Staffordshire County Council

Highway Infrastructure Asset Management Strategy

November 2019

Staffordshire County Council

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1 Introduction

Staffordshire County Council has an extensive highway asset valued at over £7 billion providing benefit to all as stakeholders. The highway maintainable at public expense is the largest and most visible community asset for which the county council is responsible. The way it is managed and maintained has a direct impact on the county council's ability to deliver on its priority and other outcomes. Residents, businesses and visitors all depend upon a good reliable service from our highway network to sustain our economic growth and transportation needs.

This Highway Infrastructure Asset Management Strategy details how the highway asset is managed to ensure the priority outcomes are achieved, taking into account finance and the current asset condition, differing stakeholder needs, localised priorities and the benefits they provide.

Whilst Highways England are responsible for the management of motorways and trunk roads in Staffordshire, the County Council is responsible for 6060km of carriageway, 4168km of footway, 1391 highway structures and an array of other network infrastructure. In managing the highway network, the County Council works with the other managing parties to plan a joined-up approach that enables a seamless service to stakeholders throughout the county.

Staffordshire County Council is committed to an asset management approach encompassing the outcome benefits of a whole cost lifecycle approach, ensuring the most efficient and effective use of the available highway budget and demonstrating the case for additional funding where this is appropriate. The continued use of innovative treatments alongside tried and tested maintenance materials will ensure the appropriate treatment is utilised at the right time.

Staffordshire County Council appreciates the difference and quality of the highway infrastructure and reliable journey times makes to residents, businesses and visitors to the county; it promotes jobs and growth supporting success for the future. The County Council can only achieve these priority outcomes with a well-managed, accessible highway network, regardless of how stakeholders choose to travel around the county.

1.1 Overview

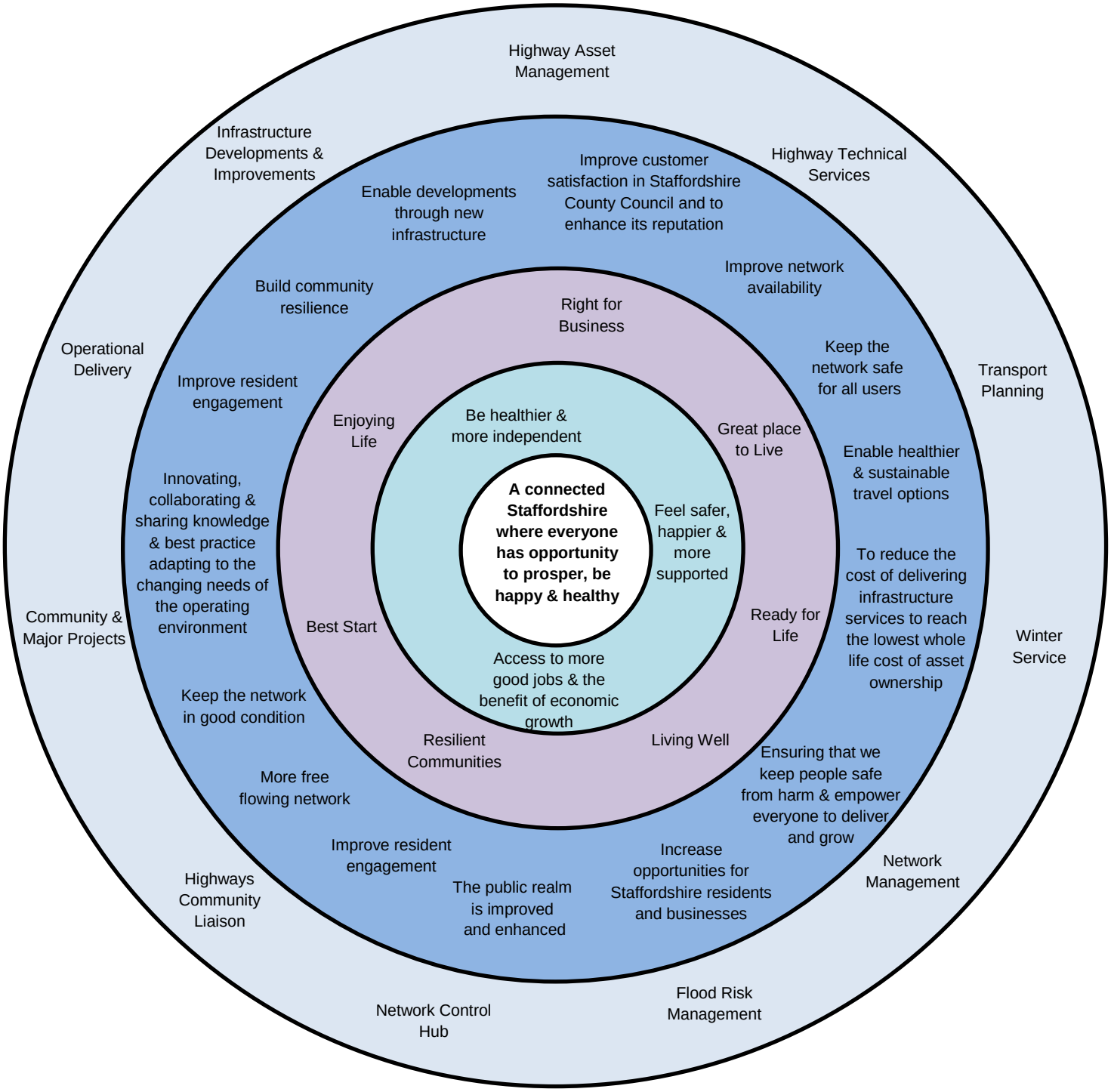
The Association of Directors of Environment, Planning and Transport (ADEPT) define asset management as:

"A strategic approach that identifies the optimal allocation of resources for the management, operation, preservation and enhancement of the highways infrastructure to meet the needs of current and future customers."

Adoption of asset management principles has long been recognised as an effective way in which to manage highway assets. The Department of Transport (DfT) is also promoting the use of asset management of highway assets as the most effective and efficient means of managing highway assets, through its funding mechanisms, such that only those that use asset management in a robust way will be able to obtain funds on an ongoing basis from the DfT capital highway maintenance 'Incentive Fund'. The purpose of this HIAM Strategy is to support the maintenance of the highway asset in the most effective and efficient manner to meet the corporate priority outcomes and the objectives that feed into these. The Vision, Priority and Outcome Linkages diagram shows the linkages through the objectives and outcomes.

Using an asset management-based approach will provide:

- An improved understanding of the extent and condition of the highway infrastructure
- 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 assets' whole life
- A recognition of the potential impact of funding constraints
- Understanding risks and mitigating them
- A consistent approach which facilitates managing service user expectation
- Maximising funding opportunities and making best use of monies available
- Minimising lifecycle costs and reactive repair costs
- Alignment and coordination of existing initiatives, including competency development



Staffordshire County Council Vision

Staffordshire County Council Commissioning Priorities

Service Areas

Staffordshire County Council Population Outcomes

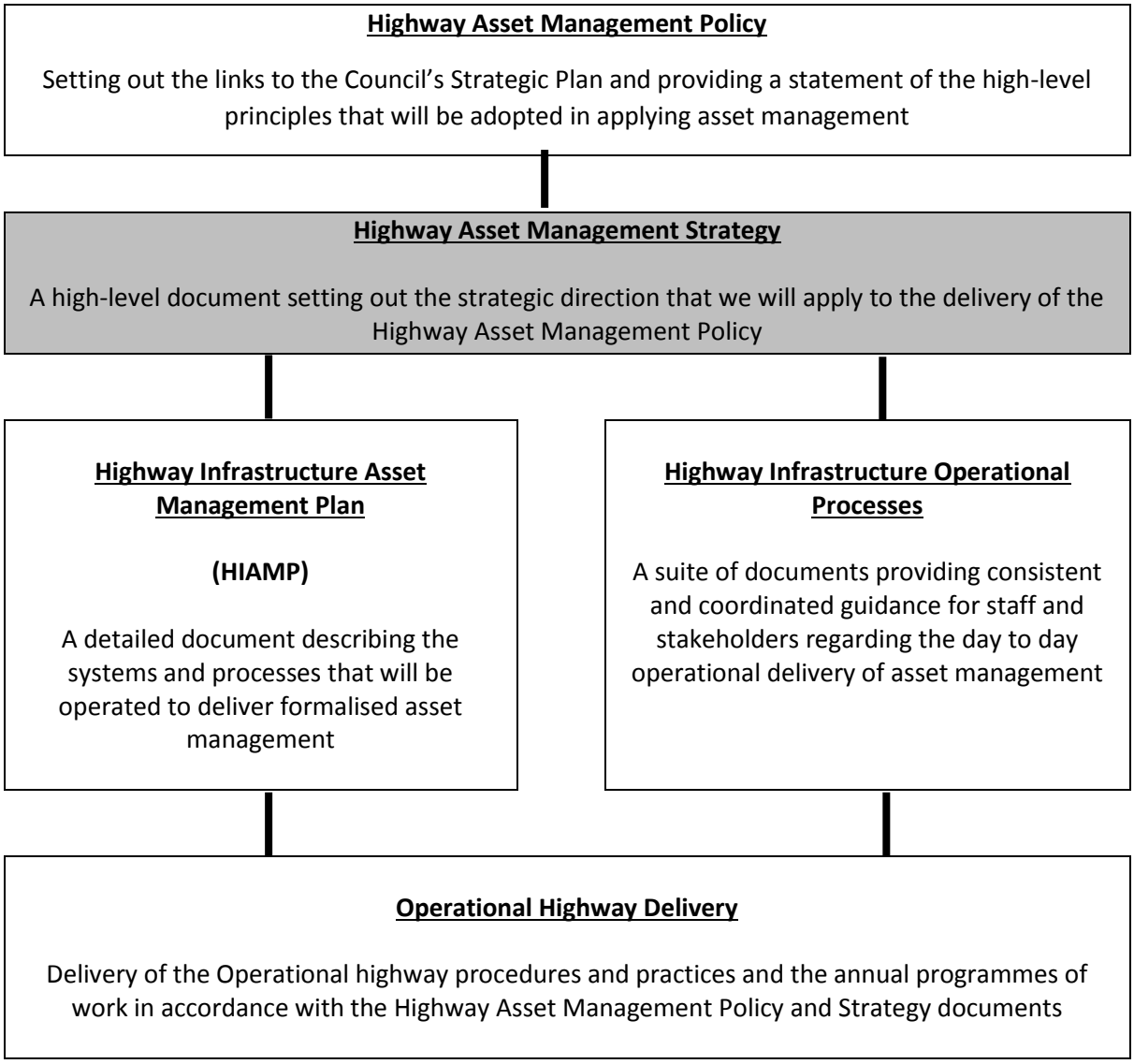
Infrastructure Plus Outcomes

Vision, Priority and Outcome Linkages

1.2 Purpose

This document sets out the broad objectives and the strategic direction that the County Council will adopt in support of the policies and supporting principles set out in our Highway Asset Management Policy.

In conjunction with the Highway Asset Management Policy, it informs the Highway Infrastructure Asset Management Plan (HIAMP) which sets out how we will apply and operate our asset management principles to ensure that our highway network remains safe, serviceable and sustainable for the benefit of our stakeholders, taking account of available resources (see asset management framework diagram below).

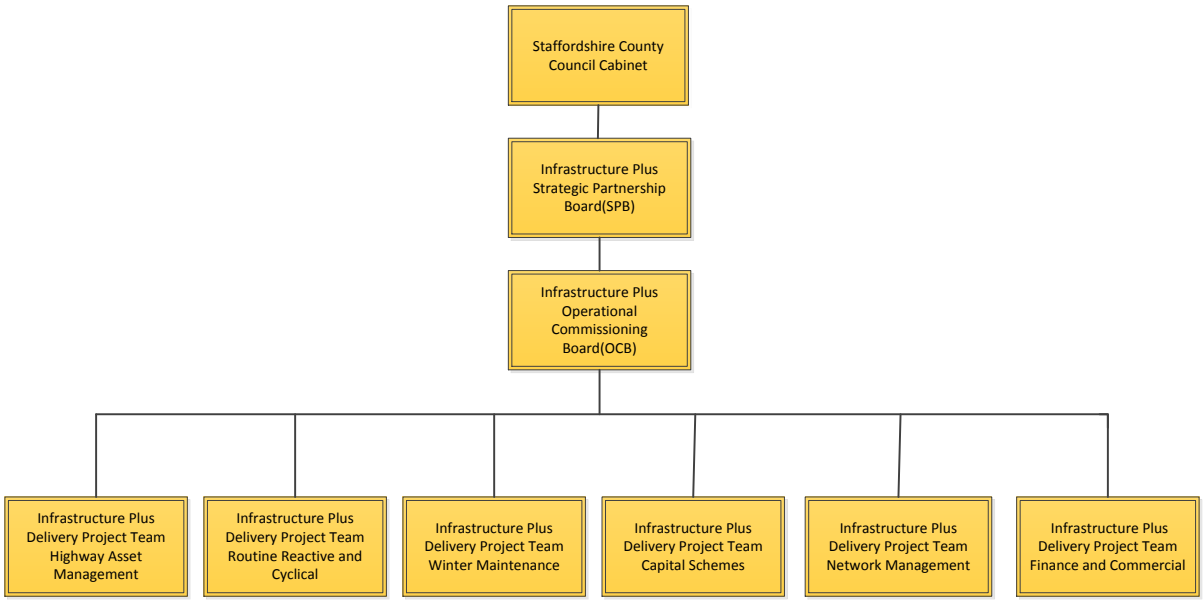


Asset Management Framework

1.3 Decision Making and Governance

The day to day implementation of asset management is undertaken by the Highway Asset Manager. Performance at this level is monitored by the Highway Asset Management Delivery Project Team (DPT) of the Infrastructure-Plus (I+) governance structure.

The diagram below illustrates the I+ governance structure which is in place to drive and shape the partnership.



Infrastructure Plus Governance Structure

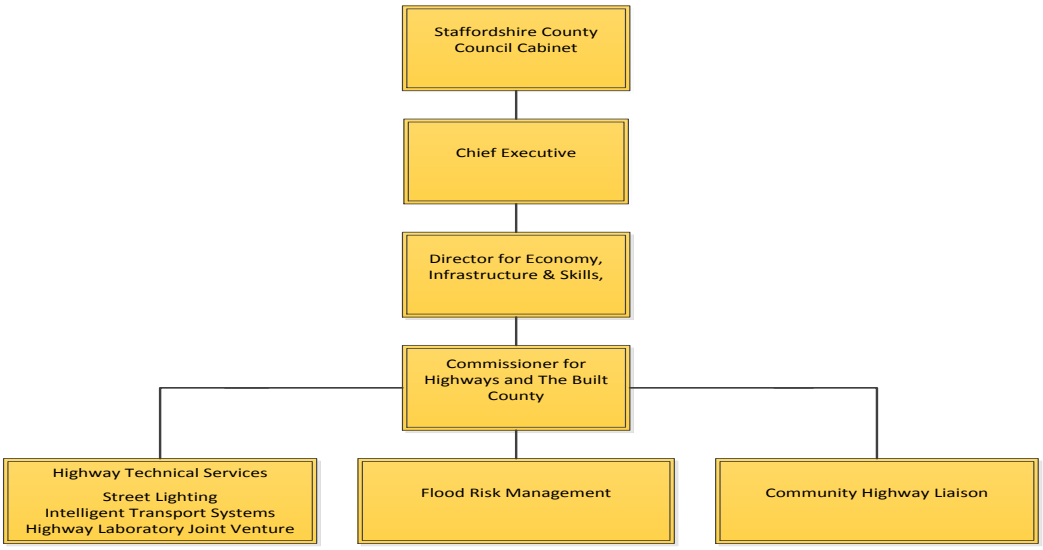
Staffordshire County Council Cabinet considers key decisions relating to highways; this is defined as decisions which are termed significant, either in financial terms or in its effects on communities or working in an area comprising two or more electoral divisions in the county area.

The Strategic Partnership Board (SPB) comprises of Staffordshire County Council and Amey Senior Leadership Teams and the Staffordshire County Council Portfolio Holder for Transport and Highways. The objective of the SPB is to lead the strategic direction of the partnership and determine how it shall meet the outcomes.

The Operational Commissioning Board (OCB) comprises of Staffordshire County Council and Amey Senior Management; its primary objective is to lead the performance and contractual requirements of the partnership to meet the outcomes.

DPTs deliver the services and enable the partnership to meet the outcomes whilst achieving best value for the County Council.

The performance of the partnership is monitored via a suite of key performance and operational performance indicators which through the governance structure enables a continuous cycle of improvement.



Staffordshire County Council Services Outside of I+

The Staffordshire County Council Services Outside of I+ diagram above indicates the services outside of I+. These follow a traditional governance model, reporting through the Staffordshire County Council Senior Leadership Team and Cabinet.

1.4 Legal Obligations, National Guidance and the Strategic Document Framework

The HIAMP aims to enable asset management guided by the principles of BS ISO 55000, 55001 and 550002; forming part of a wider strategic document framework.

2 The Highway Asset

2.1 Asset Inventory

Staffordshire County Council is responsible for a wide variety of highway assets; tables 1 and 2 give details of this infrastructure.

Table 1: The Staffordshire Highway Infrastructure Key Assets

Highway Assets	
Asset Group	**Elements**
Carriageway	Carriageway - including lay-bys, bus lanes etc
Footway, Footpaths & Cycleways	Footways - adjacent to the carriageway
	Footways - remote from the carriageway
	Cycleways - constructed off-carriageway cycleways, shared cycle/footways and cycle/carriageways
Structures	Bridges, sign gantries, culverts, embankments, dams, retaining walls and subways
Lighting (including illuminated signs and bollards)	lighting columns, lamps, cabling, ducts feeder pillars, subway lighting. Illuminated signs & posts, information boards

Integrated Transport Systems	Signalised junctions, signalised pedestrian crossings, detection equipment, cabling, ductwork, bollards and variable message signs
Safety Fences	Vehicle safety fences
Non-illuminated Signs	Non- illuminated signs, warning, regulatory and local direction/information posts, information boards
Closed Circuit Television	CCTV Installations & Monitoring Equipment
Drainage	Gullies & linear drainage channels, highway drains (including pipework, manholes & outfalls), land drainage ditches and watercourses, roadside ditches swales etc
Traffic Calming	Traffic Calming Features - including tables, humps chicanes etc
Road Markings	All road markings
Verges and Planted areas	verges, soft landscaped areas and trees
Street Furniture	Cycle stands, bollards etc

Table 2: The Staffordshire Highway Asset Inventory

Asset Type	Amount	Unit	Data Confidence	HIAMP Reference
Carriageway	**6060.6**	km	High	Carriageway Lifecycle Plan (CWLCP)
Footway	**4168**	km	High	Footway, Footpaths & Cycleway Lifecycle Plan (FWLCP)
Cycleway	**199**	km	High	FWLCP
Bridges	**1048**	No.	High	Highway Structures Lifecycle Plan (HSLCP)
Culverts (1.0 - 1.5m span)	**Unknown**	No.	No Info	HSLCP
Retaining Walls	**200**	km	Low	HSLCP
Streetlights	**92,656**	No.	High	Street Lighting PFI
Illuminated Signs	**22,741**	No.	High	Street Lighting PFI
Illuminated Bollards	**2076**	No.	High	Street Lighting PFI
Subway Lights	**675**	No.	High	Street Lighting PFI
Zebra Crossings	**347**	No.	High	Traffic Signal Lifecycle Plan (TSLCP)
Twin Amber Flashing Units (school crossing points)	**216**	No.	High	TSLCP
Feeder Pillars	**442**	No.	High	TSLCP
Hatpins	**311**	No.	High	TSLCP
Car Park Monitoring Systems	**112**	No.	High	TSLCP
Traffic Signal Junctions	**174**	No.	High	TSLCP
Traffic Signal Pelican / Puffin /	**353**	No.	High	TSLCP

Asset Type	Amount	Unit	Data Confidence	HIAMP Reference
Toucan				
Dual Pelican / Puffin / Toucan	**42**	No.	High	TSLCP
Vehicle Actuated Signs (VAS)	**128**	No.	High	TSLCP
Variable Message Signs (VMS)	**23**	No.	High	TSLCP
Car Park Management Systems	**6**	No.	High	TSLCP
CCTV Cameras	**12**	No.	High	TSLCP
Non-illuminated Signs	**Unknown**	No.	No Info	HIAMP
Road Gullies	**148,000**	No.	High	Drainage Lifecycle Plan (DLCP)
Footway Gullies	**Unknown**	No.	Medium	DLCP
Rural Verge	**5762**	km	Medium	HIAMP
Urban Verge	**2,240,036**	m^2	Medium	HIAMP
Kerb	**Unknown**	m	No Info	CWLCP
Culverts	**Unknown**	No.	No Info	DLCP
Offlet kerbs, bypass kerbs & kerb drain	**Unknown**	No.	No Info	DLCP
White and Yellow Lining	**Unknown**	m	No Info	HIAMP
Safety Fencing	**50,209**	m	Medium	Safety Fence Lifecycle Plan (SFLCP)
Pedestrian Guardrail	**Unknown**	m	No Info	SFLCP
Boundary Fencing	**Unknown**	m	No Info	HIAMP
Visibility Fencing	**Unknown**	m	No Info	HIAMP
Highway Drain	**Unknown**	m	No Info	DLCP
Bollards	**Unknown**	No.	No Info	HIAMP
Fingerposts	**Unknown**	No.	No Info	HIAMP
Trees	**Unknown**	No.	Low	HIAMP
Bus Stop Flag Posts	**Unknown**	No.	No Info	HIAMP
Street Furniture, bicycle racks etc	**Unknown**	No.	No Info	HIAMP
Grit Bins	**1774**	No.	High	HIAMP

Each asset group has its own lifecycle plan and schedule of works that come together to enable us to identify the optimum management strategy for each group and the highway assets as a whole. The life cycle plans associated with each asset group are appendices to this document

2.2 The Value of the Asset

The highway asset has a current gross replacement cost of £7.77 billion, excluding land and a depreciated replacement cost of £6.71 billion. The annual depreciation is £38.3m i.e. the amount of annual funding required to maintain the highway asset in a steady state.

From 2015/16 onwards, it has been necessary to value highway assets on a depreciated replacement cost basis to comply with Whole of Government Accounts

(WGA) and International Financial Reporting Standards (IFRS). The County Council has voluntarily reported highway asset values in accordance with WGA and IFRS since 2012.

Table 3: The Staffordshire Highway Asset Valuations

	£000's	£000's	£000's
Asset Group	**Gross Replacement Cost**	**Depreciated Replacement Cost**	**Annual Depreciation**
Carriageway	5,541,320	5,171,414	18,321
Footways + Cycleways	765,735	721,116	1,225
Structures	1,300,393	746,345	13,814
Traffic Management	31,441	16,740	1,536
Street Furniture	35,777	14,561	827
Total	**7,674,666**	**6,670,176**	**35,723**

3 Management of the Asset

Infrastructure services are delivered through a number of different contract models depending upon the asset group. Highway maintenance, design and construction services are delivered through the Infrastructure Plus (I+) Strategic Partnership, Street lighting is delivered through a Private Finance Initiative (PFI) and a number of other services are delivered internally.

The I+ Partnership with Amey is a first for any local highway authority and demonstrates our forward thinking and determination to achieve the required outcomes for our county. I+ has also enabled us to provide an end to end service for developers, attracting investment into Staffordshire and enabling us to retain engineering skills in the county whilst attracting the next generation of talent who will give us the foundations for continuous improvement and growth within this wonderful county. Continual service reviews through monthly Delivery Project Team (DPT) meetings are an integral part of the strategic partnership with outturn performance indicators reported to the Operational Commissioning Board (OCB) on a monthly basis along with actions required and/or implemented as a result of any under-performance.

The street lighting PFI maintains over 99,000 lighting units and contributes to Staffordshire County Council's priority outcomes and aims through the provision of efficient lighting coupled with a good standard of lighting stock.

Staffordshire County Council has and continues to be a leading highway authority both regionally and nationally, sharing our good practice and continual improvement through ADEPT, the Highway Maintenance Efficiency Programme (HMEP), United Kingdom Roads Board (UKRB), Midland Service Improvement Group (MSIG), Midlands Highway Alliance (MHA) and Highway Asset Management Financial Information Group (HAMFIG).

The financial challenges the County Council face require greater prioritisation of overall funding across the authority. However, our strategy of preventative maintenance and whole lifecycle cost management ensures the impact on the asset is proactively managed.

The I+ Partnership has enabled us to utilise Amey's Asset Management System to identify whole lifecycle costed programmes of work, prioritised using our locally developed asset value management prioritisation criteria that takes into account the condition of each length of highway, managed risk and the benefit to stakeholders using the highway. This allows us to predict the effect of funding strategy and budget decisions on each section of the highway. This enables us to calculate the whole cost of those decisions and other options using a mechanised approach.

Knowing the effects of various budgeting strategies on each asset group and how the performance of each asset affects our delivery of corporate priorities, along with the direct links to stakeholder's satisfaction that they receive from the use of the network makes this paramount to customer satisfaction with our management of the highway asset.

3.1 Funding

The capital maintenance fund available over the last 7 years inclusive of any additional funding is shown in Table 4 below. By contrast, the funding for subsequent years is shown and demonstrates the importance of ensuring our asset management approach minimises the impact of the County Council's prioritisation of resources to at least 2020/21.

Table 4 – Capital Maintenance Highway Funding 2010/11 – 2020/21

2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
£(m)	£(m)	£(m)	£(m)	£(m)	£(m)	£(m)	£(m)	£(m)	£(m)
35	31	29	17	16	15.75	15.5	24.25	15.15	14.75

In December 2014, the Secretary of State for Transport announced that £6 billion will be made available between 2015/16 and 2020/21 for local highways maintenance capital funding. In November 2015 he also announced a further £250

million for a dedicated Pothole Action Fund. From this funding, £578 million has been set aside for an Incentive Fund scheme, to reward councils who demonstrate they are delivering value for money in carrying out cost effective improvements.

It is anticipated that in the near to medium term future the majority of funding will be provided by the above two mechanisms. As opportunities occur, further funding will be sought through various bidding mechanisms and the Stoke on Trent and Staffordshire Local Enterprise Partnership.

3.2 Data capture

Whilst it is important to collect inventory and condition data related to existing assets, this needs to be progressed proportionately in accordance with the relevant risk and resources available. New developments and integrated transport improvements that are taken into the adopted highway provide the ideal opportunity to put these assets onto whole lifecycle management. The Council County record all new assets in the asset register, ensuring procedures are in place internally and externally to capture these.

3.3 Integrated Highway Asset Management Systems

The collection and analysis of inventory and condition data enables us to make the right investment and priority decisions for each asset group. The storage, sharing and use of that data is therefore paramount to the continued strategic planning and implementation of asset management works. Across all major asset groups integrated highway management software systems are in place, furthering our use of quality data in decision making. An example of this is the utilisation of asset management planning software, supplemented by our asset value management prioritisation toolkits to inform asset management in relation to planned programmes of work on footways and carriageways.

3.4 Condition Assessment

Asset condition information is collected at regular scheduled intervals to ensure the information held in the asset systems is up to date and supports the performance management framework in place as part of the I+ Partnership and wider services. It also ensures the risk and value of premature failure associated with each asset is monitored and corrective actions at both a strategic and practical level can be instigated to prevent or minimise those risks in good time. By having foresight of potential risks at an early stage, investment decisions can be altered to ensure the efficiency and effectiveness of the overall management of the asset. New or accelerated risks are identified before they compromise delivery of the required outcomes.

A fundamental component of asset management is to demonstrate;

- The levels of service that we are delivering
- Identify trends in improvement or deterioration
- Identify priorities for focussing our resources
- Monitor the effect of our treatment strategies
- Provide the base data required for lifecycle modelling and the calculation of Depreciated Replacement Costs (DRC).

The County Council undertake comprehensive annual surveys to collect condition data on our entire carriageway and footway asset (SCANNER, Griptester and Coarse Visual Inspection (CVI)), updating the data through a continuous four-year cycle. This data is collected and analysed within the UK Pavement Management System (UKPMS) framework.

All highway bridges are inspected every two years and their condition is scored using the national Bridge Condition Index (BCI) method and recorded on Highways Management System (HMS). This data, along with an understanding of the route importance, enables the identified maintenance works to be prioritised.

The County Council also undertakes scheduled safety inspections of all highways except on its rights of way network, to identify and respond to deterioration that is likely to cause a significant risk to users. This strategy supports the revision of the network hierarchies and in order to develop our risk-based approach in line with the latest guidance, this will in turn support the revision, update and implementation of the frequency of inspections. Frequencies will be established in accordance with the level of risk associated with each level of the local network hierarchy and aligned with the level of available inspection resource. This will help us to identify and respond more effectively to the most critical defects on the network.

3.5 Asset Group Strategies

Different types of asset have their own asset management strategies that reflect national codes of practice and the individual needs of each asset. The contribution of each asset group to the corporate priority outcomes, along with the relative risks of reduced maintenance on those assets link directly to the overall strategy for the maintenance of all highway assets.

Each group of assets have their own asset manager and are managed in different ways to reflect their need. For example, street lighting is managed under a 25-year PFI agreement, traffic signals and intelligent transport systems are managed in-house by the county council, whereas all other highway maintenance is managed by Amey under the I+ Partnership.

A major part of budget strategy is assessing the effect of budget decisions for an asset group on the delivery of corporate priority outcomes and customer satisfaction. We therefore ensure the effects of all strategic funding decisions are considered at an early stage to achieve the most efficient and effective outcome for the authority and our customers within the finance available for the service. Whilst all our required investment would produce the greatest outcomes, in reality it is unlikely that the funding required will be available in the short to medium term; therefore, we have a duty to live within our means whilst reducing as far as is reasonably practical the effects on our corporate priority outcomes and consequently our customers.

The lifecycle plans for each asset group allow the effects of different budget strategies to be considered before implementing the most advantageous strategy for the authority's stakeholders.

3.6 Implementing Planned Works

To ensure effective network management and co-ordination, our works programmes are planned up to 5 years in advance. This allows other 3rd parties with major infrastructure within the highway to have sight of planned works and to co-ordinate the sequence of works to both cause the least disruption for stakeholders and abortive works on the network.

Preventative works will generally cover between 1/10th and 1/12th of the network each year and as these works are seasonal to apply and usually require some preparation works their effective planning is key to their success for stakeholders and their required lifecycle. This early planning also enables our I+ Partnership sub-contractor to plan works and material deliveries in the most economical and efficient way. This in turn ensures the sub-contractor can procure the required materials etc. in plenty of time to ensure they are available and at the most economically advantageous price

that allows them to offer competitive rates to the contract that could not be achieved without such detailed forward planning.

With all works, quality management systems will be employed to ensure the durability/quality of products and works.

Whilst forward planning is essential, annual reviews are necessary to consider any changing needs of all the asset groups and thereby ensure efficiency and effectiveness are maintained within the management of the highway asset.

Our I+ Partnership has collaboration between the County Council and Amey at its heart to ensure the required outcomes are achieved.

The lifecycle planning approach also allows tracking of performance against investment for each group and thereby informs following future strategies to ensure the investment achieves the outcomes planned

3.7 Utility and Developer

An increasingly important factor in the preservation of long-term asset life is the appreciation of Statutory Undertaker Asset Management Plans and the priorities and constraints placed upon them by their respective national service regulators. This has a direct impact on the life of highway assets and is another area being targeted for improvement. Increased understanding of these external constraints and vision of external party delivery objectives will be targeted through the life of this HIAM Strategy, with all parties encouraged to share their longer-term asset programmes. As well as ensuring that highway investment is not wasted by undermining excavations in the longer term, improvements in this area will also improve forward planning for disruptive works, improve public perception of partnership working and increase the potential for collaborative working on site.

3.8 Training

Effective management of the highway network requires professional well-trained staff. The strategic partnership ensures the experience and level of training required is developed through personal development plans. As a minimum, Asset Managers and other senior staff complete Highway Maintenance Efficiency Programme Asset Management modules, with key staff undertaking ongoing training as approved by the Institute of Asset Management.

4 Engagement

4.1 Key Stakeholders

Ultimately everyone is a highway stakeholder to some extent; however, the needs of each stakeholder group and the way in which they use the highway asset vary to some degree. This variation in highway users needs requires an array of approaches

to engagement and information dissemination. This has resulted in the identification of the following key stakeholder groups:

- Elected members
- Residents of Staffordshire (cyclists/motorists/ footway users)
- Businesses and the Chamber of Trade
- Public facility organisations and services
- Visitors to Staffordshire
- Transiting network users
- Emergency services
- Utility apparatus owners
- Local Enterprise Partnership
- Members of Parliament
- Parish/Town Councils
- District and Borough Councils

4.2 Communications Strategy

Communications and stakeholder engagement are co-ordinated across the partnership through the Community Liaison Team. Communication is implemented in accordance with the Communications Guideline Document and stakeholders are consulted with regard to improvement and maintenance schemes. Elected members and other affected stakeholders will be engaged in the co-production exercises throughout the life cycle of the asset to create highways that add to the fabric of society.

In today's financial environment demand management must be practised, proactive communication is key to this. The partnership will manage expectations through clear sight of proposed works programmes and typical activity cycle times; in addition to this, the partnership will promote the use of community capacity via self-help groups within communities to complete minor tasks. An example of this is the well-established Ice Busters scheme.

To keep our communities and stakeholders informed, the following information will be published on the authority's website:

- Annual maintenance programmes (Routine, reactive and cyclical)
- Scheme programmes (Integrated transport, highway structures, highways structural and preventative maintenance)
- Policy documents
- Performance figures
- Life cycle plans

All highway defects are managed through the Operational Control Room (OCR) using works scheduling systems and that enable the status of defect repairs to be easily tracked. Residents who report a defect digitally are kept updated with the defect remedial work via email. Through the same system, feedback is sought regarding their experience of dealing with the County Council.

The Communication Strategy is supplemented by a Communication Guideline Document which informs how we communicate highway works.

The County Council participates in the National Highway and Transport (NHT) Public Satisfaction Survey to obtain information on the customer view of the highways service. This survey covers all aspects of highways and transport service delivery.

The County Council has participated in the NHT survey since 2008 and this enables us to understand the views and preferences of a sample of resident and to compare these against other similar councils. The survey, undertaken by Ipsos MORI, is based on a sample of residents and is designed to represent a spread of customers' views of the service across the county, geographically by gender and by age.

Details of the latest NHT survey can be found at the below web link:

http://www.nhtnetwork.org/nht-network/home/

5 The Future of the Network and Risk

5.1 Risk Management

The analysis of risk applies to asset management from a variety of different perspectives. These range from the broad strategic and corporate risks, such as the loss of the asset or a significant change in the corporate budget, to those affecting discrete processes or assets such as the risk that an individual defect might present to stakeholders.

Risk is present throughout asset management because of the extensive treatment options possible with decisions, often made without full understanding of the asset, how it will perform or the consequences of failure. Combined with a variety of uncertain external factors influencing the performance of the network, including weather and changes in budget provision, risk is ever present.

It is not possible to eliminate all risk from asset management. This means that while some mitigation is possible, the usual approach will be to understand the degree of risk and its possible consequences. This then needs to be balanced against the cost of reducing or eliminating the risk as well as the benefits of accommodating the risk.

Risks affecting our strategic objectives are managed across different levels of the organisation involving monthly review and assessment. The likelihood and severity

are factored to provide a score which is subsequently converted to a traffic light Red, Amber, Green (RAG) rating. Significant strategic or corporate risks are reported through the management chain and consideration given to further mitigation.

More specific risks associated with the maintenance of highway assets will be assessed against an understanding of the strategic importance of the asset or assets concerned. Fundamental to this will include consideration of the local road hierarchy and our Resilient Network. For example, an identical pothole on two different carriageways, both carrying the same volume of traffic would have the same impact if a vehicle collides with it. However, it will have a higher priority on one of the carriageways if it is part of a link with more strategic importance.

5.2 Climate Change

Staffordshire County Council is reacting to climate change by reducing the impact of the highway asset upon the environment and ensuring that the asset is suitably prepared to deal with an increase in the magnitude and number of extreme weather events.

The HIAM Strategy will help to contribute to the targets through continuing to promote the use of recycled materials and materials that consume less energy in their production. Over recent years the Street Lighting PFI has introduced lower energy consuming LED technology and variable lighting levels which has saved millions KWh in energy. Over the life of the HIAMP the PFI will continue to mitigate energy consumption against planned growth of the street lighting asset.

The HIAM Strategy will improve the resilience of the highway network through enabling the development and continual improvement of a resilient network as identified in The Transport Resilience Review 2014.

5.3 Network Growth and Demand

The highway asset is constantly evolving to support the needs of the people of Staffordshire; assets are added and removed as a result of highway schemes commissioned by Staffordshire County Council and private developers. The evolution of the asset is heavily influenced by the economic activity of Staffordshire. It is anticipated that the asset will increase in length by 10km per annum.

Alongside the anticipated growth in asset size it is envisaged that overall network demand will increase by 7% between 2016 and 2021.

6 Glossary

Annual Depreciation	The value by which the asset depreciates over a 12-month period as a result of condition deterioration.
Asset	In the context of the HIAMP, an asset refers to an item that forms part of the highway fabric, i.e. carriageway, footway and street lighting.
Asset Management	Asset management is an approach to maintaining items of infrastructure in a methodical manor. It identifies the optimal allocation of resources to maintain the best achievable asset condition with the available level of funding.
BS ISO 110000	The British and International Standard for Collaborative Business Relationships.
BS ISO 55000, 550001 & 55002	The British and International Standard for the Implementation of Asset Management.
Capital Funding	Grants from Government through the Department for Transport and contributions to fund capital schemes to pay for items like roads.
Carriageway	Within the HIAMP carriageway refers to a surfaced right of way intended for use by vehicles and maintained at the public expense.
Culvert	A structure that allows the flow of water under an asset.
Depreciated Replacement Cost (DRC)	The cost of bringing an assets current condition up to 'as new' condition.
Footway	Pedestrian path maintained at public expense that is usually alongside a carriageway.
Gross Replacement Cost (GRC)	The total cost of replacing an element of or the entire asset with an equivalent new asset.
Highway	In the context of this document a highway is a road or thorough fair that is maintained at the public expense.
Infrastructure	Infrastructure describes fixed assets that form part of a larger network, in the terms of this document it refers to carriageways, footways, drainage, lighting, fencing and the like.
LED	An LED is a Light Emitting Diode which is a highly efficient form of lighting.
Life Cycle Plan	A Life Cycle Plan is key to asset management and takes into account the whole-of-life implications of acquiring, operating, maintaining and disposing of an asset.

Local Enterprise Partnership (LEP)	Local voluntary partnership between local authorities and businesses set up to help drive economic growth.
Preventative Maintenance	The treatment of an asset at an optimal time to prevent asset deterioration, enabling the efficient use of funding. Essentially implementing the principle that prevention is better than cure.
Private Finance Initiative (PFI)	A partnership between a public and private organisation where funding for a public scheme is provided by the private organisation and repaid over the duration of the agreement.
Revenue Funding	This is income that the authority gets to deliver everyday services. It is made up of an element of business rates and Government grants through the Department for Communities and Local Government.
Safety Fence	A barrier intended to prevent an errant vehicle leaving the highway
Stakeholder	An individual, group or organisation that have a legitimate interest in a project
Standard Operating Model (SOM)	A system operated by Amey to help organise and manage highway works.
Statutory Undertaker	A utility company such as British Telecom and the like.
Structure	A structure can be a bridge, retaining wall or culvert.
Whole of Government Accounting	Whole of Government Accounts consolidates the audited accounts of over 5,500 organisations across the public sector in order to produce a comprehensive, accounts-based picture of the financial position of the UK public sector

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