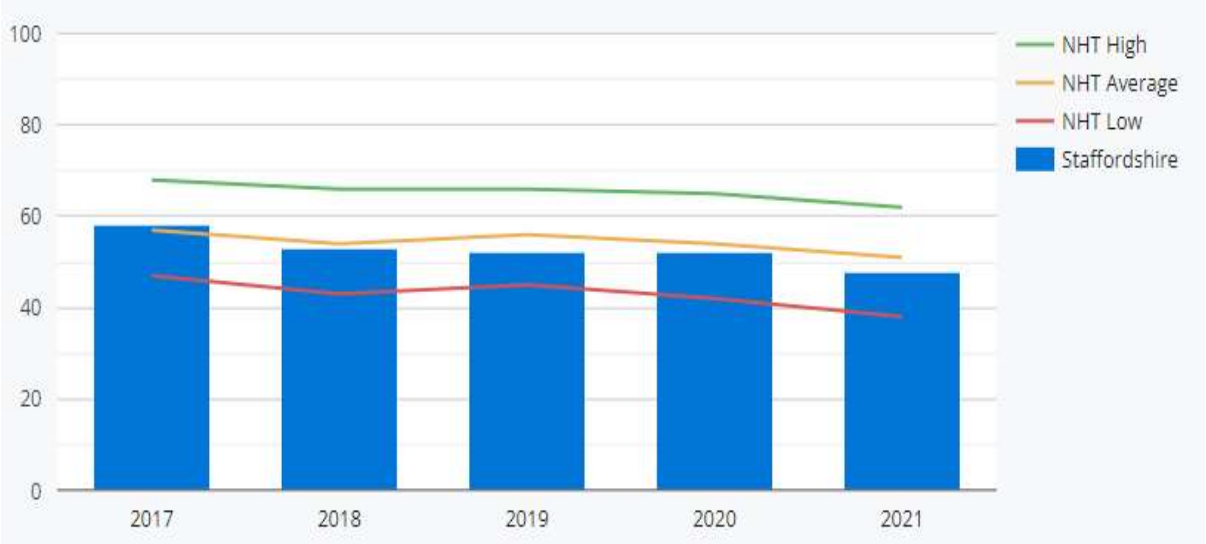


Chart 42 – Public Satisfaction in Condition of Road Signs

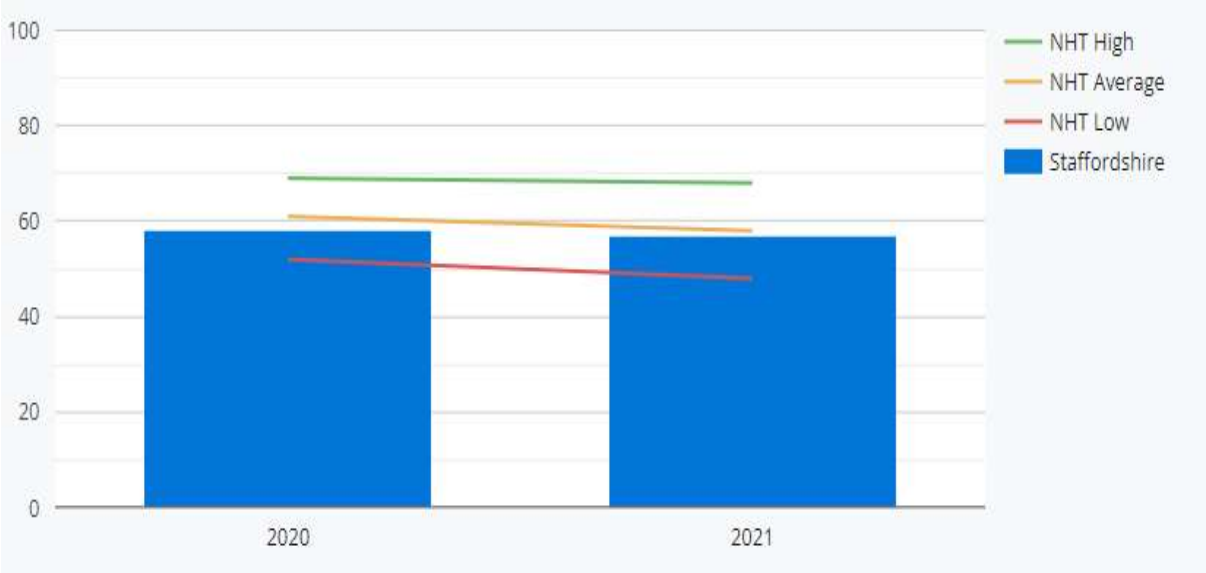
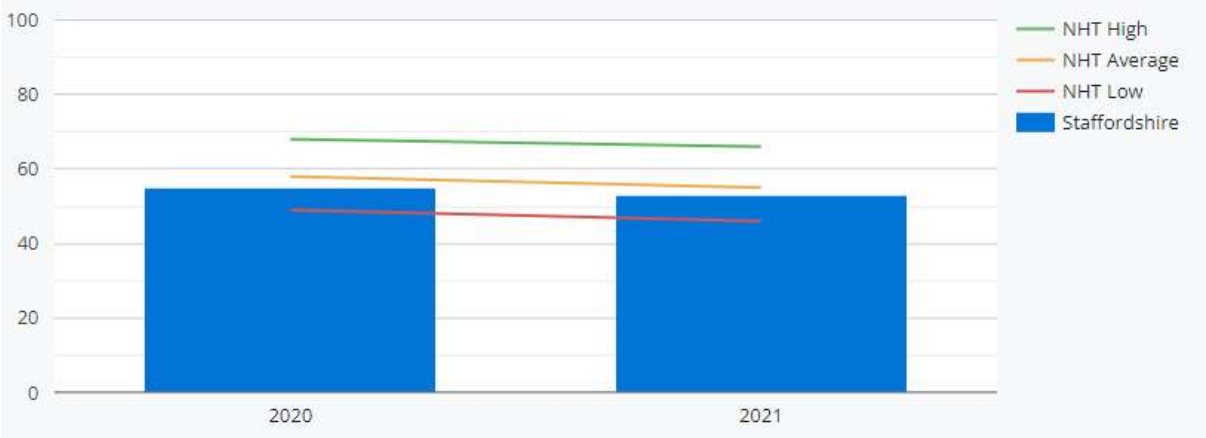


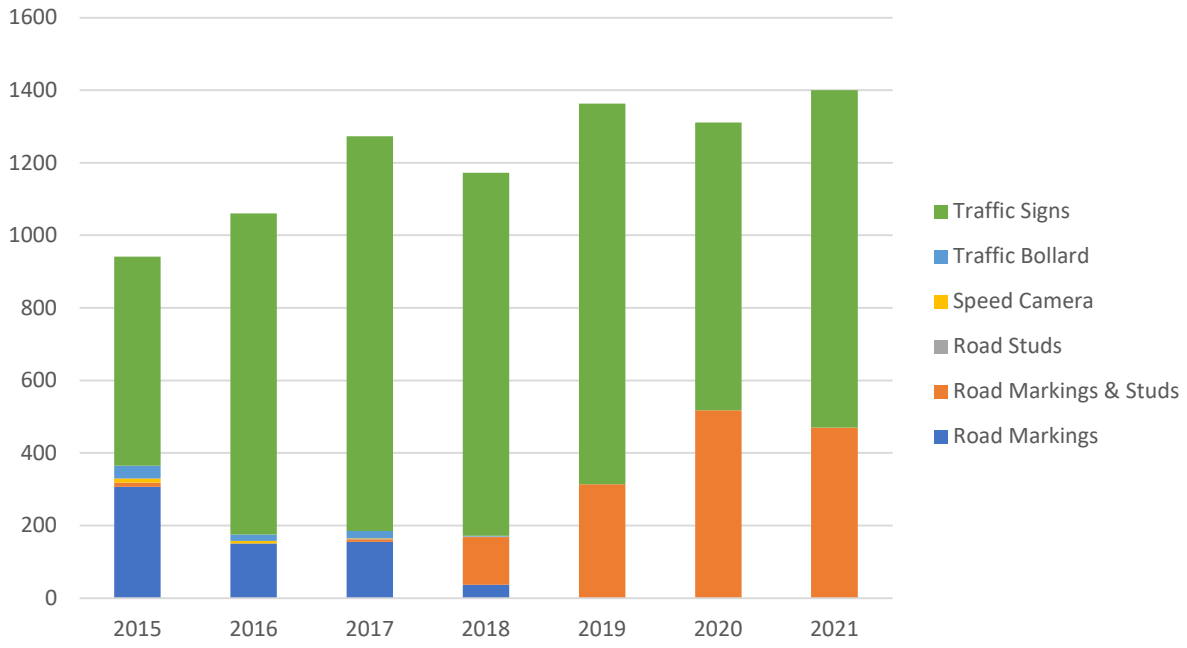
Chart 43 – Public Satisfaction in Cleanliness of Road Signs



15.1.3. Customer Reports and Enquiries

Customer Enquiries are increasing with a further 450 enquires received in 2021 when compared to 2015.

Chart 44 – Customer Enquiries Signs and Lines



15.1.4. Defects

The number of defects raised for both signs and lines are increasing and in 2021 is more than double the number raised in 2018.

Chart 45 – Road Sign Number of Defects

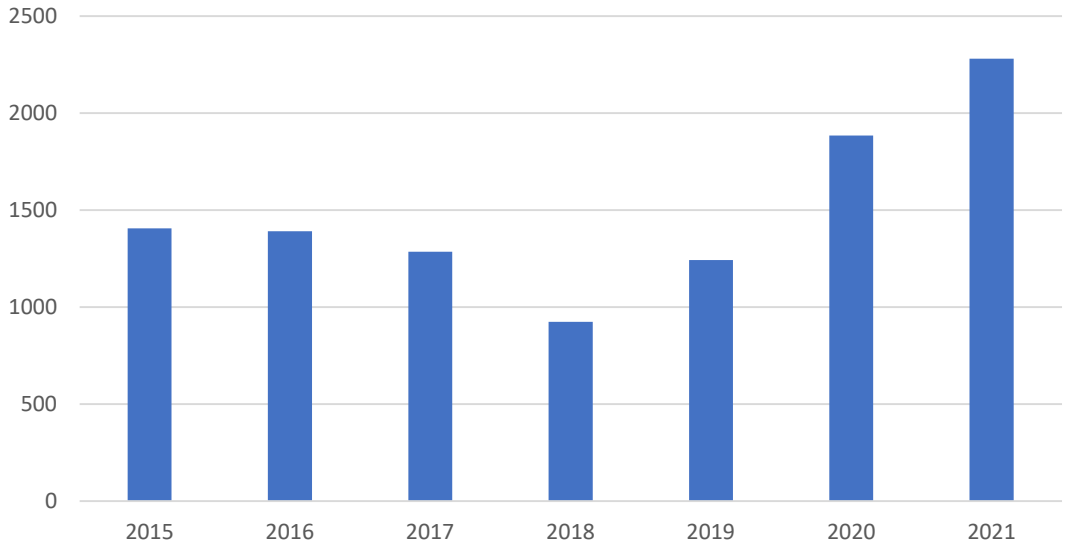
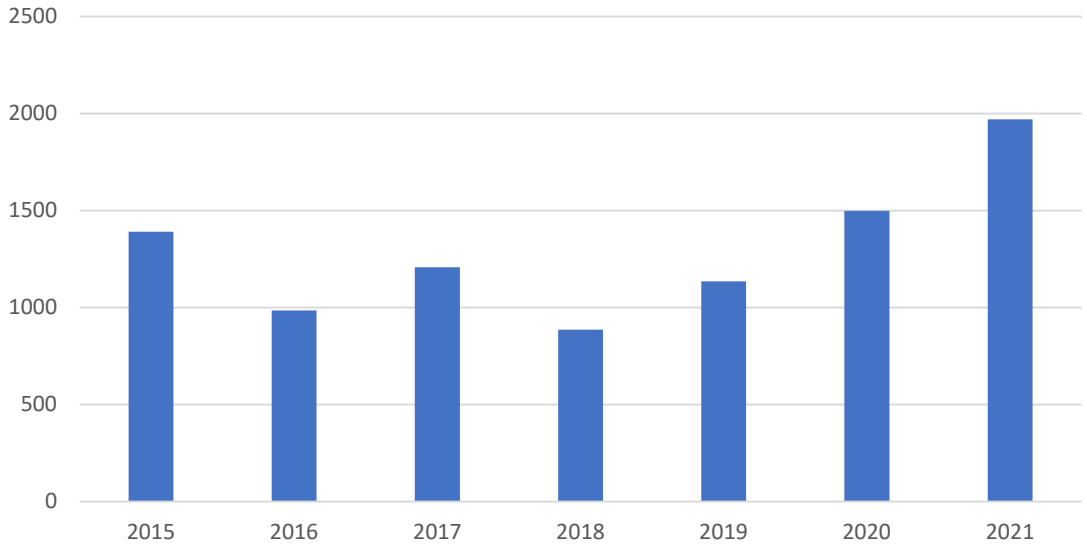


Chart 46 – Road Markings Number of Defects



15.2. ASSET CONDITION

Road signs and critical carriageway markings and studs will be provided and maintained in such a condition as to ensure that they provide clearly visible guidance to motorists at all times.

It is important to maintain carriageway markings and road studs in good condition, so that road users can be encouraged and helped to use the carriageway safely by day and night. They have a very important function in conveying information and requirements to road users, which might not otherwise be possible by roadside signs.

Road markings and signs are a very visible asset and contribute significantly to customer perception of the condition of the whole highway network and not just that of this asset group. The authority typically receives around 500 enquiries each year regarding missing or worn road markings or road studs. Non-illuminated signs that are worn, missing, dirty or damaged receive around 900 enquiries each year.

15.3. ASSET MANAGEMENT

Like many councils, we do not hold any inventory or condition data for road markings, with repairs undertaken using general reactive revenue funds unless included as part of planned carriageway schemes.

The collection of road sign inventory is a key dataset that can provide information around the co-ordination and management of the entire highway network. For example, the road sign inventory provides detail of where weight limits, height restrictions and one-way orders are. Collecting

the road sign asset inventory is currently being undertaken by Gaist Solutions and will be available in 2022/23.

15.4. ASSET INSPECTION

Defects associated with road markings, road studs and non-illuminated signage are identified through the routine highway safety inspections. There is no designated condition survey for this asset group. This includes there not being any assessment for reflectivity of signs. There is also no programmed sign cleansing regime.

This is contrary to the recommendations in the Well Managed Highway Code of Practice which states 'The condition of non-illuminated road signs should be inspected in daylight, and also at night for degradation of colour, retro-reflectivity, deteriorating fittings, legibility distance, and average surface luminance, after cleaning. The frequency of cleaning required will be influenced by the risk of soiling in local areas'.

15.5. ASSET PROGRAMMING

On roads in Traffic Groups 1-4, and at known accident sites, markings will be renewed when more than 30% of their area becomes defective or is worn away. Where markings or studs have become obscured by mud or detritus, and this constitutes an immediate safety hazard, then it should be cleared off the carriageway. In other cases, the matter should be referred to the District/Borough Council.

Carriageway studs which are missing or defective should be replaced, individually, or by bulk change, depending on the individual highway circumstances. The aim is for 90% of the studs to be effectively reflective. A reflecting road stud is considered to be reflective up to a point where there is a loss of 25% of reflectivity.

15.5.1. Access Protection Marking

An access protection marking (APM) also known as an 'H bar' is an advisory road marking. APMs are marked out with white lines and are used to identify a vehicle access and make motorists aware that the access is required at all times of day.

Although they have no legal status it is an offence on the grounds of obstruction to park across a vehicle access. Vehicles causing an obstruction to access/driveways with a dropped kerb can be reported to the Police.

A fee is charged for application for an access protection marking which applies for new and the repainting of existing.

Eligibility criteria

You can only apply for an APM if you meet the following eligibility criteria:

- You must live in Staffordshire on a public highway. We cannot install APM on private roads.
- You must have a dropped kerb to either a garage or driveway.
- APMs can only be considered where the vehicle access kerbing is noticeably lower than the surrounding kerb line and where the upstand on the kerb face is 50mm or less, otherwise it is difficult to differentiate between the raised and dropped kerbs.
- We will not approve an individual APM where the vehicle access extends over a number of properties. This could look as if we were condoning parking over the adjacent vehicle accesses.
- Where a vehicle access is shared by two properties both properties will need to give consent, but this can be submitted on one application.
- APMs will only be considered if there is sufficient space to park a vehicle off the public highway in line with our vehicle access crossing guidance. An absolute minimum of 4.8m from the boundary of the property is required although 6m is preferred. This is to ensure that any vehicles do not obstruct the footway.
- The applicant must clearly demonstrate that the location is in close proximity to an establishment that generates a sufficient amount of on street parking such as a shop, church or place of worship or a school etc. APMs will not be considered where parking issues are a result of neighbours or local residents parking.
- If there are waiting restrictions already in place these are already enforceable by civil enforcement officers and so APMs would generally be deemed unnecessary in these locations.
- APMs will only cover the extent of the dropped crossing from the start of one dropped kerb to the end of the other; they will not deter vehicles from parking adjacent to your vehicle access and cannot be extended to incorporate this.
- APMs will not be supplied to prevent parking on the opposite side of the road from your vehicle access.
- APMs cannot be used to reserve on street parking.

- APMs will not be considered for newly constructed or extended vehicle access crossings (under 3 months) as the applicant is unable to predetermine if issues will arise.

15.5.2. Disabled Persons Parking Bay

Disabled persons parking bays are markings to try and stop vehicles parking without displaying a blue badge.

Application criteria

To apply for a disabled persons parking bay, you need to meet the following criteria:

- No off-street parking is available on the property, and it would not be possible for this to exist.
- You should be unlikely to be able to park in a suitable location, close to your property, for most of the day.
- You should usually be the driver of the vehicle. Sometimes this may be widened to include others if you have a permanent disability that places you at risk if left unattended for any length of time. In this case, the driver of the vehicle must also live at the address where the parking bay is to be provided.
- Walking any distance, from your car to your property is unacceptable. This will need to be assessed.
- You must provide a copy of a notice of entitlement/letter of confirmation of the required level of allowance. This is to ensure the marking is necessary and that you have a severe mobility problem.
- There should be no existing waiting restrictions near your home.
- A marking in the 'turning head' of a cul-de-sac is not appropriate.

15.5.3. Specification for Thermoplastic Road Markings

All marking shall conform with the requirements of the Traffic Signs Regulations and General Directions 2016 and any subsequent amendments thereto.

MMA (Methyl Methacrylate) Cold Plastic is to be considered for application in high volume/stress locations like roundabouts, junctions, and roads that receive heavy traffic. While the initial cost for MMA may be higher than conventional marking materials, MMA Cold Plastic is likely to provide better whole life costs if applied in the correct locations.

15.5.4. Specification for Reflecting Road Studs

Studs shall comply with the Traffic Signs Regulations and General Directions 2016. All reflecting road studs shall comply with BS 873 Part 4 and shall have received statutory type approval. Non-reflecting road studs shall be stainless steel, manufactured in accordance with BS 873 Part 4.

15.5.5. Programming and Priorities

The maintenance of signs and lines is not undertaken on a cyclical basis, instead any issues with these assets are identified through the routine highway safety inspection process, via customer enquiries or they are refreshed as part of planned works such as preventative maintenance programme.

Lining work is weather-dependent and both this and resource levels can affect our ability to reinstall road markings as quickly as we may prefer.

All road markings on the public highway in Staffordshire are installed in accordance with the Traffic Signs Regulations and General Directions TSRGD 2016.

Volume 11 – Heritage Assets

16.1. INTRODUCTION

To date SCC have not compiled a list of local heritage assets on Highway Maintainable at Public Expense which the authority is responsible for maintaining. A register is being developed with a view to mapping these assets on the corporate GIS platform.

16.2. ASSET CONDITION

The County Council will maintain all monuments and historic structures within the highway where the ownership or maintenance responsibility has been established as being the County Council's.

16.3. ASSET MANAGEMENT

The choice of treatment and materials within this broad area takes the character of the asset into account whilst also considering the robustness of proposed materials and the whole life cost of potential options.

16.4. ASSET INSPECTION

These assets are generally inspected as part of the routine highway safety inspection process. However, there are some heritage assets that are incorporated into other asset specific inspection programmes.

16.5. ASSET PROGRAMMING

As with all our assets, we take a risk-based approach to deciding where to invest our funding. Asset prioritisation criteria will develop as our inventory improves.

Volume 12 – Street Furniture

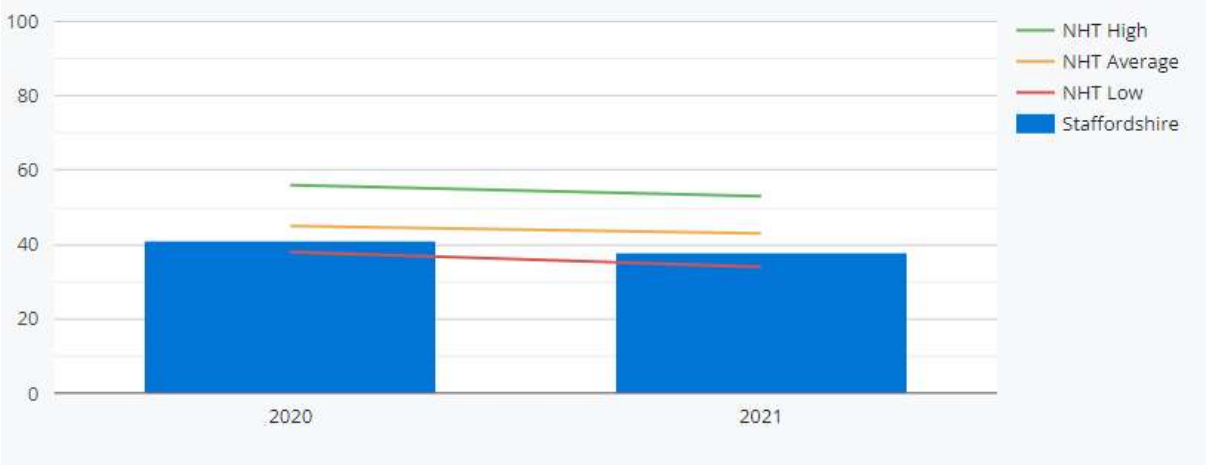
17.1. INTRODUCTION

This asset group represents the highway street furniture which covers a wide variety of assets such as pedestrian guard rail, non-illuminated bollards, cycle stands and weather stations.

17.1.1. National Highways and Transportation Public Satisfaction Survey

The proliferation of street furniture is the key public satisfaction measure relating to street furniture in the NHT Survey. The measure has only been a recent addition to the survey but provides an indication of the success of our approach to decluttering.

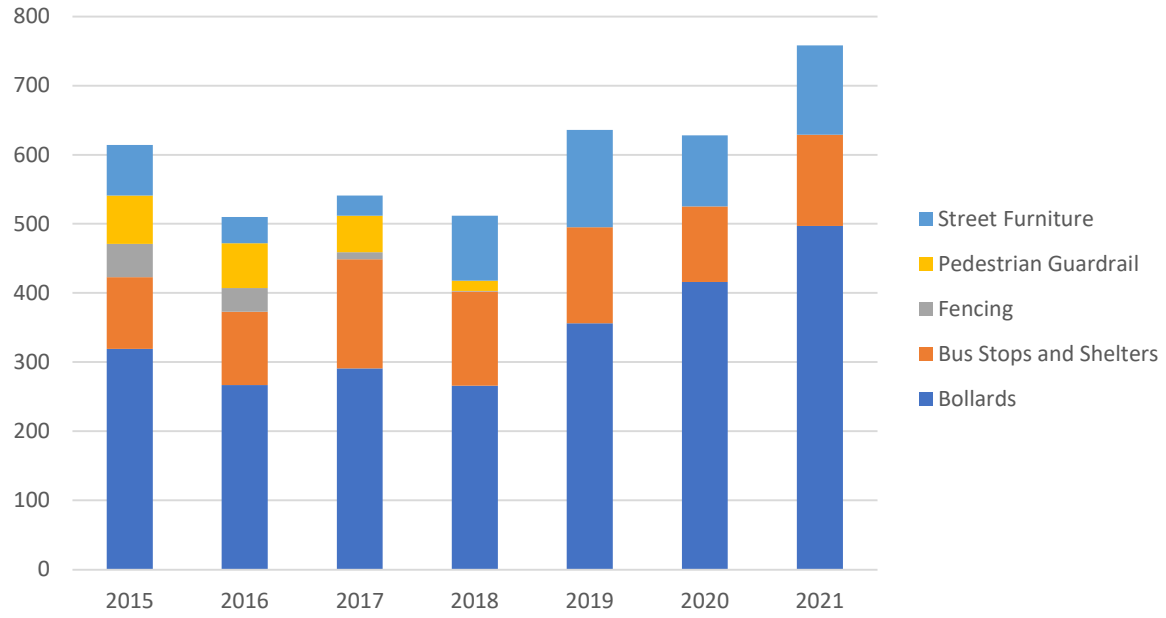
Chart 47 – Public Satisfaction Highway enforcement/obstructions



17.1.2. Customer Reports and Enquiries

The number of customer enquiries is increasing with the majority of the reports made relating to issues with bollards. Enquiries have increased by 50% in the last 3 years and is on an upwards trajectory.

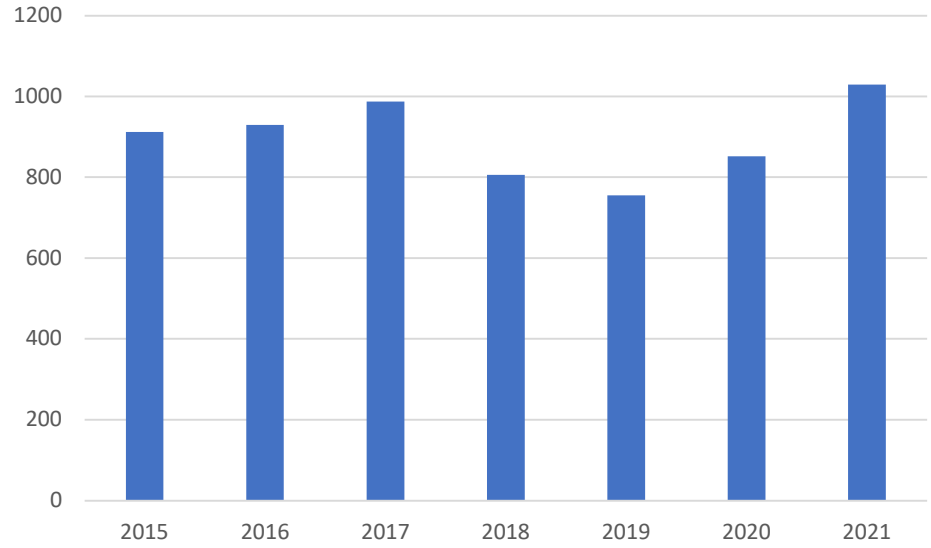
Chart 48 – Customer Enquiries Street Furniture



17.1.3. Defects

Jobs raised for street furniture have increased each year since 2019 mirroring the trend of jobs raised for many other assets.

Chart 49 – Street Furniture Jobs



17.2. ASSET CONDITION

Currently the Council do not have adequate asset registers for a number of these component groups.

17.3. CLAIMS

Defects in street furniture that cause an accident or third-party claim against the Council are rare. However, damage to street furniture by a third party is common and the costs reclaimed where possible. Those that cannot be recovered reduce the available budget for routine maintenance.

17.4. ASSET MANAGEMENT

The current asset management strategy for these components tends to rely on allocated revenue budgets. There are, however, elements of the capital programme associated with road safety and the provision of new street furniture assets.

Clearly the variety of elements within this asset group results in their use being equally varied. Most of the elements will be used indirectly by road users however weather stations, for instance, are used solely by highway officers.

A number of elements within this asset group are vitally important in providing a safe road network. The location and design of bollards and pedestrian barriers for instance, are governed by national design standards and codes of practice. A number of these elements are often subject to technical innovation and change.

The responsibility for the various categories of street furniture is generally as follows:-

Table 11 – Street Furniture Asset Maintenance Responsibility

Street furniture	Who is responsible?
Bollards, pedestrian guard rails, cycle stands, grit bins, weather stations	Staffordshire County Council
Street name plates, litter and dog waste bins, benches, information boards and flowerbeds.	District and Borough Councils
Seats and benches, planters and baskets, noticeboards, monuments, and village signs.	Parish councils
Telephone poles, phone boxes, mobile phone masts, manholes and fire hydrants.	Utility companies are usually responsible for their apparatus on the highway but if ownership is unclear or the problem poses an

Street furniture	Who is responsible?
	imminent risk to safety then the matter can be reported to Staffordshire County Council.
Bus stops and shelters	These might be maintained by Staffordshire County Council or the local District/Borough or Parish Council, reports can be made online, and we will establish who is responsible.

17.4.1. Boundary Fences and Walls

Highway boundary fences are normally the responsibility of the fronting owner. Exceptionally, where they are the responsibility of the highway authority, maintenance will be limited to maintaining them in a sound structural condition to serve their function, and not be dangerous to road users or pedestrians.

Walls in the ownership of the County Council which are above 1.2m in height are regarded as highway structures and shall be referred to the Structures Team.

17.4.2. Visibility Fences

Visibility fencing which has been placed at a road junction to improve visibility for pedestrians and motorists passing through the junction, will be maintained in a sound condition and clear of vegetation which will impede the intended sight lines.

Visibility fencing, which has been placed at a road junction for visibility purposes, will normally be the subject of an agreement between the County Council and the adjoining landowner, such that the County Council agrees to maintain the fence in perpetuity. Maintenance works will normally consist of clearance of vegetation and re-painting.

Where the layout or road marking system at a junction is altered, the need for visibility fencing may be rendered obsolete, in which case, consideration should be given to replacing the fencing with conventional hedging etc., which would revert to the ownership of the adjoining landowner, thereby obviating the County Council's maintenance liability.

17.4.3. Speed Indicator Devices (SID's)

In an area where speeding can be a problem, Speed Indicator Devices (SIDs) remind drivers of the speed limit and stand out from permanent roadside signs. They could help to break the habit of motorists who consistently drive too fast. SID's are usually installed by the County on the Parish Council's behalf.

17.4.4. Speed Enforcement Cameras

Installed by SCC, operated and maintained by Staffordshire Safer Roads Partnership. There are approximately 260 camera housings across the county.

17.4.5. Rising Bollards

Rising bollards are installed to protect the pedestrian area and ensure the town centres which they are deployed are attractive and safe places to visit. Rising bollards are currently located in Tamworth, Stafford and Uttoxeter.

17.5. ASSET INSPECTION

Most elements of this asset group are inspected as part of the general highway safety inspection of the road network. Obvious defects are reported back to the relevant section for action. Ad-hoc inspections are carried as necessary following any reports of defects or damage.

17.6. ASSET PROGRAMMING

17.6.1. Planned Maintenance

There is limited planned maintenance carried out on street furniture.

17.6.2. Environmental Considerations

A conscious effort is made to avoid overuse of street furniture particularly in environmentally sensitive areas. Most bollards are stainless steel or recycled plastic. Where cast iron bollards are in use they are restored and re-erected where possible. This usually involves cleaning and hand painting to retain the local character. The installation of concrete bollards is avoided where possible.

17.6.3. Historical Investment

Historically a number of the minor street furniture components have had no dedicated budget and consequently the historical investment in these is often on a 'care and maintenance only' basis.

17.6.4. Existing Programmes

The maintenance and renewal of elements within this asset group is covered by the revenue programme.

17.6.5. Future Strategies

Future strategies can only be developed when better asset inventory and condition is gathered. However, for many items within the street furniture asset group there is little benefit gained when compared to the cost of collection.

Volume 13 – Emergencies and Adverse Weather Events

18.1. INTRODUCTION

Many emergencies that the UK has faced have been related to severe weather conditions. This has included:

- flooding
- gales
- snow
- freezing conditions
- heat waves

These incidents have resulted in people being evacuated from their homes, being stranded in freezing conditions and even deaths due to heat waves. All the aforementioned weather events have an adverse effect on the highway network and can significantly reduce the useful life of highway assets.

18.2. SEVERE WEATHER WARNINGS

When severe weather warnings are received, appropriate resources will be mobilised in readiness to ensure a prompt and efficient response is achieved when required.

18.3. WINTER MAINTENANCE

The purpose of winter maintenance is to ensure the safety of road users and maintain traffic movements in a cost-effective and efficient manner, whilst minimising the impact of the maintenance operations on the environment.

Winter maintenance activities are governed by a separate Winter Maintenance Operational Plan which is updated annually. The general principles contained in the Code are set out below.

18.3.1. Precautionary Salting

Where forecast weather conditions dictate, precautionary salting will be carried out to prevent ice forming or light falls of snow settling.

A hierarchy of salting routes will be maintained and reviewed annually.

The reasons for any exception to the Winter Maintenance Operational Plan shall be recorded on file.

18.3.2. Treatment of Persistent Ice and Hard Packed Snow

Treatment of ice and hard packed snow on carriageways will be carried out where conditions require. Priority will be given in accordance with the road hierarchy.

Treatment to footways and cycleways will be undertaken in periods of persistent ice or snow and carried out in priority order according to the Footway Hierarchy. Treatment of footways will only occur when resources allow.

Salt bins and salt piles will be provided at appropriate locations. This latter facility will be placed well away from trees so that leached salt will not contaminate the roots.

18.3.3. Salt

In order to minimise adverse effects on the environment, the amount of salt used will be the minimum possible consistent with achieving adequate treatment. Salt use for winter service purposes is not seriously restricted; it is far too essential in snow and ice control, and there are no readily available substitutes. Alternative materials generally are prohibitive in cost and may have much worse environmental effects than salt.

18.3.4. Winter Related Assets

SCC have 9 weather stations in key areas that provide real-time information and assist in producing accurate forecasts to ensure gritters are sent out at the right time. The stations are maintained annually by Vaisala.

The authority stocks 20,000 tonnes of salt at the start of a winter season and manages stocks according to the forecast weather conditions and the point of time of the winter season.

The authority services around 3,500 grit bins and strategic salt piles located right across the county. Bins can be provided on routes that do not form part of the treated network. Locations which qualify have been risk assessed against a set of criteria that includes but is not limited to:

- steep gradients
- severe bends
- junctions onto major routes

All bins/piles provided by the county council will be fully stocked at the start of winter; and the majority of these grit bins/salt piles will be replenished as part of a routine programme throughout the season - depending on weather conditions and resource availability.

It typically takes between 3 to 4 weeks to replenish the grit bins and salt piles when resource is available. Quite often in periods of extended adverse weather events resource is deployed undertaking tasks such as snow clearance, gritting or on repairing consequential damage such as potholes so resource is not always available for the task of grit bin refills.

There are many potential issues with storing salt in uncovered stockpiles. These include salt quality, usability, effectiveness of treatments and environmental impacts. If exposed to rain, rock salt can leach and can cause environmental problems for flora, fauna and nearby water courses.

18.3.5. Emergency Planning

Staffordshire County Council are members of the West Midlands Local Resilience Forum (LRF).

Local resilience forums (LRFs) are multi-agency partnerships made up of representatives from local public services, including the emergency services, local authorities, the NHS, the Environment Agency and others. These agencies are known as Category 1 Responders, as defined by the Civil Contingencies Act.

LRFs are supported by organisations, known as Category 2 responders, such as the Highways Agency and public utility companies. They have a responsibility to co-operate with Category 1 organisations and to share relevant information with the LRF. The geographical area the forums cover is based on Police areas.

LRFs also work with other partners in the military and voluntary sectors who provide a valuable contribution to LRF work in emergency preparedness.

The LRFs aim to plan and prepare for localised incidents and catastrophic emergencies. They work to identify potential risks and produce emergency plans to either prevent or mitigate the impact of any incident on their local communities.

Volume 14 – Mines, Tips and Quarries

19.1. INTRODUCTION

Each local authority has a duty under the Mines and Quarries (Tips) Act 1969 to ensure that disused tips do not, by reason of instability, constitute a danger to members of the public. SCC's approach to understanding and managing this risk has been to engage Amey Consulting as part of SCCs partnership with AMEY (Infrastructure+) to review all known sites in the county as a desktop review, assigning a level of risk.

There is now a rolling programme of inspection whereby sites are inspected by qualified engineers at a frequency determined by their assigned risk status. Any sites where it is believed that the risk status needs to be amended following an inspection are highlighted immediately to SCC, and there is a monthly update report, followed by an annual summary.

Volume 15 – Land Acquired for Highway Purposes

20.1. INTRODUCTION

The highway authority can acquire land by agreement or compulsory acquisition for highway purposes.

The approach to managing and acquired for highway use requires development.

Volume 16 – General Highway Management

21.1. INTRODUCTION

Alongside the management of key highway assets there are also a large number of other services and functions that we provide as the local highway authority.

21.2. PERMITS AND LICENCES

Under the Highways Act 1980 it is necessary for anyone wishing to carry out certain functions on the highway to first get written permission to do so.

The area of the Highway is as defined on the plans held by the authority but usually includes the road, the adjacent footway and verges and sometimes other grassed areas nearby.

In order to get permission to carry out activities on the Highway, it is usually necessary to obtain some form of licence, permit or consent form and in some cases pay a fee. Written permission must be obtained before any work can be carried out.

The following are the various types of licences and permits available:

21.2.1. Vehicle Access Crossings

A vehicle access crossing (or a dropped kerb) allows vehicles to safely cross the pavement and enter a driveway from the road.

Type of road

If the proposed crossing is to be situated on a classified road (A road, B road or C road) then planning permission will be required from the local District/Borough Council. The application will not be processed until permission has been granted.

The classification of the road can be found on the road status map.

Accredited contractor

An accredited contractor that meets the requirements to carry out works on the highway must be appointed. The contractor must obtain a permit to dig before works on the highway can commence.

Property owner

An application for a vehicle access crossing will only normally be considered when applied by the landowner. A tenant will require the permission from the relevant landlord.

Room required within the property

Sufficient room on the property for a vehicle to be parked without overhanging the highway must be available. Desirable distance from the highway is 6 metres and the absolute minimum is 4.8 metres.
The above distances must be achieved in a transverse direction, i.e., perpendicular to the line of the road. Lateral parking (e.g., in line with the road) is not acceptable.

Width

A crossing will not be approved, or an existing access widened, so that it will cover the width of the property. Standard width of a dropped kerb is 2.75 metres. A request for an access to be widened may be considered but must state on application the reason.

Visibility

When applying for a vehicle access crossing consideration of adequate visibility must be considered. Depending on the speed limit the driver leaving the access must be able to see approaching vehicles travelling along the roadway from both directions at a minimum distance of 2 metres back from the edge of the carriageway.

A driver's view of the roadway must be unobstructed and not restricted by objects such as hedges or walls. The distance that the driver is required to see along the roadway will depend on the speed limit of the road.

Table 12 – Visibility Requirements for Vehicle Access Crossings

Speed limit of a road and length of visibility that is required	
Speed limit of road (mph)	Length of visibility (metres)
20	33
30	70
40	120

Speed limit of a road and length of visibility that is required	
Speed limit of road (mph)	Length of visibility (metres)
50	160
60	215

Pedestrian visibility

Pedestrian visibility is also another factor that needs to be considered when applying for a dropped kerb. Visibility for pedestrians is required to allow drivers to see pedestrians as they emerge from their access road, driveways or parking area and to allow pedestrians to see the vehicle.

Multiple access crossings

Only one crossing into a property will be approved. Separate 'in and out' crossings are not normally permitted.

If a second access is required and there is specific justification, these details will be recorded in the relevant section of the application form.

If a property has a vehicle access to the front and rear of the property, crossings at each frontage may also be allowed, provided it is not possible to drive from one to the other through the property.

Reasons for refusal

A dropped kerb will generally not be approved if it's:

- Within 15 metres of a road junction, or traffic signals crossing.
- Where an existing bus stop could be in the way of the proposed dropped kerb. The highway authority may consider relocating the stop as long as there is a suitable alternative available. The alternative location must be within 50 metres, in either direction of the existing stop.
- From a layby or other designated parking areas.

A non-refundable fee is required upon application for an inspector to give an assessment of the site. A charge for a permit to dig will be required which the contractor will apply for.

21.2.2. Placing items and skips on the highway

For skips and building materials on the highway, an application for a permit to place items on the highway is required.

Permission to place a skip on the public highway must be obtained from Staffordshire County Council in each instance. Permission will only be granted to the skip owner and although a licence to operate as a skip company is not required from us, the owner must be registered with the authority before an application can be processed.

Registration is required for any organisation that wishes to obtain a permit from the highway authority and a completed registration form is returned with:

- Copy of Public Liability Insurance valid for the full duration of the proposed permit with a minimum cover of £5,000,000

And where applicable or each type or organisation, one or more of the following:

- Copy of NRSWA 1991 (Street Works) accreditation
- Copy of Waste Management/Transfer Licence
- Any others relevant to the type of application

There are legal requirements that a skip operator must adhere to when transferring and managing waste.

If a permit application is approved it will allow large or bulky items to be placed on the public highway, such as:

- skips used for non-hazardous waste
- 'hippo' bags or other bags for non-hazardous waste
- builders' materials if appropriately secured in bags or wrapped materials on pallets
- unfixed temporary items specifically agreed by the authority

If bricks or other materials are just being unloaded and then moved off the highway onto private land a permit will not be required.

Permits are capped to 7 calendar days maximum on a classified (A, B, C) road and capped to 14 calendar days maximum elsewhere (or part thereof). We will aim to get your permit to you within 5 working days.

A fee is payable for a permit or an extension thereof, details of which can be found on the Council's website.

Specific requirements can be found in the SCC Agreements, Licensing and Permissions Policy.

21.2.3. Parking bay suspensions

When working in the highway, it may be necessary for parking bays to be suspended.

Parking bay suspension signs must be erected in line with the specifications set out by the Department for Transport in the Road Traffic Regulation Act 1984 - Section 64 and Section 65.

Parking bay suspension signs should be in line with the specifications set out by the DfT.

21.2.4. Projections over the Highway

A projection licence covers temporary projections over a highway, such as the boom of a crane and permanent projections, such as overhanging buildings or structures.

The owner of the proposed projection and/or the land on which the projection will be must apply for a licence. These licences are valid for as long as the projections remains in place.

Oversail licences relate to any temporary projection over the highway. This includes windows, advertising boards, shop signs or banners as well as cranes whose jib extends across the highway, seasonal decorations, bunting etc. Permanent licence price on application.

For a licence to permanently oversail the highway, a written application detailing the nature of the oversail along with a drawing of the oversail and location plan must be provided. A price will be given on application.

21.2.5. Scaffold or Hoarding

A permit is needed for any scaffolding or hoarding that needs to be placed on the highway, it does not control the standard in which the scaffold or hoarding is put up, this remains the responsibility of the applicant. Wherever possible, a scaffold or hoarding must be placed on private property. Where applications are received and it is clear on inspection that sufficient room is available on private land, the application will be refused but is still chargeable. Sufficient room on private land is determined by the authority and is not negotiable.

Applications must be made by the company who is placing scaffolding or hoarding. The company must be registered with the council to apply for a scaffolding or hoarding permit.

In the case of scaffolds, the company working on the scaffold must also be insured in the same way as the applicant. If approved, the item owner carries all of the responsibilities in adhering with regulations, standard conditions and any special conditions that may be applied to the permission.

General conditions for application and fees can be found on the Council's website

21.2.6. Seasonal Decorations

This process covers the installation, maintenance and removal of seasonal decorations on or above the highway which requires notification to the highway authority under S178 of the Highways Act 1980. This process provides the mechanism and framework that allows organisations to provide the required notification.

Seasonal decorations give great pleasure and enjoyment to the public and this plan does not intend to prevent seasonal decorations from being used, but to ensure they are installed, operated and removed safely. There is an obligation on everyone for their own safety and the safety of others.

Applications are available on the Council's website by completing the on-line form. Notifications can only be made to the authority by completing this online application.

21.2.7. Sign Applications

There are two different types of signs that can be applied for, tourism and amenity signs.

A tourist attraction must be a permanent area or building which is open to the public without needing to book during its normal opening hours. Tourism signs (white on brown) are for directions only and not for advertising purposes.

Amenities must have:

- a minimum visitor level of 5,000 visitors every year
- be open at least 50 days per year
- only be signposted from the nearest A or B road or town or village

The following amenities can apply for a sign:

- retail facilities
- recreational and sport facilities
- schools and children's nurseries
- churches and places of worship

Tourism and Amenity Sign policies are available on the Council's website.

A non-returnable fee is required which is payable upon application.

21.2.8. Guidelines for the use of 'A' Boards and Merchandising Displays on the Highways

The Local Highway Authority also has a legal duty to keep the streets free of dangers and potential risks. This needs to be balanced against protecting the commercial dynamic of the street environment. It is all about helping make the town centre both attractive and safe for retailers, shoppers and visitors alike.

It is also about protecting vulnerable sections of the community. The disabled and visually impaired, the elderly and parents with young children, all have a real problem negotiating their way around obstructions and this can be a real danger. Under the Equality Act 2010 we have to consider the disabled community when organising the street scene, and so do local shops and businesses. It's not just the law, it is a matter of common sense and respect for others.

To place an advertising display on the public highway, consultation with the highway or local planning authority must be carried out. A fee may be payable, or a formal application made under local planning regulations.

A copy of the SCC Policy on the Management of Commercial Obstructions and Guidance for use of 'A' Boards and merchandising Displays on the Highway in Staffordshire is available on the Council's website.

21.3. OBSTRUCTIONS ON THE HIGHWAY

The highway will be made safe, either by immediate removal of the obstruction or by signing, barriers and lighting.

Where significant expenditure is incurred in the removal of the obstruction from the highway, and where it is practical to obtain reimbursement, then the originator of the obstruction will be recharged for the cost of effecting the removal.

21.3.1. Spillages

All hazardous spillages will be made safe, either by immediate clearing or by signing and barriers.

Hazardous spillages sometimes require specialist equipment and expertise to affect their removal and therefore the initial response will consist of arranging for the County Council's Highways Contractor to assist the Police and Fire and Rescue Service to prevent immediate danger to road users and pedestrians, following which, the services of a specialist waste disposal company may need to be sought.

Where the identity of the cause of the spillage can be discerned every effort should be made to recover the cost of the clear up.

21.3.2. Removal of Mud

If there is mud on the road which constitutes a danger to users of the highway, action will be taken as follows:

- Immediate danger: if the amount of mud and the speed of the traffic indicate that there may be an accident, the operation will be stopped forthwith. If the operator refuses, the Police will be contacted and asked for immediate assistance. The operator will be instructed to put out appropriate signs and to remove the mud. If the operator is unable or unwilling to do this, the County Council's Term Maintenance Contractor will be asked to do so on a rechargeable basis.

- Potential danger: County Council staff will point out to the operator that they are creating a potential danger and instruct them to put out proper signs. If they are unable or unwilling to do this, the County Council's maintenance contractor will be asked to do so on a rechargeable basis. If appropriate, the operator will be instructed to remove the mud at the end of their operation or at the end of the day, whichever is sooner.

- Nuisance: the problem will be reported to the District/Borough Council with a request for them to deal with the problem. In this context, nuisance would apply to situations such as long-term or repeated deposition of mud on the highway which whilst not constituting a danger or hazard, makes the road unsightly and leads to an increased maintenance liability in respect of additional sweeping and gully cleansing.

21.3.3. Portable Signs on Footways

SCC have developed a Management of Commercial Obstructions Policy that is designed as a high-level framework document, setting out the conditions under which SCC will accept the placement of commercial displays on the highway.

These signs, normally associated with advertising goods and services, will be removed without notice if there is no person responsible for the sign at the sign's location. Otherwise, the responsible person will be requested to remove the sign. Where the person responsible for the sign fails to remove it, they will be notified that the sign will be removed to the nearest area depot. The signs will be retained in the area depot for a period of 28 days and thereafter disposed of.

Signs indicating 'Traffic Signals Not Working', signs associated with roadworks, or signs needed for other reasons, will be sited carefully where they need to be displayed and will be removed as soon as possible, in order to reduce the danger or inconvenience to pedestrians.

Signs of this type can cause a potentially dangerous obstruction to the footway, particularly for visually handicapped or disabled people. Signs left in place after serving their purpose also detract from their future effectiveness, since road users may be led to assume that roadworks are not always in progress.

21.3.4. Road Traffic Collisions

After a road traffic collision, the highway will be made safe for traffic to pass freely as soon as practicable.

21.4. PARKING ON THE HIGHWAY

21.4.1. Where can vehicles park/wait on the public highway?

The county council cannot legally prevent anyone from parking their vehicle on the public highway if there are no existing parking restrictions.

The Highway Code provides extensive detail on where vehicles can and cannot park on the public highway and advises:

'You must not wait or park on yellow lines during the times of operation shown on nearby time plates. Double yellow lines indicate a prohibition of waiting at any time even if there are no upright signs. You must not wait or park, or stop to set down and pick up passengers, on school entrance markings when upright signs indicate a prohibition of stopping.'

Vehicles must not stop or park on:

- a pedestrian crossing, including the area marked by the zig-zag lines
- a clearway
- taxi bays as indicated by upright signs and markings
- an urban clearway within its hours of operation, except to pick up or set down passengers
- a road marked with double white lines, even when a broken white line is on your side of the road, except to pick up or set down passengers, or to load or unload goods
- a tram or cycle lane during its period of operation

Do not stop or park:

- near a school entrance
- anywhere you would prevent access for emergency services
- at or near a bus stop or taxi rank
- on the approach to a level crossing
- opposite or within 10 metres of a junction, except in an authorised parking space
- near the brow of a hill or hump bridge
- opposite a traffic island or (if this would cause an obstruction) another parked vehicle
- where the kerb has been lowered to help wheelchair users and powered mobility vehicles
- in front of an entrance to a property
- on a bend
- where you would obstruct cyclists' use of cycle facilities.

Except when forced to do so by stationary traffic.

If you do have to park/stop on the roadside:

- do not park facing against the traffic flow
- stop as close as you can to the side

- do not stop too close to a vehicle displaying a Blue Badge - remember, the occupant may need more room to get in or out
- you must switch off the engine, headlights and fog lights
- you must ensure you do not hit anyone when you open your door. Check for cyclists or other traffic
- it is safer for passengers (especially children) to get out of the vehicle on the side next to the kerb

21.4.2. Footway Parking

Parking on the pavement can obstruct and seriously inconvenience pedestrians, people in wheelchairs or with visual impairments and people with prams or pushchairs.

If there are no parking restrictions and vehicles are parked in contravention of the rules of the Highway Code, the matter can be reported to the Police who have access to powers enabling them to identify vehicle owners and issue on the spot fines if necessary.

21.4.3. Parking Outside Your House

Homeowners or residents living next to public highways have no legal right to the road and/or footway fronting their property boundaries. If there are no parking restrictions and vehicles are parked in contravention of the rules of the Highway Code, the matter can be reported to the Police who have access to powers enabling them to identify vehicle owners and issue on the spot fines if necessary.

21.4.4. Grass Verge Parking

Grass verges can often become damaged because of parked vehicles, delivery vehicles or other similar reasons. We will where possible seek to put right damaged verges, but generally remedial works are prioritised in accordance with the risk the problem poses to the public.

21.4.5. Blocking Access/Driveway

Vehicles causing an obstruction to access/driveways with a dropped kerb can be reported to the Police.

21.4.6. Parking on Yellow Lines

Double yellow lines are used to define the start and end of an area where parking is prohibited at all times.

Single yellow lines are used to define the start and end of an area where parking is prohibited during certain times. These markings are accompanied

by non-illuminated traffic signs which indicate what times parking is prohibited.

If vehicles are parked on double yellow lines, they may be doing so in contravention of the traffic regulation order, and they could receive a penalty charge notice.

Blue badge holders are permitted to park on double yellow lines for a period of no more than 3 hours provided it is safe to do so.

21.4.7. Parking That Obstructs Visibility

If there are no existing parking restrictions, then there is very little we can do to respond positively to this problem. We would suggest that neighbour disputes associated with parking should be resolved though amicable or mediated discussions, but we do not have resources available to facilitate or accommodate these discussions.

If it is not possible to resolve the problem in this way, you could consider requesting that we implement a Traffic Regulation Order (TRO) such as double yellow lines, but these schemes have to be firstly prioritised over other similar community requests, they take a long time to introduce, they have a significant cost attached to them and they must have the full support of the potentially affected community.

If you live near a retail outlet, school, church or other local amenity which generates a lot of on-street non-resident parking, you may be eligible to apply for an access protection marking.

21.4.8. Lorry Parking

The government conducted a comprehensive study undertaken in 2017 of the capacity and utilisation rates of overnight lorry parking facilities in England. Their report includes analysis of the welfare standards of formal facilities and of the extent of overnight parking in informal locations.

There are a number of locations in and around Staffordshire that provide dedicated parking areas for lorries (heavy commercial vehicles).

It is good practice for a local authority to ensure that suitable off-street HGV parking facilities are available in or near areas covered by an overnight ban - but it is not a legal requirement, and it is often not provided.

It is illegal for lorries to park partially or wholly on the footway and instances of this should be reported to the local Police.

Lorries parked on yellow lines are potentially doing so in breach of the relevant traffic regulation order and risk receiving a fine.

21.5. IRONWORKS

Utilities who supply services such as gas, electricity, water, drainage and telecommunications understandably have a legal right to place equipment under, on, or over the public highway in order to serve commercial, social and residential properties.

Utilities use various types of apparatus on the highway such as poles, cabinets, footway covers and road covers (manhole covers).

21.5.1. Who Owns the Equipment?

Most of the equipment placed on the highway will be marked with the initials of the utility, which is responsible for the maintenance, e.g., BT, STW, however this is not always the case and it is not always safe to try to identify this information.

21.5.2. How to Report Issues with Ironwork and Apparatus?

In the first instance you should always contact the responsible utility company to make them aware of an issue with their equipment if this is identifiable. Utility providers receive government scores on how well they deal with public complaints, therefore, complaints about noisy/rocking manhole covers and roadworks should also be directed to the owner.

Unless the equipment is posing an imminent risk to safety, utility companies do not have to repair the equipment within a set timescale. For example, noisy/rocking manhole covers can cause a nuisance, but they can be completely safe to road users.

If you are unsure who the owner of the equipment is, or it is posing an imminent risk to highway users, please report this straight away to the Council.

21.5.3. What can Staffordshire County Council do About Faulty Third-party Equipment on the Public Highway?

Our role is to investigate reports and notify the correct utility company as soon as possible, providing them with as much evidence as we can. If necessary, we can make a temporary repair to make the location safe, but the owner is responsible for permanent repairs.

Under Section 81 of the New Roads and Street Works Act 1991 legislation, we can take no further action and you should contact the utility company with any other enquiries, such as chasing up the permanent repair.

Whilst the onus to repair this problem rests with apparatus owner, we will continue to monitor the problem during our routine safety inspections which take place either monthly, quarterly or annually depending on the road classification.

21.6. NETWORK MANAGEMENT

Staffordshire County Council (SCC) as Highway Authority is responsible for ensuring the safe passage of all highway users on adopted highways and rights of way within Staffordshire. It is accepted that at times works and activities will be required upon, or affect, the highway such as alterations to its structure/layout, installation and maintenance of underground apparatus or occupation of the highway required in connection with works and activities where no alternative is available. There are various licences and permissions available that govern these works and activities ensuring that the highway authority can fulfil its statutory duties.

More detail is provided in the Network Management Plan which is available on the Council's website.

The following are examples of the various types of licences and permits available:

21.6.1. Agreements

- Major Works Agreement (Section 278 and Section 111 of the Highways Act 1980)
- Minor Works Agreement (Section 111 Local Government Act 1972 and Section 130 of the Highways Act 1980)
- New Roads Agreement - Construction of Adoptable Highway (Section 38 Highways Act 1980)

21.6.2. Licences

- Installation of private apparatus (Section 50 New Roads and Street Works Act 1991)
- Vehicle Access Crossing (dropped kerbs)(Section 184 Highways Act 1980)
- Licence to plant or cultivate in the highway (Section 142 Highways Act 1980)

21.6.3. Activity Permits

- Placement of a builder's skip (Section 139 Highways Act 1980) or placement of builders' materials or other items on the highway (Section 171 Highways Act 1980).
- Erection of scaffolding (Section 169 Highways Act 1980) and erection of hoarding (Section 172 Highways Act 1980).
- Temporary excavations in the highway (Section 171 Highways Act 1980)

21.6.4. Traffic Management Permits

- Application to Place Temporary Signals on the Highway (Traffic Signs Regulations and General Directions, and Traffic Signs Manual: Chapter 8).
- Application for a Temporary Traffic Regulation Order (road closures, etc.) (Road Traffic Regulation Act 1984),
- Notification of Other Traffic Management (e.g., lane closures)

21.6.5. Other Permissions Not Managed by the Network Management Unit

The following permissions affecting the highway are operated by District/Borough Council:

- On street trading / street cafes
- Advertising boards

21.7. ROAD CLOSURES

21.7.1. Emergency Road Closures and Diversions

Where roads have to be closed as a result of an emergency, diversionary routes will be established as soon as possible, taking the needs of both through traffic, and local communities into account.

Where the Police are not already involved in the incident, they should be informed of the nature and likely duration of the diversion.

Wherever possible, details of the person or company giving rise to the need for the closure or diversion should be obtained, and the cost to the Highway Authority, of attending to the incident and organising the closure or diversion, should be recharged.

21.7.2. Temporary Road Closures

Temporary road closures are implemented via the Road Traffic (Temporary Restrictions) Act 1991. For public events such as processions or street parties the District or Borough authority may use their own powers contained in the Town and Police Clauses Act 1847. The use of the Town and Police Clauses Act 1847 is considered the most effective manner to formalise temporary road closures in connection with public parades and other civic events such as Remembrance Day, St Georges Day parades.

There are two procedures: depending on the urgency of the works.

- Emergency Road Closures

  Where the Highway Authority is satisfied that urgent action is needed, no prior notice need be given, but only a short-term closure or restriction is possible. If there is a danger to the public (e.g., a gas leak) the notice is limited to 21 days, which can be extended by one further notice. In cases not involving risk of danger, the notice may only last 5 days.

- Temporary Restrictions(Road Closure)

  The applicant must inform the Highway Authority as soon as practicable if a closure is needed and the Highway Authority must issue the reason for the order, its effect, the alternative route, and the date and duration of the closure. The Highway Authority must give prior notice to the Police, Fire Service and any other traffic authority whose roads will be affected.

21.8. Involving Parish and Town Councils in Highway Maintenance

The County Council recognises local council aspirations to keep their neighbourhoods looking good and working well and aims to support a range of roadside maintenance activities that the councils may wish to undertake.

Activities funded by the local council could be undertaken by a local handyperson or contractor with appropriate skills, as and when required. All work would need to be carried out in compliance with relevant legislation and the County Council must be satisfied that those undertaking the work have received the necessary training in respect of health and safety
matters.

In addition, the County Council will offer advice and guidance for a range of self-help activities undertaken by local communities themselves.

Close co-ordination needs to be maintained between SCC and the Parish or Town Council concerned, both to avoid duplication of effort and to avoid conflict between their respective maintenance programmes.

It is essential that appropriate public liability insurance (£5m) is carried by the Parish or District/Borough Councils, or their contractors.

The types of work involved are:-

21.8.1. Drainage

- Clear leaves/debris from tops of gully grids and drainage grips.
- Clear vegetation at the entrance and exit of culverts under the highway.

21.8.2. Traffic Signs

- straighten up and clean traffic signs and reflecting bollards.
- clean and repaint finger posts and mile posts.
- remove tree and hedge growth obscuring traffic signs.

21.8.3. Grass Cutting

- Grass cutting to at least the County Council's minimum standards.

21.8.4. Ice Busters

Ice Busters is a Staffordshire County Council initiative aimed at Parish Councils and resident's associations who wish to mobilise dedicated volunteers to help to treat local footways and pedestrian routes during periods of prolonged cold weather and to clear snow and ice during the winter months. The County Council supports these groups by providing advice, equipment and de-icing materials.

21.8.5. General Maintenance

- Tidy up and strim small, grassed areas which are not included in the grass mowing programme.
- Control of weeds at rear of footways and around lamp columns and signs.
- Cut grass and weeds at base of visibility fences at bends and junctions.
- Carry out periodic painting of visibility fences.
- Carry out sweeping and clearing of debris discharged onto the highway after storms.

21.8.6. Specific Maintenance

- Minor works, such as resetting a kerb or tidying verge damage.

21.8.7. General

- It is essential that appropriate public liability insurance (£5m) is carried by the parish or town councils, or their contractors.
- All work needs to be carried out in compliance with relevant legislation and with health and safety requirements and the County Council must be satisfied that those undertaking the work have received the necessary training in respect of health and safety matters.

Close co-ordination needs to be maintained between SCC and the Parish or Town Council concerned both to avoid duplication of effort, and to avoid conflict between their respective maintenance programmes.

21.9. ILLEGAL SIGNS

21.9.1. Illegal Signs

Illegal signs that are a safety hazard will be removed as obstructions to the highway, but the County Council may also remove any illegal sign at its discretion.

Any sign which is a danger or potential danger to the public must be removed.

A sign is a danger to the public if:

- It obstructs visibility.
- All or part of it is on the carriageway.
- It obstructs the footway. The width of the footway should be taken into consideration i.e., if a footway is three metres wide, a sign placed at the back of the footway may not form an obstruction, conversely, a narrow footway is almost bound to be obstructed by such a sign.
- It is attached to street furniture.
- It obscures an authorised sign.
- It may be blown onto the carriageway by a strong wind.
- It constitutes an unnecessary distraction to road users.

If the sign is an immediate danger to the public, it must be removed straight away.

If it constitutes a potential danger to the public, notice will be served either verbally or in writing.

Signs advertising local voluntary fund-raising activities may be tolerated for up to one week before the event with permission.

The owners of illegal signs should be advised in writing of the County Council's intention to remove the sign and that if the sign is not removed by the owner, the sign will be removed to a County Council depot, and the owner will be advised of when and where it can be collected within 28 days, following which, it is liable to be destroyed.

Where permission is sought to display such signs, the organisation concerned will be advised that the signs must comply with the above criteria and must be removed as soon as practicable after the event. Companies or organisations wishing to display signs, will be asked to supply a schedule detailing the locations of all such signs.

21.9.2. Election Posters

The County Council, as Highway Authority, does not give permission to any person or body to place election posters, or other election material within highway limits, or on street lighting columns, traffic signs and other street furniture.

Election Agents should be advised that any election poster or material is liable to be removed and the Election Agent charged with a removal fee currently set at £2.00 per item.

21.10. ROADWORKS IN THE VICINITY OF LEVEL CROSSINGS

Roadworks in the vicinity of railway level crossings constitute a special hazard, and all such works will be carried out in consultation with Railtrack and in accordance with HAUC Red Book Part 2 'Guidance Note for Undertakers' Works at Railtrack Level Crossings.

Roadworks carried out in the vicinity of railway level crossings require special precautions. SCC Highway engineers should utilise the HAUC Guidance referred to above. Whilst this note essentially applies to the work of statutory undertakers in the vicinity of level crossings, the necessary precautions with regard to traffic control, guarding, and signing, apply equally to highway authority roadworks. It is essential that consultations with the rail company regarding the proposed roadworks are held at an early stage.

21.11. SWEEPING

District/Borough Councils are responsible for sweeping the highway and collecting litter. Where the safety of road users is at risk due to debris on the highway, the Highway Authority will take steps to remove the risk by

implementing appropriate traffic control or by removing the debris to a safe location.

The Environmental Protection Act 1990 makes District/Borough Councils responsible for the routine cleansing of all roads in the County. The Act does not, however, amend the County Council's duty under the Highways Act 1980, to assist and protect the rights of the public in the use and enjoyment of highways, and to make the highway safe by implementing traffic control, or by removing dangerous items from those highways.

Leaves are classified by the Environmental Protection Act as litter, and District/Borough Councils must remove them. It is possible there may be instances where leaves become a safety hazard, and the Highway Authority may have to take action, but due regard must be given to the District/Borough Council's responsibilities outlined above.

Fly tipping will not normally be considered a safety hazard and is for the District/Borough Council to clear. Section 89 of the Environmental Protection Act permits Highway Authorities to issue direction in respect of traffic management and periods when cleaning shall not be undertaken. These requirements need to be considered particularly in respect of heavily trafficked routes and areas of high pedestrian usage.

There is currently no duty for the highway authority under Section 41 of the Highways Act 1980 to ensure that highways are clear of moss, algae, lichen or similar vegetation as they have not become part of the fabric of the road, pavement or pathway.

Where dead animals, clinical or animal waste, are encountered on the highway, then the Highway Authority's responsibility consists of taking steps to make the highway safe for pedestrians and road users and does not extend to the removal of the animal or waste from the site. In most cases, the presence of a dead animal does not constitute a safety hazard, but in all cases, the services of the relevant District/Borough Council's specialist environmental protection teams will be sought to affect its removal from the site.

21.12. STATUTORY UNDERTAKERS' WORKS ON THE HIGHWAY

To minimise any disruption caused to the public, the proper co-ordination of works carried out by the Highway Authority and the Statutory Undertakers is most important. The Council's Traffic & Network Management Team work closely with Statutory Undertakers to ensure this co-ordination is effective.

All reinstatement of county roads, following works by Statutory Undertakers, must conform to the HAUC 'Specification for Reinstatement of Openings in Highways'.

All notifications and registrations of works must comply with the HAUC Code of Practice for the Co-ordination of Street works and works for Road Purposes and Related Matters.

All inspections of Statutory Undertakers' work must comply with the HAUC Code of Practice for Inspections.

Any trenches that are found to be defective in accordance with Clause S2 of the Specification for Reinstatement, must be rectified in accordance with the West Midlands Regional HAUC Agreement for Defective Reinstatements.

Investigatory inspections will be undertaken by the Highway Authority on Undertakers' trenches as required.

Details of the processes around management of Statutory Undertakers are included in the Network Management Plan which is available on the Council's website.

21.13. TEMPORARY SIGNING FOR EVENTS

Temporary traffic signs to special events may be erected for a limited period to guide traffic going to special events, such as major sporting events, shows or other public gatherings that are expected to attract large volumes of traffic to assist road safety and reduce congestion by giving clear directions to road users seeking the best route to an event.

They are not commercial advertisements intended to attract custom.

Traffic Signs Regulations and General Directions 2016 (TSRGD) provides for temporary signs to be erected to guide traffic to sporting events, exhibitions or other public gatherings which are expected to attract a considerable volume of traffic. Traffic Signs Regulations and General Directions 2016. Fixed signs must be one of the following: black on white; black on yellow; white on blue or blue on white. They may only be displayed for the duration of the event, and not longer than 6 months without the approval of the Secretary of State.

They are usually erected by road user organisations with the consent of the traffic authority. For safety reasons, it is seldom appropriate for private individuals to erect signs on public roads.

In all cases, traffic management must be sited, maintained and removed by qualified personnel and if unqualified, permit applicants should contract out this duty to organisations qualified and resourced to do so. The following legislation applies in the use of traffic management:

Consent[26] from the traffic authority should be sought via application to the Network Management Unit.

21.14. PLAYING OF BALL GAMES ON THE HIGHWAY

The highway authority occasionally receives requests to place 'No Ball Games' signs (or similar) on landscaped areas within the highway.

The problems are often related to anti-social behaviour and nuisance. Under Section 161(3) of the Highways Act 1980 'if a person plays at football or any other game on a highway to the annoyance of a user of the highway, he is guilty of an offence'. The Traffic Signs and General Directions explains which signs can be used by highway authorities within the highway. 'No Ball Game' signs are not available for use in the highway.

Where the problem relates to anti-social behaviour, the District/Borough Council has powers to consider the use of a Public Space Protection Order, and these are considered a more appropriate way of responding to such issues.

21.15. NO WAITING AT ANY TIME PLATES

The requirement to have 'At Any Time' plates with double yellow lines where prohibition applies at any time throughout the year was removed when the Traffic Signs, Regulations and Directions 2002 came into force.

Whilst the majority of these 'At Any Time' plates and posts will have been removed, where other maintenance activities such as footway preventative maintenance or resurfacing are taking place any remaining posts and signs should be removed.

[26] Permission to temporarily manage traffic on the public highway - Staffordshire County Council