HIGHWAY INFRASTRUCTURE ASSET MANAGEMENT PLAN

3. APPENDICES

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Contents

Appendix A1 Assets

Context

Highway infrastructure assets are diverse and made up of many components that sustain the network as described in Appendix A2. To manage and maintain them effectively requires accurate and timely knowledge of the individual assets contributing to the integrity of the highway network, including their type, location, number, condition, and materials used. Not all of the highway infrastructure assets are under direct control of the City Council, such as most of the bus shelters and safety cameras.

Inventory of Assets

The highway inventory is held by type, and represented for reporting purposes into groups. This is shown in Appendix A3 along with an indication of its availability. The City Council has developed various computerised management systems from paper based systems to record the highway infrastructure assets. These provide a locational based listing of the component elements of the network, address the physical state of the highway asset, and the operational performance of the network. Assets include roads, paths, bridges, street lighting, public rights of way, signs, signals, and other street furniture. Ancillary data sets provide supporting information, including accident statistics, traffic flows, traffic regulation orders, and route status, such as gritting routes.

Figure A1 shows the current data sets along with their supporting software. These datasets hold extensive amounts of data about the assets and are needed to effectively manage the assets and plan future maintenance. These data support the City Council's statutory functions, such as highway inspection procedures, scheme selection protocols, Communication Strategy and expenditure monitoring. Inventory collection is quite straight forward. The challenge comes in maintaining the data, storing, retrieving, integrating and analysing it notably to:

- The capture all highway infrastructure assets.
- Tighten the integration of data sets and with a geographical information system so that all assets can be located accurately and easily.
- Improve the information flows to provide key information on programmes and trends, budget valuation and depreciation projections, and asset life analysis.

There are some inconsistencies, such as between the condition data collected for carriageways and footways. Nationally, the surface condition from the SCANNER survey on the classified road network is taken as priority, but the structural, Detailed Visual Inspection (DVI) survey gives a more informed view of the state of the network and banding of thresholds vary.

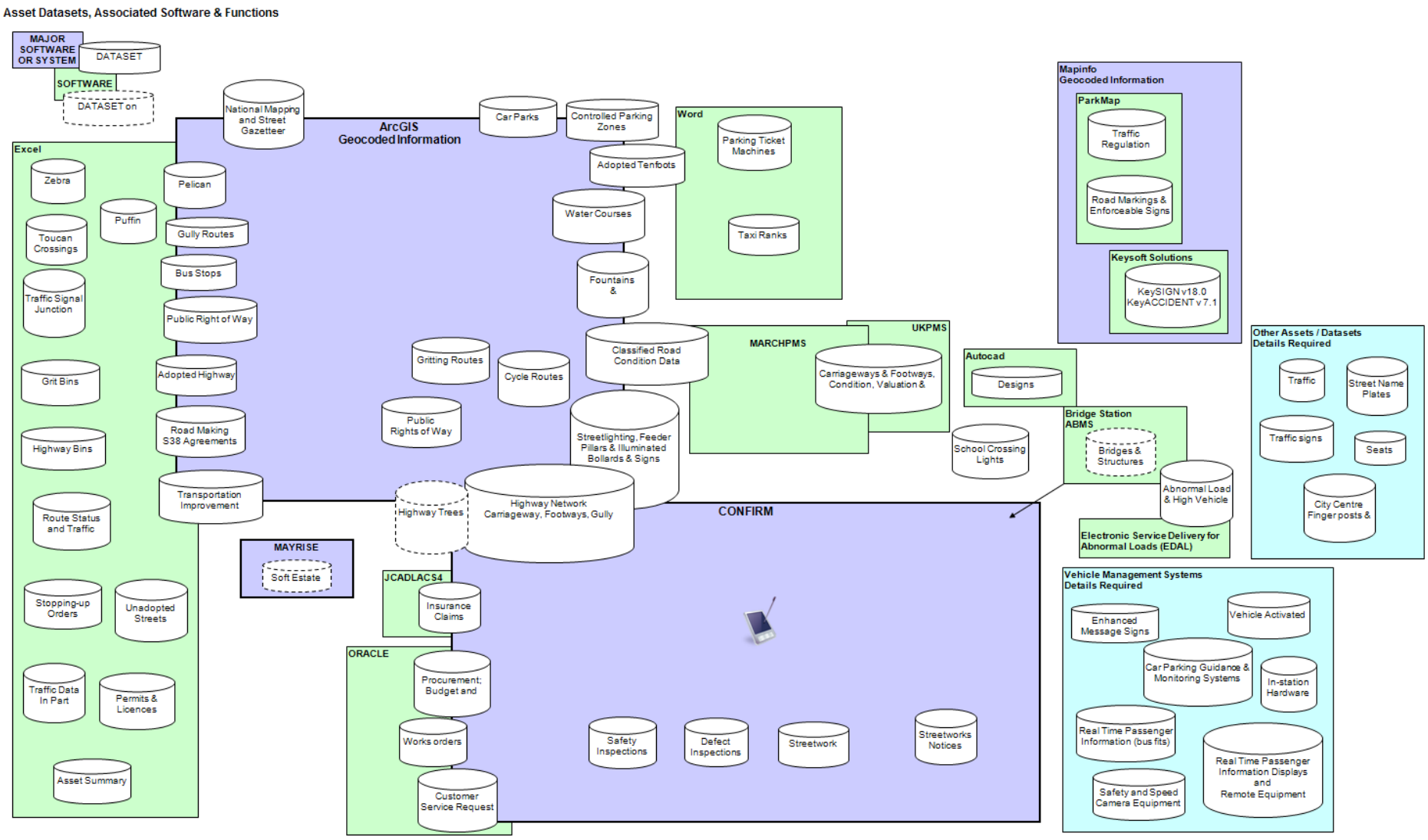


Figure A.1 Asset Datasets and Software

Some data sets are incomplete, such as drainage systems and road markings. Others quickly become outdated and, thus, are not entirely fit for purpose, such as traffic signs and other forms of street furniture. Or different arrangements apply and need to be rationalised, such as to include the City Council's projects, like safety schemes that introduce traffic calming or major public realm works that modify, add or remove assets. There is need to reduce the number of disparate software, manage data more effectively, and transfer to the preferred system of CONFIRM. It is likely that this will need to be prioritised, but will be dependent on resource availability.

Implementation of links to the CONFIRM system or other advanced management systems will enhance the service allowing details to be spatially located on the mapping system, so that trends and patterns can be easily identified on the network and geographically. This should enable better understanding of the various assets and improved targeting of the service response.

In this respect, the management of highway structures is already benefiting having transferred to the internet version of Bridgestation. There is now a higher level of confidence in the data held. To date the benefits have included:

- Scheduling bridge inspections,
- Reporting inspection results
- Short term defect prioritisation
- Interrogation of data using the new report module
- Bridge condition monitoring
- User administration/security
- GIS mapping
- Management of abnormal loads
- Consistent element inventories
- Approval of Principal Inspections
- Lifecycle planning
- Asset valuation.

Life of the Asset

Some highway infrastructure assets are long lived and designed to be long lasting, such as bridges having a design life of 120 years. For these assets there is no need to undertake major renewals on a regular schedule and these can be considered as and when required. Carriageways are an exception and the design life varies by the type of construction. Those with a flexible construction having a lifespan of 20 years and those with a rigid pavement quality concrete construction 40 years. In Hull, most of the 'A' roads are of a composite construction where the base is a continuous 300mm concrete slab with a tarmac overlay to a depth of 100mm. A 40 year design life would be expected for the concrete base element while the flexible surfacing will need replacing every 10 to 20 years. While the majority of the 'B','C' and unclassified distributor roads are constructed as 5-12m, 225mm thick reinforced concrete bays with no tarmac surfacing. Over time the individual bays sink independently of each other causing level differences at the joints resulting in an uneven ride which can lead to complaints of vibrations in adjacent properties. The unclassified residential roads are a mixture of flexible and concrete construction.

Planned maintenance treatments are described in the relevant Lifecycle Plan Summaries at Appendix D[1] for each asset. For example for roads, the treatments include major reconstruction, various depths of resurfacing and proactive treatments, such as surface dressing and micro surfacing. Greater use is made of proactive treatments to prevent the roads requiring the more expensive treatment at a later date.

Asset Complexity

There is a growth in the complexity of the assets as a result of changes to the carriageway from traffic safety schemes introducing road humps, junction tables etc., bus and cycle lanes, and parking bays, application of technologies to direct traffic flow, or from the introduction of new materials, such as high friction surfaces.

Assets Not Covered

Within the City boundary there are a number of assets that do not come under the remit of Highway or Transport Authority, and are managed by other City Council departments or other organisations, such as paths through parks; roads, paths and street lighting within housing areas. To varying extents some of these assets are managed by the Highways Service on the behalf of the other Council departments, subject to agreement with the other department. Where this occurs, and where possible the assets are managed in the same way as the highway assets and the principles of this HIAMP are applied.

The A63 / A1033 Trunk Road that comes under the Highways Agency, advertising panels and bus shelters that are the responsibility of J C Decaux, as well as level crossings and railway bridges the responsibility of Network Rail. The City Council has interests in other assets outside of the boundary too, such as the Humber Bridge.

New Asset Creation

Most new assets are created in one of three ways:

1. Major schemes
2. Integrated transport schemes
3. Developer adoptions

A new bridge over the River Hull at Scale Lane opened in 2013 and further structures are anticipated with a new footbridge across the A63 and the grade separation of the A63 at Mytongate. It is anticipated that the carriageway will grow by approximately 735m per year; an average based on additions over the last four years from residential developments with increases in gullies and street lighting.

[1] Appendix D is made up of 12 parts and is numbered D1 – D12 depending on the asset

Future Demands

Demand factors

Factors affecting demand include population change, seasonal, vehicle ownership and use, user preferences and expectations, congestion, economic factors, environmental changes including air quality etc. Demand factors trends and impacts on service delivery are summarised below:

Factor	Present	Projection	Likely Impact
Population – general & urban expansion	261,149 in 2019 One of highest population densities in country at 3,619 persons per km2 (9,374 persons per mile2)	317,900 by 2033 4,465 persons per sq km (11,774 per sq mile), assuming area of 71.2sq km (27 sq miles remains).	Increased levels of movement, such as more traffic on roads and people on buses and paths resulting in additional maintenance, renewal costs and requirements for traffic calming, increase in impermeable areas unless mitigated; system extensions and upgrades needed, especially of bus or other mass transport
Population – age	In 2019 population is skewed to young people in their 20's, forming about 18% of population, 45,300 people. Largest group in age range 20 to 24 years, 23,900 people	By 2033 the largest increase is anticipated to occur in the 30-34 year age group to 23,300 people. Those aged over 90 triple to 3,800 people. 20% are likely to be over the age of retirement, 62,000 people.	Need for accessible and technological savvy services, increase in older users and onset of infirmity requiring need to improve / upgrade paths Increased use of mobility scooters
Energy and fuel costs	Prices increasing	Decreasing availability of resources, increasing costs as supply falls.	Move to public transport or more energy efficient forms of transport, increased costs for road surfacing
Expectations	Uniformity of styles and materials	More tailored and wider use of different materials with standardisation required.	Materials not available long term and repairs in differing type
Changes in transport technology	Current mix of vehicles using roads and footpaths	Increased size of cars and HGV axle loads using roads	Increased deterioration of road structures.

Changes in Technology

Technological changes are likely to have an effect on the delivery of services through wider use of remote management of services, weather-resistant and more durable materials, and improved construction techniques.

Sustainability / Climate Change

Climate change is likely to pose risks from increased:

1. Frequency and intensity of surface water flooding of highways as drainage capacity is exceeded.
2. Heat induced damage to highway surfaces (bleeding, rutting, and tracking).
3. Flood related damage to bridges and culverts.
4. Storm surge flooding of highways network.
5. Maintenance of soft estate enhancing rates of vegetation growth and longer growing season.
6. Frost damage.
7.

Demands for New Forms of Assets

Currently, there are few demands for new forms of assets. Infrastructure for electric vehicles is slowly becoming more available; although uptake is slow due to expense and limited battery charge. In March 2021 the Government announced it was bringing forward its ban on all new diesel and petrol cars from 2040 to 2030 with the exception of hybrids which can be sold up to 2035 this aligns the industry with the Governments policy on net-zero 2050 target. Transport accounts for 30% of all UK carbon emissions of which road vehicles account for 19%. To achieve these ambitious targets the Government announced a £1.3 billion electric vehicle charging infrastructure commitment, with reports suggesting the UK still needs to install 5 times the existing number of charging points to meet its net-zero target.

Hull City Council declared a Climate Emergency in March 2019 and has responded to this by publishing the Hull 2030 Carbon Neutral Strategy and a shorter Challenges and Actions document which were approved by the Councils Cabinet on the 27 April 2020. All of the documents are available on the Councils website.

The Hull 2030 Carbon Neutral Strategy is built around eight key themes which require focused action;

- Power
- Heat
- Mobility
- Consumption
- Carbon Sequestration
- Fair Transition

- Jobs and Skills
- Innovation

The Environment and Climate Change Strategy builds on the 2007 ONE HULL Climate Change Strategy and puts in place a strategically coordinated approach to tackling the environment and climate change agenda through a shared aim:

"The City of Hull acknowledges that it has a responsibility to minimise its impact on the environment, reduce the causes of global climate change and adapt to future changes in the climate. These responsibilities it will tackle so that the City minimises the negative social, economic and environmental impacts whilst taking advantage of positive opportunities that arise from decoupling economic growth and carbon emissions."

The City understands that climate change is a global issue but acknowledges that it has ultimate responsibility for its own emissions which contribute to the global problem. The City has a community leadership role to champion actions to minimise carbon emissions and use natural resources sustainably through the delivery of effective citywide partnership actions. In order to limit the impacts of climate change and the unsustainable use of resources, the ONE HULL ECC SAG is exploring opportunities where the biggest carbon savings and resource efficiencies can be made as part of its role in ONE HULL. It recognises that if the City is to be successful in meeting its ambitious targets then partnership working is vital not just within the City but also regionally, nationally and internationally. Every sector, large and small, can make a contribution to the challenge. The Strategy is an overarching document that sits just below the Community Strategy and informs Strategy and investment decisions of the City.

Hull City Councils key performance targets for these Measures of Success are as follows:

2011
Establish Hull carbon emission reporting process
2015
Reduce carbon emissions by 23.6% to 30% from a 2005 baseline
2020
Reduce carbon emissions by 34% to 45% from a 2005 baseline

As part of Hulls commitment to the above strategy the LA has installed electric charging points at its Stockholm Road depot along with further public charging points in Pryme Street, Lowgate and Osbourne Street car parks and at the Hull History Centre in Worship Street. The local authority has added the charging points to "support the growth" of electric vehicles in its fleet and among members of the public.

Other changes are likely to be more incremental and make use of innovations in the existing systems by focusing on allocating road space for parking, providing ultralow emission vehicles, use of biofuels, and greater energy and resource efficiency, lessening weight and wind resistance, such as by using differing materials and friction free technologies in motorised vehicles. Increased flexibility over availability

and use of road space to further favour those travelling by foot, bike, bus or train, or car sharing is likely to continue. By 2033 cars are likely to be linked by Global Positioning Systems to form road trains and be self-driving. Use of energy efficient highway lighting and self-illuminating highways, ‘glow roads’, and temperature sensitive paints are already under test in Holland and are expected to be more widely available by 2020 reducing and removing the need for street lights and some warning signs. In Hull it may not be appropriate to remove street lights as part of their function is to improve security. Other innovations at various stages of development include low temperature asphalts, plastic road construction and self-repairing bacterial concrete.

Appendix A2 Asset Description

Assets	Description
Controlled	
Adopted carriageways	The part of the highway that is designated for use by vehicular traffic
Adopted footways	Part of the highway reserved for pedestrians
Barriers, Fences and Guardrails	Railings or similar along the side of a carriageway, footway, or verge to direct and restrict movement or mark a boundary
Bollards	Non-illuminated and illuminated devices placed to keep vehicular traffic from entering areas of the carriageway reserved for pedestrians
Bus Lane	A dedicated lane on the carriageway for buses
Bus Real Time Information System	A bus passenger electronic information system which provides times of departures of buses at stops and or in bus. Information may be displayed on boards or sent remotely through links to other applications and devices, such as mobile phones.
Bus Stop	A sign erected on the highway for pedestrians to access public transport
Car park payment machine	A meter provided for the printing of slips for purchase of parking time
Cycle counter	A machine for recording a count of cycles passing a specific point
Cycle Lane	A dedicated lane on the highway for those using bicycles
Cycle stand	A stand used to store / park bicycles or motorbikes on the public highway
Cycle Track	A defined way for those using bicycles
Emergency Access Road	A road affording access in an emergency as an alternative route of general traffic or for emergency vehicles
Grit Bin	A container for grit typically used in icy conditions
Gully	A drainage chamber at the side of a carriageway at set intervals
High friction surfaces	Thin coat of high friction material bonded to the carriageway surface
Highway Bench and Seat	A bench / seat used by the public / pedestrians on the public highway
Highway Structures	Any bridge or other structure that impinges in any way within the footprint of the highway or that materially affects the support of the highway or land immediately adjacent to it and that meets the dimensional criteria defined below or elsewhere in the Code.
Highway tree	A woody plant with a trunk positioned in the highway
Highway verge and landscaping	A planted area, such as grass that is part of the highway and separate from the carriageway and footway.
Non-highway structures	Structures where access by the public can be expected irrespective of their ownership, e.g. on Public Rights of Way, Dock and river Walls at Hull Marina, on cycle tracks, and where other permissive rights exist for walkers and cyclists. Parks, Gardens and Cemeteries
On-street pay and display machines	A meter provided for the printing of slips for purchase of parking time
Park and Ride Site	An outlying parking site for bus or rail primarily serving commuters and shoppers.
Parking bay	A designated area marked out on the highway providing for vehicles to be left for a period of time
Planter	A free standing container on the public highway containing plants or flowers
Public Rights of Way	A right granted to everyone to cross land on foot along a defined path

Assets	Description
Road Studs	A metallic road marking projecting slightly above the surface often associated with traffic signals and zebra crossings
River Hull Walkways	Timber walkways
Statues Monuments Fountains	Items commemorating / representing historic events or artistic representations
Street lighting	A lamp often mounted on a pole illuminating a street at set intervals
Street nameplate	The nameplate indicating the name of the street
Traffic Cameras	Camera positioned on the road side to monitor traffic flows
Traffic Signals	A light based systems for stopping streams of traffic or permitting movement
Traffic Signs & Road Markings	Illuminated and non-illuminated items providing information, regulation, warning or guiding traffic
Vehicle Management System	An electronic system for detecting and monitoring vehicle flows typically through intersections and car parks. Information can be displayed on boards or provided remotely
Waste Bins	A container used for the collection of litter on the highway
Weather Station Monitoring Equipment	Masts with equipment for monitoring wind and temperature, especially for winter maintenance on Freetown Way and Kesteven Way
Wig Wag signal	A flashing alternating signal coloured amber for emergency services and red for level crossings
Shared Control	
Humber Bridge	A suspension bridge crossing of the Humber jointly administered with the neighbouring authorities
River Hull	Timber walkways
River Walls	Flood defence retaining walls along the River Hull or Humber
River Humber	
Traffic Control Systems	Interface at trunk and local road traffic signals SCOOT, MOVA
Watercourses – Other	Drains etc.
Not Controlled by Hull City Council	
A63 and A1033 (T)	A trunk, strategic, road; the responsibility of Highways England
Advertising Panel	Advertising space / unit on the highway, typically within a bus shelter or free standing on the highway that are the responsibility of JC Decaux
Air Quality Monitoring Equipment	Specialist equipment recording chemicals in the air, the responsibility of Environmental Services
Bus and Rail Interchange	A place where passengers can change trains or bus or between different forms of transport under multi-organisational responsibility
Bus Shelter	A cover for pedestrians at a bus stop, primarily the responsibility of JC Decaux
Bus and Coach	A motor vehicle with a long body equipped with seats or benches for carrying passengers, the responsibility of bus operating companies, e.g. East Yorkshire Motor Services, Stagecoach, CTC
Car Park	An area of land or building for the parking of cars for a limited period of time and payment charged
CCTV camera	A camera monitoring activity in the street, the responsibility of City Safe
Housing Roads and Paths	Roads and paths, the responsibility of City Neighbourhoods and Housing Manager
Level crossing	An at-grade crossing of a road by a railway line, i.e. without a bridge or tunnel, usually controlled by gates; the responsibility of Network Rail

Assets	Description
Phone mast / pole	A mast or pole with telecommunication relaying equipment; the responsibility of the operating company
Privately maintained infrastructure	Inspection covers, values etc. located within the adopted highway for water, sewerage, gas, cables (electric and TV); the responsibility of the utility service companies
Railway Lines and associated infrastructure	Way for the over which trains pass; the responsibility of Network Rail
Safety Camera	Camera for monitoring speed and red lights under the control of The Police
Taxis and Private Hire Car	A vehicle, usually, a car for which the driver is paid for carrying passengers; the responsibility of the operator
Telephone Call Box	A telephone unit on the public highway; the responsibility of Kingston Communications Ltd
Train	A series of connected wagons for carrying goods and passengers pulled or pushed by one or more locomotives; the responsibility of train operating companies, e.g. First Hull Trains, Northern Rail

Appendix A3 Asset Inventory Group and Data Availability

Asset Group	Feature / Type	Dataset	Geocoded	Accuracy	Data Owner
Carriageways	Principal, Non-Principal, Classified, Unclassified, surfaces	Highway Network: Carriageways	Yes	High	Asset Project Development Engineer carriageway and footways
	Traffic calming	Not available	No	None	
	Lines, markings and symbols, TRO's	Yellow Lines	Yes	High	Road Signs and Markings Technician
		White Lines	No	None	
Footways & Cycletracks	Footways, Pedestrian Priority Areas, Footpaths, Cycletracks	Highway Network: Footways, pedestrian priority area, footpaths	Yes	High	Asset Project Development Engineer carriageway and footways
		Cycletracks	Yes	High	Sustainable Travel Officer
Highway Structures	Bridges, buried structures, subways, underpasses, culverts retaining walls or similar with a composite span of 0.9 metres or more, earth retaining structure of 1. 5 metres or greater, reinforced earth structure, structural aspects of sign or signal gantries, masts access gantries, tunnels, other structures and third party structures, as per CS 450 – Inspection of highway structures.	Bridges and Structures	Yes	High	Bridge Engineer
		Non Highway Structures	Yes	Medium	Bridge Engineer
		River Walls and walkways	Yes	Medium	Bridge Engineer

Asset Group	Feature / Type	Dataset	Geocoded	Accuracy	Data Owner
Highway Street Lighting	Lighting Columns / Units, Heritage Columns, High Mast Columns, Illuminated Bollards, Illuminated Traffic Signs, Zebra Crossing Belisha Beacons, Subway fittings.	Street Lighting	Yes	High	ITS Asset Development Engineer
Street Furniture	Non-illuminated Traffic Signs, Safety Fences, Non-illuminated Bollards, Guard railing, Other Fences/ Barriers, Grit Bins,	Not available	No	Low	Various parties
	Trees	Trees	Yes	Medium	Parks and Open Spaces Development Manager
	Bus Stops	Bus Stops	Yes	High	Senior Passenger Transport Officer
	Marker Posts, Rising Bollards, Street Name Plates, Seats, Cycle Parking Stands, Motor Cycle Parking, Planters	Part only	No	None	Various Parties
	Bins	Number	No	None	Waste Strategy
	Statues and monuments	Bridges and Structures	Yes	Low	Bridge Engineer
Vehicle Management Systems	Traffic Signals, Signal Controlled Pedestrian Crossings, Vehicle Activated Signs, Information Systems, Traffic Cameras, Real Time Passenger Information, Urban Traffic Control System (SCOOT)	Vehicle Management Systems	No	High	ITS Engineer
	Traffic Counter Sites				Local Transport Plan Officer
Drainage	Gully Drainage pipes less than 0.9m diameter, linear drainage	Gully & in part Other	No No	Medium Low	Works Supervisor S3

Asset Group	Feature / Type	Dataset	Geocoded	Accuracy	Data Owner
Ancillary	Public Rights of Way Laybys	Highway Network:	Yes	High	Sustainable Travel Officer
		Public Rights of Way	Yes	High	Sustainable Travel Officer
		Layby	In part	Medium	As for carriageways
	Parking Facilities On- and Off-street	Parking facilities / infrastructure	Yes	High	Highway, Safety and Network Hub Manager
Land	Freehold, rights	Adopted Highway Network	Yes	High	Highway Development Control Officer
	Green Spaces		In part	Medium	Parks and Open Spaces Development Manager
		Soft Estate			

Appendix B Highway Asset Planning

Progress to Date

To date the focus has been on the main highway assets, notably carriageways, footways, street lighting and highway bridges and structures covering:

- Inventory collection and condition surveys
- Highway safety inspection regime using trained and dedicated inspectors
- Recording the severity and extent of defects during general and principal bridge inspections
- Management of highway structures data in an Advanced Bridge Management System
- Measurement and monitoring of highway structures condition over time
- Systems development and refinement – specialist computer applications to manage and make use of the data collected and help determine the extent of defects, and method of repair; improvements in accuracy of data capture, transfer, processing and management
- Classification of work types for highway structures
- Minimisation of reactive work, e.g. implementing an annual work plan that covers reactive maintenance for highway structures
- Long term highway structures capital investment planning
- Asset valuation
- Proactive use of information from inspections and claims to direct works to particular locations
- Investigations of road condition results for medium to long term management of the carriageway
- Improvements in surface road condition for classified roads
- Introductions and updates of operational plans for specific assets, such as a highway improvement plan, network management, winter service, street lighting, and guides for new development
- The management of abnormal loads and substandard highway structures
- Technical approval procedures for highway structures
- Bridge assessment and strengthening
- Service agreements and contracts for parking and street lighting
- Reallocation of road space to buses and non-vehicular modes.

Asset Condition Assessments

An integral part of the asset management process is the assessment of the condition of the various assets to provide information to aid investment decisions. In particular these assessments provide important information that allows proactive treatments to be performed at the appropriate time rather than waiting until the asset is approaching life expiry when it will have to be replaced or renewed.

Roads

Regular surveys by machine or visual inspection of all roads within Hull provide information on condition:

- Surface Condition Assessment for the National Network of Roads (Scanner) surveys are automated and performed by a machine and it is performed on the entire length of the Council's classified road network every year
- Sideway-force Coefficient Routine Investigation Machine (SCRIM) surveys are automated wet skidding resistance surveys performed by a machine. The Council performs this survey on all of its classified roads in both directions spread over two years
- Detailed Visual Inspection (DVI) of unclassified roads are observations by trained surveyors walking routes. The Council performs detailed visual inspections on approximately a third of the network every year
- Other visual checks on all roads for which is it is responsible determined by the amount of use at least once a year; although some, busier locations the frequency is higher, such as roads with shops.

Subsequent analysis using an automated system called UK Pavement Management System (UKPMS) provides assessment outputs, including performance measures, such as the Road Condition Index (RCI) indicating "Roads where maintenance should be considered". This output is reported to Government annually.

In 2019/20, the DfT reported condition of the classified road network in Hull was good with a RCI score of:

- 3% of principal classified 'A' roads are in need of repair which compares equally with the national average of 3%, placing the Authority in the upper half of national rankings at 42%.
- 2% of the non-principal classified 'B' and 'C' roads need repair, compared to 6% nationally, placing the Authority in the top 8%.
- 7% of unclassified roads need repair compared to 17% nationally, placing the Authority within the top 12%.
- 2020/21 national figures have not been published on the DfT website but Hull figures are available with only 1.4% of the 'A' roads in need of repair, 1.6% of the 'B' roads and 0.6% of the unclassified 'C' roads in the red and needing repair.

Footways

The UKPMS is used to analyse footway DVI data, then generates a footway condition index by footway category and places this into bands. In 2019/20, 42% of the most significant hierarchy of footway 1a, 1 and 2 require maintenance, rising to 54% for the remainder 3 & 4 hierarchy. The figure for the principal hierarchy footway network will probably be considerably lower than the reported figure due to the work carried out on the public realm. Due to only 20% of the footway being surveyed annually the upgraded public realm areas will not be recorded in the published figure

Bridges and Highway Structures

Condition assessments of bridges and highway structures are generally inspections that may be supplemented with specific tests. They are performed by experienced and qualified staff. General inspections are performed on each asset every two years and principal inspections (every 6 to 12 years – intervals vary depending based on risk levels in accordance to Section 8 and Appendix A of CS 450). General inspections are a visual inspection of the parts of the structure that can be inspected without any access equipment. Principal inspections are close examination, within touching distance, of all accessible parts of a structure. Inspections are carried out in accordance to CS 450 and recorded on our Bridgestation asset management software.

The various elements that are inspected are given a Bridge Condition Index (BCI) based on criteria and for each structure the average of the score of all elemental BCI becomes the BCI (average) and measures general condition including aesthetics, durability and safety. The average score of the main carrying (or structural) components combine as the BCI (critical) to provide a measure of risk to public safety. These values are further averaged over the entire stock of assets and are reported as BCI Average and BCI Critical for the entire stock.

In Hull most of the bridge stock as measured by BC1 Average is in a reasonable condition with the stock condition at May 2021 having a score of 82. Yet the BCI Critical score is 47.

In addition, there is a class of inspections called Special Inspections. These apply to specific elements of the structures that are recognised by the industry as being more vulnerable, such as cast iron elements. Special inspections of the specific elements are performed more frequently than general inspections.

Street Lighting

The Council is currently performing structural condition assessments of street lighting columns in conjunction with cyclic electrical testing.

Other assets

The Council does not currently perform regular condition surveys for the remaining assets covered by this HIAMP.

Performance Reviews

Customer Feedback

The Council's mechanisms for gathering customer feedback on its highway maintenance service include the National Highways and Transport (NHT) Public Satisfaction Survey and Hull's People's Panel. The collation of results enables benchmarking against other authorities.

The Council places high importance on Public Satisfaction indicators and in Part 1 of Appendix C1 there is a list of the NHT Key Benchmarking Indicators (KBI) which have relevance for the HIAMP along with other important Benchmarking Indicators (BI). The Council's current performance against these KBI and BI is also shown.

Demand aspirations describe a number of non-condition related performance requirements of the asset, e.g. safety, availability, accessibility. Such measures recognise that the asset provides a service to customers by enabling them to travel; others, like road casualties, are a deterrent.

The Council acknowledges that the highway network is provided for the benefit its customers and Part 1 of Appendix C1 includes Local Performance Indicators (LPO) that apply to the Highways Service. Some of these are taken from Corporate Objectives and other LPOs are asset management specific. Hull's People's Panel ranks roads, highways and pavements seventh out of 17 services in terms of Council services important to the Community as a whole.

The 2020 NHT Public Satisfaction survey of participating authorities showed for Hull satisfaction in the authority improved or stayed the same for 14 Key Benchmark Indicators (KBI) and declined for the other 5 KBI indicators. While 16 KBI were above the average and 11 were below average.

Of the KBI the lowest scores were for 'Condition of highways' at 34% and 'Traffic levels and congestion at 41%. The 'Condition of highway' was 1% down on the 2019 score and 2% below the national average. While the 'Traffic levels and congestion' figure was 5% below the national average it was actually 3% above the 2019 figure and this is despite the score for 'Management of roadworks' being 5% down year on year. The contradiction in these scores shows the difficulty in drawing obvious conclusions from public opinion surveys. Going into 2021 Hull has undertaken a far greater level of highway works than in previous years due to government funding bids for the installation of cycle lanes and highway maintenance which will undoubtedly show a further decline in figures for congestion but will be more interesting to see if the extensive improvement in road surfaces is reflected in the NHT figures.

Appendix C2 shows the performance by asset group in relation to levels of service and is summarised in the table below:

Asset Group	Current Level of Service 2020/21	Trend	Comment
Carriageways: Principal Non-principal B Non-principal C Unclassified U1 Unclassified U2	Roads where structural maintenance should be considered: 1.4% 1.6% 0.6% 1.0% 7.0%	 Improving Improving Improving Improving Stable	
Footways Cycle Tracks	Condition of footways % requiring maintenance 42% N/A	Declining Not Known	 N/A
Highway Bridges & Structures	Bridges & Culverts. BCI average 82% BCI critical 47%	 Good, stable Poor, stable	
Highway Lighting	Fair	declining	New indicators under development
Vehicle Management Systems	N/A	Not Known	Performance data to be developed
Public Rights of Way	Good	Improving	
Highway Drainage	98% gullies cleaned -Good Outstanding repairs 997 Poor	Stable Declining	
Street Furniture	Fair to good	Not available	Condition Survey Required
Trees	Proactive approach to tree maintenance - Fair to Good Frequency of routine inspections - Good	Stable Stable	Appropriate hardware and software needed
Highway Green Spaces	N/A	Not Known	New LAMS (Land Audit Management System) Survey Data and trend not available
Parking Infrastructure	N/A	Not Known	Measures not developed

Asset Valuation

Context

Asset Valuation is the calculation of the current monetary value of an asset and is used to provide indicators for financial sustainability, such as whole life costs. Whole life costs are those that are required to sustain the service levels over the life of an asset and include maintenance and depreciation. The value is defined as the Depreciated Replacement Cost (DRC) which is the Gross Replacement Cost (GRC), less the Accumulated Asset Consumption (AAC) where:

- GRC is the cost of replacing the asset with a modern equivalent using standardised unit rates
- The AAC is the depreciation in value due to aging, usage, deterioration, damage, reduced service levels and obsolescence.

The AAC is not the same as backlog which is the value of the work required to achieve the desired level of service. The gap between the whole life costs and expenditure gives an indication of the share of the assets used each year and affordability for financial sustainability.

National criteria set out the method of accountancy for valuing highway infrastructure assets in a consistent and robust manner. This is known as the Whole of Government Accounts. This uses a series of spreadsheets for valuations containing GRC and DRC. The resultant values are submitted to Government annually.
For the above to be achieved, there is clear need for accurate and detailed inventory information and performance data. This requirement will support asset management by providing an improved understanding of network deterioration and combining that with the levels of service to be achieved.

Values

The value of City Council's carriageways, footways and cycle tracks as well as highway structures is based on actual inventory. Best estimates have been made for the other categories pending further review of the other data sets. Trees have been excluded from the submission to Government, since these tend to appreciate in value; further clarification is required on other items, like guard railing, to avoid double counting and for land which usually appreciates too. :

Highway Asset Value (excluding trees)		
Year	**GRC £'000**	**DRC £'000**
2011/12	1,724,063	1,387,286
2012/13	1,701,013	1,195,328
2013/14	1,413,048	1,237,136
2014/15	1,449,470	1,240,484
2015/16	1,455,510	1,273,566
2016/17	1,379,049	1,193,781
2017/18	1,509,621	1,226,677
2018/19	1,561,226	1,259,033
2019/20	1,599,526	1,380,469

The GRC and DRC figures do not include land values which was first included in 2012/13 but not in 2013/14 but then again in 2014/15 but with a greatly increased rate.

The DRC value apportioned by asset class for 2019/20 is given in the table below and shown in Figure B.1.

Asset Class	**DRC Value £**
Carriageway	950,739,000
Footway	169,786,000
Bridges & Structures	229,962,000
Lighting	26,541,000
Traffic management	474,000
Street furniture	2,967,000
Total	**1,380,469,000**

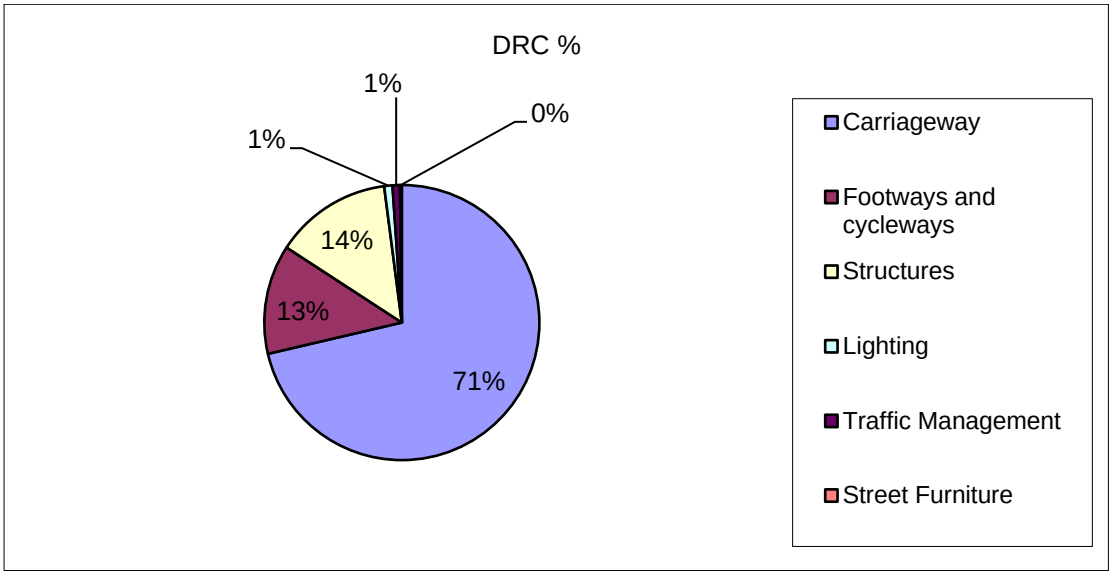


Figure B.1 Percentage DRC by Asset Class

This shows the carriageway is the largest category and is the most valuable component of the highway infrastructure assets. In 2018/19, the annual amount needed to standstill and prevent the rate of deterioration was £6.73m and this rose slightly in the last financial year, 2019/20 to £6.78m with the amount required to reduce the backlog decreasing from £61.8m to 60.5m.

The annual amounts needed for the portfolio of assets including carriageways, footways, highway structures, lighting, traffic management and street furniture to:

- stand still and prevent rate of deterioration = £24,400,000
- Reduce the backlog = £183,300,000.

Prioritisation

Context

Funds for assets are allocated from national government through the Department for Transport's capital allocations for renewal, upgrade, expansion or new assets, and the Council's revenue budget for operations and regular maintenance. The government's allocations are broken down into the Local Highways maintenance – needs element funding and the incentive / efficiency element funding. The latter is funding for LA's to ensure they are following an effective asset management approach and adopting efficiency and best practice principles for local highway maintenance. This is split into 3 bands where in 2019/20 band 3 LA's receive the maximum 100% allocation, band 2 received 50% and band 1 received only 10% of the funding. Hull City Council achieved band 3 status in 2017/18. The funding is a mechanism for highway authorities to receive additional funding over and above the needs based formula.

Further funding is also available through various DfT pots including, Pothole Fund, Pothole Action Fund, Local Highway Maintenance Challenge Fund, Local Growth Fund, Local Pinch Point Fund, National Roads Fund and Levelling up Fund.

Prudential borrowing or other awards may be used to support specific initiatives.

Each year the City Council spends approximately £6.2m of capital and £2.1m of revenue expenditure. A summary of the capital and revenue allocations are shown below:

Capital Allocations:

	Years (£)				
Asset	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**
Principal road carriageways	605,614	214,012	573,588	830,903	3,848,013
Non-principal classified road carriageways	123,133	344,687	191,420	448,360	1,061,115
Unclassified road carriageways	638,845	810,461	1,545,162	1,967,385	1,316,913
Category 1 & 2 footways	108,330	32,815	59,376	80,580	10,365
Category 3 & 4 footways	681,639	434,595	893,676	751,028	709,274
Bridges and structures				190,000	245,015
Street Lighting renewal Prudential borrowing LED	340,000 1,540,000	150,000 332,000	450,000 450,000	180,000	200,000 890,000
Road markings	76,000	76,000	76,000	76,000	86,000
Local Safety Schemes		24,000	135000	135,000	135,000
Sustainable travel			225,000	500,000	
Vehicle Management Systems Traffic Signal Improvements Other elements	150,000	150,000	110,000	110,000	325,000
Highway Drainage Drainage Improvement Programme Other elements	150,000	150,000	150,000	180,000	180,000
Sum	3,783,705		6,234,022		8,721,056

* Funding available through Section 106 agreements and Community Infrastructure Levy (CIL)

Revenue Allocations

	Year (£)				
Asset	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**
Public Rights of Way	29,274	29,274	29,274	29,274	29,274
Carriageways and Footways	800,000	800,000	800,000	800,000	800,000
Road Markings	20,000	20,000	20,000	20,000	20,000
Bridges and Structures			802,584		120,472
Street Lighting	630,000	630,000	630,000	630,000	630,000
Street Furniture Statues Other			50,951		11,000
Vehicle Management Systems			48,107		
Highway Drainage	126,000	126,000	126,000	126,000	126,000
Sum	2,889,304	2,068,455	2,084,898		

Budget Requirements

A review of budget requirements based on service levels and gap analysis require to be undertaken for a future edition of the HIAMP. Details, however, are available for carriageways where the 2020/21 budget of £3.7m indicates a substantial shortfall of £3.0m with insufficient funds to meet the standstill position of £6.78m and the backlog of £60.5m.

There are insufficient resources available for the Council to maintain the highway infrastructure assets such that they continue to provide current levels of service. This means that for some of the major assets the strategy is to manage their decline to the slowest possible rate bearing in mind the relative importance of each asset. Measures that could be taken if additional funding was available are described in the section on Lifecycle Planning

Prioritisation of Works

To ensure assets are maintained in a sustainable manner will require the matching projected asset renewals to meet agreed service levels: with the planned capital works programme and available revenue. Unless changes are made to the financial strategy, such as by increasing revenue streams, capital allocations, prudential borrowing, rates and user charges or reducing costs by revising service levels or deferment and reallocation, the City Council will face continued decline in the overall standards of the highway infrastructure assets as well as demands on its budgets.

To address the asset condition, priorities are set by rationalising asset renewal and replacement. Currently, budgets are allocated to each asset group using inventory data, with historic spend refined each year. For example, data obtained from road condition surveys has allowed the carriageway asset to be valued in its present condition and enables its worth to be forecast as predicted deterioration occurs to achieve delivery of condition target, to meet public expectations and central Government requirements. Different road construction and vehicle usage means that not all roads will deteriorate at the same rate. Capital funding is allocated on a deterioration basis determined by the analysis of a combination of data. External SCANNER and DVI condition surveys are carried out on an annual basis, internal safety inspections highlight individual streets or section of classified roads where capital works may be more appropriate than reactive maintenance repairs, public enquires highlight issues such as vibrations resulting from poor carriageway surfacing and structural failure, area officers and elected members highlight small specific locations in poor condition which may have slipped through the net. All these are taken into account when the Asset Engineer is building up the provisional 3-5 year capital programmes. In 2018 the asset team reclassified the unclassified road network into 2 categories, distributor roads and bus routes U1 and local residential roads U2. This allowed the U1 roads to be assessed by survey data in the same way as the principal road network given their similar structural characteristics and levels of traffic.

Consideration was given to allocating percentages of annual budgets to each road category as happens in some other authorities based on the road condition index (RCI) score but given that Hull's network is relatively small it is felt this would tie down the decision making process too much and could result in sections of the network missing out on an essential scheme for a couple of years. Once the advanced programmes have been agreed the LA's asset team works on the principal that up to 10% of a programme might change year on year, therefore the 3rd year of an advanced 3 year programme may end up being 30% different form the original programme. This is due to the ever changing condition of roads in urban areas which due to higher levels of traffic especially HGV's and buses can deteriorate at a quicker rate than in rural environments. Flexibility is then built into the capital programming on a yearly basis ensuring the correct locations are treated at the appropriate time.

Hull City Council has in recent years increased the budget for its proactive surface dressing and micro surfacing treatments. It is believed by some LA's that surface dressing is not a suitable treatment for urban networks but Hull City Council believes that when surface dressing is used on the correct road there is a massive whole life cost benefit as results have shown with a relatively low cost input the life of the road can be increased by up to 10 years. Hull findings are that the principal road network where there are less parked cars and a constant flow of traffic to bed in the chippings produce excellent condition results when surface dressed due to the process of sealing up the surface to the ingress of water. Surface dressing also improves the polished stone value of the final surface and so increasing the skid resistance on the principal road network. Finding have also shown that surface dressing should not be used on residential roads as this results in a lower level of embedment of chippings causing high levels of customer complaints along with stripping of the material.

Due to the past issues with surface dressing on residential road Hull City Council has an extensive annual micro surfacing programme on the U2 network. This has allowed the authority to undertake micro surfacing on approximately 2% of the U2 roads annually which ties in with the life expectancy of around 50 years for minor residential roads with minimal traffic.

For street lighting investment decisions are based on the ages of columns and their expected life expectancy. Currently works programmes are mainly concerned with the replacement of life-expired concrete columns which present the greatest danger of collapse. Due to a £1 million injection of funding only 279 concrete columns from a total of 35,000 across the city are now left to replace. The next phase of the column replacement will involve the replacement of the steel columns throughout the city.

It is possible to forecast peaks in deterioration which can be mapped against future investment needs; although there will always be a shortfall requiring prioritises to be set.
For the HIAMP a process will be developed whereby competing needs of each maintenance activity are ranked against each other using the service levels. Some activities are interlinked.

Risk Management

Context

There are many risks associated with the management of highway infrastructure. Generally, these risks are associated with the failure to maintain the asset or provide an acceptable level of service. Others can lead to such failures that result in lost opportunities for the Council. This section describes some of the more significant risks along with mitigation measures that are used to reduce them. Some risks are considered at Streetscene City Manager level for escalation corporately, if necessary. City Manager risks that are relevant are listed too.

General Risks Associated with Assets

All assets have risks associated with the common law duty of care. For example, if a street light collapses and caused an accident, the Council might be found liable in a court of law, for failing in its duty to keep people safe by ensuring that its street light was structurally sound. Usually a duty of care relies on the idea that it would be reasonable to foresee that an act, or a failure to act, could result in someone suffering a loss. In the case of a structurally unsound street light the potential for harm is obvious.

Some highway infrastructure assets have additional, statutory risks associated with them. For example under the Highways Act 1980 the Council has a duty to maintain the public highway. If the Council fails to do so then the Council could be found liable in a court of law for any damages suffered by an individual as a result of a defect in the highway, without that individual having to show that the Council owed them a duty of care. Section 58 of this Act provides a means of defence against such claims

and much of the Council's risk mitigation is focussed on having the ability to defend third party claims using Section 58.

Another statutory risk relates to the clearance of snow and ice, and the Council has separate procedures for mitigating this risk. It is not dealt with any further in this HIAMP.

Mitigation of the common law duty of care; and the statutory duty to maintain; are the main focus of all highway maintenance activity that the Council performs because without mitigation, the risks to the public are substantial possibly life threatening and as a result there are potentially substantial financial risks to the Council.

The main mitigation activities are safety inspection, condition monitoring and asset repair or replacement and if resources are unlimited then the mitigation of these risks is relatively easy. All assets will be maintained in very good condition and there will be the possibility of unlimited inspection / monitoring. When resources are limited, however, mitigation becomes more difficult and as these are further restricted, mitigation becomes even more difficult. Funding for highway asset management is on the decline and it has been so for a number of years which means that the Highways Service is under significant and increasing pressure to deliver assets that are safe. If mitigation is poor then a Council could end up having to pay more in compensation to individuals every year, than it does on managing its assets. The Council is not in that situation but its annual liability for compensation in connection with the condition of highway assets has historically been in the region of £500,000. The Council is aware that this figure is unacceptable. It is included on the City Manager's Risk register at SS3 and SS8; and mitigating actions are ongoing.

When resources are limited then strategies are needed to make sure that they are utilised in the most cost effective way to minimise risk. Investment needs to be targeted where it will reduce most risk and all maintenance activity needs to be designed around a risk based approach. It is not possible to repair every single defect in the highway. The Council's typical, risk based approach to reactive maintenance is to:

- Decide on the properties that a defect must have for it to be considered to have reached an intervention level;
- Devise a risk based inspection regime which may consider asset hierarchy, use and characteristics of the asset and how critical its performance is; and
- Decide on the urgency of intervention based on an assessment of the likelihood that it might cause damage to someone or something, and the potential seriousness of that damage. Factors that could be considered include the proximity to schools, residential homes and groups of dwellings serving older persons. For a road, usage and vehicle speeds could be considered along with the position of the defect in the road and whether it might affect vulnerable road users.

An important consideration related to reactive maintenance is that the Council must ensure that sufficient resources are in place to monitor and control the work of contractors and Statutory Undertakers working in the highway as this can affect both

public satisfaction and the condition of the asset. Until 2015 action resource allocation had been low key, but has since stepped up with view to operating to best practice.

The industry has developed Codes of Practice (COP) in connection with the maintenance of the various assets and the Council has developed and adopted practices and procedures based around the relevant COP's, such as for highway inspection. Some of the Levels of Service recommended by the COP's are reflected in Appendix C.

The Lifecycle Management Plan summaries for each asset group at Appendix D describe the Council's approach to planned maintenance in each case and Appendix E shows how the Council has been using the Lifecycle Planning Toolkits to determine how to deliver best value in the treatments it selects; with a view to making resources go further.

Risks Associated with Service Delivery and Performance Measurement

Failure to manage highway infrastructure assets through the implementation of a HIAMP could result in lost opportunities for the Council. The DfT is promoting best practice in the management of highway assets and it requires that Councils develop and implement a HIAMP reinforced by penalty and the "Incentive Fund". In addition the DfT has often used a "Challenge fund" process through which it invites Councils to bid for additional funding for specific projects. Part of the bid process requires a Council to provide justification for its bid with success, in part linked to a HIAMP.

Failure to deliver acceptable levels of service could result in the failure to deliver the outcomes that the HIAMP is designed to achieve. For example, failure to:

- Support the City Plan
- Support economic growth and Hull's future prosperity
- Deliver environmental improvement
- Keep Hull moving
- Operate sustainably
- Reduce noise and vibration
- Reduce driver stress
- Provide a safe network and help to reduce accidents
- Keep the network accessible
- Support the Local Transport Plan
- Keep the network accessible.

There are risks associated with some aspects of performance that are measured as part of the HIAMP processes, such as those in connection with the reputation of the Council and by association the City of Hull. If the City suffers from a poor reputation then this can have a significant impact on its economic growth and future prosperity. The Council's and the City's reputation can be affected by:

- Poor communication and performance resulting in reduced levels of public satisfaction being reported
- Poor performance in the national single list indicators which can directly affect the Council's ranking compared to other authorities
- Increased traffic accidents in the city
- Inability to defend third party claims resulting in increased pay outs from the maintenance budget and reduced ability to invest in the assets
- Inability to keep the network accessible due to closures or other restrictions related to safety concerns
- Poor performance of contractors and statutory undertakers working in the highway affecting both public satisfaction and the condition of the asset.

The HIAMP as Mitigation against Specific Risks

The development and implementation of the HIAMP is designed to guard against:

- Failure to make best use of available funding to improve value of the asset
- Failure to report Data to Government as required. These indicators require the council to commit significant resources in the collection of data and in its processing and reporting
- Inability to benchmark and to demonstrate continuous improvement and cashable and non-cashable savings as required by the DfT.

Higher Level Risks Considered by the City Streetscene Manager

The following high impact risks are taken from the current Streetscene Services Risk Register and these risks are managed by the City Manager Streetscene Services:

- SS1 Lack of IT resource or development of key systems such as CONFIRM, leads to delays with efficiency projects and service reviews. This impacts on the ability to meet financial targets and develop intelligence based management decisions that would improve service delivery
- SS3 Lack of service budget or further cuts in funding due to the current financial pressures facing the authority may result in our service delivery being below the desired standard resulting in an increased potential for claims and customer complaints and/ or budget overspend
- SS8 A lack of capacity to deliver services specifically inspection regimes within Highways leads to substandard service delivery which results in poor customer feedback and increased claims
- GH8 Inability to deliver the increased capital programme due to staffing capacity. This has been addressed to some extent by the employment of temporary staff
- SS14 Failure to maintain the asset register as part of the Transport Asset Management Plan could lead to a reduction in highways maintenance funding.

Risks that could impact on the HIAMP

Possible risks that could impact on the HIAMP are:

Risk	Description
Financial / Commercial	Availability of finance and budget profiles
Contractual	Failure of contractors / partners to deliver services or products at agreed cost and specification
Political	Changes in priorities and policies and addressing of failures to meet targets
Legislative	Changes in the legal framework; and failures to meet, e.g. third party claims
Professional / Operational	Those associated with particular nature of profession or organisation, availability, loss
Environmental	Adverse hazards from pollution, noise, energy efficiency, climate change
Business Continuity	Inability to continue delivering the services to the public to an acceptable level following occurrence of an incident
Information / Project Management	Management of information, data protection, freedom of information, intellectual property rights
Public relations	Image of the City Council and perception of services by customers
Physical	Fire, security and accident protection associated with buildings, vehicles, plant and equipment
Health, Safety, Welfare	Breaches of legislation
Personnel	Inappropriate skills

Adaptive Options

Possible risks to lifecycle management emerge over time, such as those posed by climate change. The highway infrastructure assets will be constructed and maintained taking into account risk from climate change, such use of underground storage of water to reduce flow rates. Other adaptations are likely to be necessary such as the introduction of business contingency planning and share and spreading of risks by working with other organisations, such as through framework contracts like YORcivil, and with partners, such as KWL.

Lifecycle Planning

Purpose

Lifecycle plans provide a status report on how each asset group is managed from its creation until its renewal, disposal or cessation. Reference is made to the maintenance treatment to maximise the life of the asset and achieve better value for money and for options to be considered between asset types. Lifecycle plan summaries for the different asset groups covered by the HIAMP are shown at Appendix D[(2)]. Carriageway, footway and street lighting life cycle scenarios have

[(2)] Appendix D is made up of 12 parts and is numbered D1 – D12 depending on the asset

been developed using the appropriate HMEP tool kit to predict the effect that different maintenance strategies (including funding strategies) will have on the performance of the assets. These are shown at appendix E1, E2 and E3. Lifecycle Stages

Every asset goes through a series of phases during its serviceable life. One of the most critical stages is the deteriorating maintenance cycle. The, typical, stages are shown in Figure B.2:

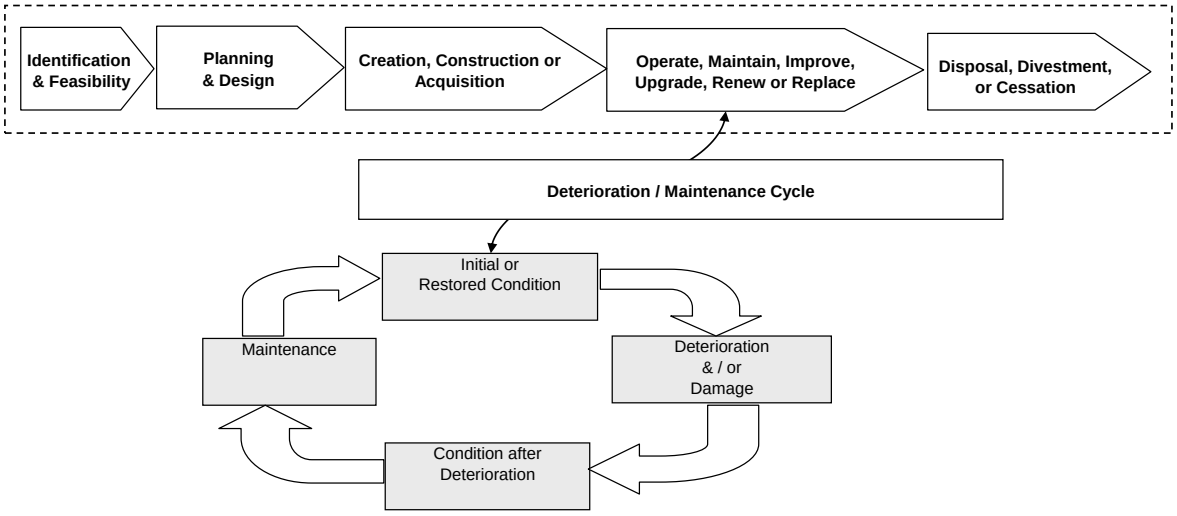


Figure B.2 Lifecycle Stages 1

Contents

Each lifecycle plan includes:

- Physical parameters
- Lifecycle asset options (creation or acquisition, renewal or replacement, upgrading disposal, disposal),
- Non asset options (managing demand, amending standard)
- Lifecycle treatment options (do minimum, medium life treatment, long life treatment)
- Routine maintenance – activities
- Maintenance – objectives and response
- Service levels
- Risk management.

Plans are updated annually as more information is gathered and analysed. Appendix D contains lifecycle plans for carriageways, footways and cycle tracks, highway structures, Public Rights of Way, street lighting and other illuminated equipment, highway trees, parking, traffic signals and street furniture.

Scenario Tests

The Council has performed scenario tests for the period to 2034 using the HMEP Lifecycle Planning Toolkits for carriageways, footways and street lights. The bridges and Structures team uses Structure Asset Management Planning Toolkit (SAMPT) to allow treatment and funding scenario tests. Refer to Appendix D3 for further information. It is possible that the industry will develop toolkits in the future that the Council will be able to use. The purpose of the scenario tests is to determine how to make best use of the resources available and to highlight the long-term impact of funding strategies. The output of the scenario tests are also used to develop the lifecycle management plans which are summarised at Appendix D for each asset group.

The Lifecycle Planning Scenario tests for carriageways, footways and street lights are attached at appendices E1, E2 and E3 and they describe important findings with respect to the current level of resources that are available for maintaining the assets; and the effect that this is expected to have on the levels of service that can be delivered.

Carriageways

Appendix E1 shows that the Council has been able to modify its proposed proactive treatments for roads to achieve optimum results. The toolkit, however, predicts that under the current strategy and level of investment the condition of the Council's classified road network will deteriorate, such that 3% of 'A' roads will remain and 22% of 'B' and 'C' roads will be in a very poor condition by 2034. However these pessimistic predictions have not been borne out over the past 5 years when the level of deterioration measured by the condition index has improved rather than got worse and the accumulative depreciation costs have remained consistent around the £60m level. The Council acknowledges that despite recent cuts in highway maintenance funding it has been able to manage the network such that at the current time none of the classified road network is considered to be in a very poor condition. Through this approach, the Council is able to show that by securing £150,000 additional funding every year and earlier intervention using a treatment like surface dressing on classified 'B' and 'C' roads, the percentage of these carriageways deteriorating to very poor condition can be reduced from 22% to 7% by 2034.

The Council's unclassified road network represents 83% of the Council's network. In 2019 the unclassified network was split into 2 categories, U1 which included all local distributor roads and bus routes and U2 which represented the remaining mainly residential roads. As the U1 roads tend to have similar construction and traffic factors to the classified road network this allowed us to analyse their condition in a more representative way than have these roads grouped in surveys with the U2 residential roads which have a far lower level of traffic especially HGV's and a lower construction specification. The 2020 SCANNER condition survey recorded only 1% of the U1 roads requiring immediate attention while the DVI survey of the U2 roads showed 7% in very poor condition. At the current levels of funding it will be difficult to maintain the current level of improvement in this area but with a modest increase in spending on the unclassified road both U1 and U2 the LA is optimistic the situation

will not get considerably worse due to the current strategy of micro surfacing residential roads and new flexible polymer modified materials used on the concrete U2 roads. This strategy has been further assisted by successful funding bids for maintenance on the principle road networks which has allowed the authority to spend up to £15 million on the A roads and so releasing capital funding for the non-principal and unclassified road network. Further improvements are achievable should more maintenance funding come forward. It is clear that without significant increases in maintenance funding, compared to current levels, it is unlikely that the Council will be able to prevent further deterioration of the unclassified carriageway network.

One hopeful development now being undertaken by Hull City Council asset and design team is the incorporation of new polymer modified materials on the market into their planned maintenance schemes. Due to changes in the way the DfT are analysing texture depth, suppliers have been able to produce new materials which contain a much higher level of binder content than previously believed safe resulting in more flexible materials being developed. Along with these polymer modified surface, binder and base course materials there is also a Stress Absorbing Membrane Interlayer (SAMI) material made up of a 4mm aggregate and a very high binder content to produce a highly elastic macadam material which is laid at a depth of 25mm direct onto cracked and moving surfaces.

From Hull's perspective this could be a very important development in material technology due to the high level of concrete used as either a base or surface material in the original road construction. Where concrete road bases where constructed the concrete is now extensively cracking resulting in reflective cracks transmitting through into road surfaces, even those that have only been laid 2/3 year earlier. The hope that the highly flexible SAMI and more flexible surfacing materials will prevent the reflective cracking reappearing over a far greater length of time. The same principal is also applied when existing concrete road surfaces are having to be overlaid rather than full reconstruction.

Footways

Currently, less than 1% of the Council's footways are in very poor condition but, should the current strategy and funding arrangements continue, the Council's footways are likely to deteriorate, such that 37% will be in very poor condition by 2034. By doubling the footway planned maintenance budget to £1,565 a year; the percentage of the network predicted to be in very poor condition can be reduced to 22% by 2034. Further improvements will be achievable with additional allocations for maintenance funding.

Due to the shortage of funding for footpath maintenance the Council is adopting a policy of planing and resurfacing or recycling existing failing paths where possible rather than carrying out full reconstruction. This has the result of spreading the budget over a far greater area of repairs.

Further improvement to the footpath stock was undertaken in 2018/19 when the LA started a major improvement of the public realm as a result of Hull being nominated as UK City of Culture. The resulting repaving of large areas of the city centre, old

town and the marina has not only created a high quality public realm space but released existing capital funding to be spent in residential out of town locations.

Street Lighting

A simple calculation reveals that the existing annual capital budget is not sustainable equating to 110 year replacement cycle leading to a deterioration of assets confirmed by the output from the Lifecycle Planning Toolkit at Appendix E3. It predicts that under the current strategy and funding arrangements; between now and 2034 the percentage of street lights in very poor condition will increase from 20% to 65%.

With an injection of £2.5m per annum over a 10 year period the backlog of columns in very poor condition could be reduced to zero and the stock could then be maintained in a steady overall state by investing £1.8m per annum.

Work Plans

Context

Work Plans identify activities over the short, medium and long term with:

1. Work programmes for the next 1 to 2 years
2. Priority lists for the next 3-5 years
3. Budget requirements for the next 5-10 years.

The confidence to plan service delivery reduces the longer the time horizon considered and in practical terms 5-10 year programmes can become irrelevant when maintenance is concerned. Work programmes and priority lists are based around the medium term Government financial programmes, and refined annually through the management cycle of business planning and expenditure process which take account of the asset condition, reporting mechanisms, site assessments, treatment options, costs and the City Council's decision-making processes before scheduling and commissioning appropriate contractors for delivery. Advanced future programmes from an asset management perspective work on the principal that each extra year on the programme could result in a 10% alteration to the programme due to unforeseen circumstances and emergency works. Alternatively to amending the programme is to propose a reduced programme leaving available funding for unseen circumstances. In developing works programmes the Council supplements its surveys with targeted inspections by experienced engineers and technicians and collaborates with contractors and suppliers regarding suitable techniques and treatments, allowing new products and innovations to come forward. One such example has been for a surfacing solution for concrete roads designed to prevent reflective cracking at joints between concrete slabs and extend the pavement life where the Council is awaiting the results of an experimental treatment introduced in December 2015. The process is illustrated in Figure B.3 below:

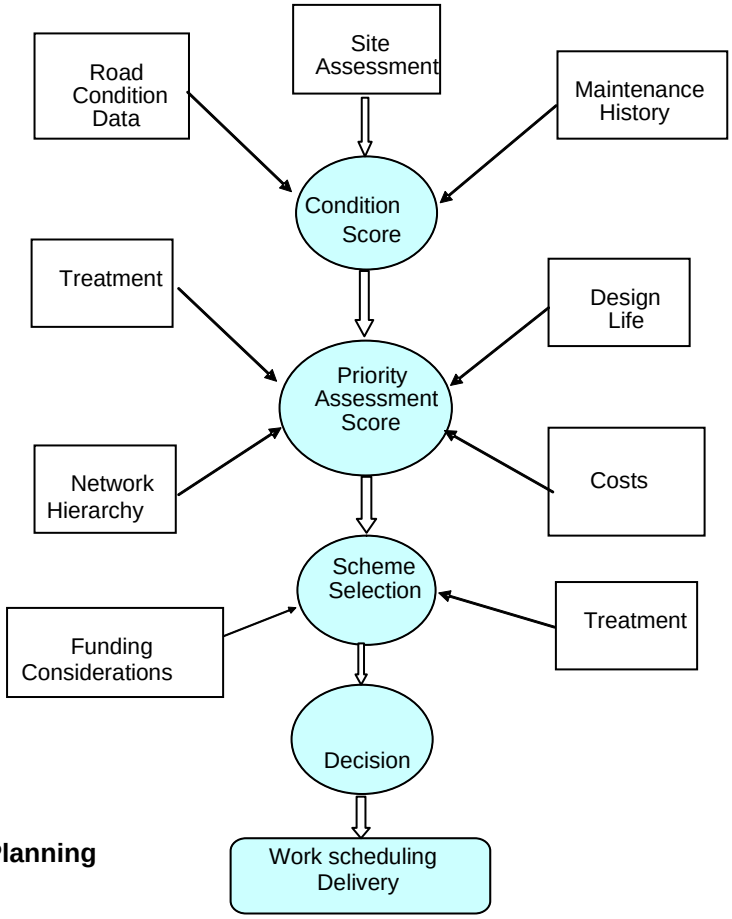


Figure B3 Work Planning

Appendix C Performance Measures

Appendix C1 Service Levels and Performance

Asset Group	Goals	Service Level					Rating	Trend	Comments
		Poor	**Fair**	**Good**	**Excellent**	**Current 2021/22**			
Carriageways	To maintain the RCI for principle and none principal roads below 3%.therfore keeping Hull below the national average To maintain the RCI for unclassified roads below 5% and below the national average. To repair all reactive defects within the required timescales. To keep the back log of reactive maintenance below 100 committed jobs.	Extensive unmanageable reactive maintenance backlog. Safety inspection and maintenance regime responding to reports of hazardous defects within 2 & 24 hours. Little or no repairs for non-hazardous 7 & 28 day defects. Minimal intervention to prevent asset deterioration No forward programme for carriageway asset. Resources not available for repair, design or procurement	Manageable reactive maintenance backlog. Safety inspection and maintenance regime responding to reports of hazardous defects within 2 & 24 hours. Safety inspection and maintenance regime responding to reports of 7 day defects within time frames. Backlog of 28 day repairs for non-hazardous defects. Some planned works to reduce dependence on reactive repairs. Annual programme for carriageway asset. Condition stabilised at a serviceable level	Investment in structural maintenance leading to improvements in condition, reduction in backlog and further reducing dependence on reactive maintenance. Majority of arising taken for recycling Safety inspection and maintenance regime responding to reports of hazardous defects within 2 & 24 hours and 7 day defects within time frames. Backlog of 28 day repairs for non-hazardous defects being worked at. Some planned works to reduce dependence on reactive repairs. 1-3 year forward programme.	Backlog in maintenance eliminated, operating at a sustainable level using sustainable methods with minimal reactive maintenance. All arising taken for recycling. Safety inspection and maintenance regime to deal with all potentially hazardous defects within time frames. Customer reports repaired within time scales. All 7 and 28 day Non-hazardous defects repaired within time scales. 3-5 year work programme. Resources available at all levels	Manageable routine maintenance due to planned works reducing dependence on reactive maintenance. Conditions stabilised at a serviceable level but risk of failure still prominent. Safety inspection and maintenance regime to deal with all potentially hazardous defects within 24 hours. Non-hazardous defects with manageable backlog around the 100 mark	Good to excellent	Improving	
	130 Road Condition Data: • 130-01 – Principal Roads	1%	10%	11%	78%		Improving		

Asset Group	Goals	Service Level					Rating	Trend	Comments
		Poor	Fair	Good	Excellent	Current 2021/22			
	% where structural maintenance should be considered								
	• 130-02 – Non Principal Roads % where structural maintenance should be considered	1%	7%	7%	85%	Improving			
	• 130-03 – Skidding resistance surveys	12%	10%	13%	65%	Improving			
	• LTP 21 – U1 Unclassified feeder roads where maintenance should be considered	1%	7%	6%	86%	Improving			
	• LTP 21 – U2 Unclassified residential roads where maintenance should be considered	7%	14%	14%	65%	Constant			

Asset Group	Goals	Service Level					Rating	Trend	Comments
		Poor	Fair	Good	Excellent	Current 2021/22			
Footways and cycle tracks	To repair all reactive defects within the required timescales. To keep the back log of reactive maintenance below 100 committed jobs Increase capital spending per year by at least 50% to improve BVPI figures	Unmanageable reactive maintenance backlog Actionable defects up to 28 day not been completed on time BVPI figures continue to rise well above 50% of network requiring immediate reconstruction	Backlog becoming worryingly out of control Only emergency and 24 defects completed on time 7 day and 28 day defects building up No increase in existing capital budget – increasing plane and resurfacing and recycle treatments to maintain existing levels	Manageable reactive maintenance backlog All emergency, 24h and 7 day defects repaired on time 28 day defects repaired when possible Increased level of funding for capital programme up to minimum of 25%	No reactive maintenance backlog All actionable defects – Emergency, 24h, 7 day and 28 days completed on time Planned maintenance programme increased to double the size to bring backlog of poor condition footpath to 25%				
	BVPI 187 - Condition of footway hierarchy 1a, 1 and 2 % requiring maintenance	42%	15%	15%	28%	42%		Declining	

Asset Group	Goals	Service Level					Rating	Trend	Comments
		Poor	Fair	Good	Excellent	Current 2021/22			
Footways and Cycle tracks	VPI 187 – condition of footway hierarchy 3 & 4 requiring maintenance	54%	16%	15%	15%	54%		Declining	
Road Markings	Maintain to a good state where all markings are clearly visible	Reactive maintenance only. Growing backlog of maintenance and improvements. Poor 0-70%	Reactive and ad-hoc maintenance and refurbishment. Backlog of necessary maintenance and improvement stable. Fair 70-80%	Routine inspections. General renewal undertaken prior to next scheduled inspection. Backlog in maintenance reducing. Annual programme of works Good 80-90%	All road markings fit for purpose. Annual inspection and renewal programme with works undertaken within 3 months of inspection. Condition of road markings makes a positive contribution to the street scene Very good 90-100%	85%	Good	Good	Entire road marking network surveyed between June 20 and January 21

Asset Group	Goals	Service Level					Rating	Trend	Comments
		Poor	Fair	Good	Excellent	Current 2021/22			
Highway Structures		Predominantly reactive maintenance with minimal intervention to prevent asset deterioration. Little or no repairs for non-safety defects. Inspections carried out to identify potential safety issues only.	Programme of inspections and determination of bridge condition. Short term programme of planned works and routine maintenance reducing dependence on reactive maintenance. Condition stabilised at serviceable level. Resources insufficient to repair all required non safety defects.	Programme of inspections and determination of bridge condition. Short to medium term programme of planned works and routine maintenance with minimal reactive maintenance. Investment in structural maintenance leading to improvements in condition, reduction in backlog and further reducing dependence on reactive maintenance.	Programme of inspections and determination of bridge condition. Long term programme of planned works and routine maintenance with minimal reactive maintenance. Investment in structural maintenance leading to the elimination of maintenance and maintaining the stock at steady state with minimal reactive maintenance. All bridges capable of carrying 40T vehicles or an appropriate capacity to suit the local highway network.	Programme of inspections and determination of bridge condition. Minimal routine maintenance and short term programme of planned works. Condition stabilised at serviceable level but resources insufficient to repair all required non safety defects and condition is likely deterioration	Fair to good		

Asset Group	Goals	Service Level					Rating	Trend	Comments
		Poor	Fair	Good	Excellent	Current 2021/22			
Highway Structures continued	129-01 Highways Structures (BCI)	0-65%	65-80%	80-90%	90-100%				
	Bridges Footbridges Moving Bridges Culverts Retaining Walls River Wall Tunnels Pedestrian Subways Structures under investigation	2.6% 4.5% 7.7% 0% 0% 0% 0% 0% 3.2%	51.3% 34.1% 23.1% 28.6% 14.3% 0% 50% 17.6% 45.2%	41.0% 40.9% 61.5% 35.7% 52.4% 100% 0% 82.4% 41.9%	5.1% 20.5% 7.7% 35.7% 33.3% 0% 50% 0% 9.7%			.	
Street Lighting		No cyclic maintenance. Lamps allowed to burn to extinction resulting in a high number of faults. No column painting	No cyclic maintenance. Lamps allowed to burn to extinction resulting in a high number of faults. No column painting resulting in poor appearance and	Cyclic maintenance undertaken with faults minimised and appearance of stock improving. 90% of customer reported failures completed within 3 days; others 5 days. Replacement	Cyclic maintenance taking place, all customer reported failures repaired within 3 days; others within 5 days (other than District Network	Cyclic maintenance taking place however column replacement not keeping pace with deterioration of stock.	Poor to Fair	Declining	

Asset Group	Goals	Service Level					Rating	Trend	Comments
		Poor	Fair	Good	Excellent	Current 2021/22			
Street Lighting .		resulting in poor appearance and reduced life. Growing backlog of obsolete columns. Replacements restricted to potential hazards. Incomplete inventory.	reduced life. Customer reported failures completed in five days; others within 10 days. Column replacement at a level where condition of stock is generally stable. Inventory substantially complete.	of columns at a level where obsolete units and potential hazards reducing. Accurate inventory.	Operator faults) and street enhanced by appearance of equipment. Backlog of columns need of replacement eliminated. Increasing use of high quality equipment including electronic control gear and remote monitoring equipment.				
	Code of Practice for Highway Lighting: • L (a) No. of faults • L (b) Lights working as planned • L (c) Failed service connections • L (d) Damage incidents • Responsiveness to reactive repairs						Under development		
Public Rights of Way		Reactive inspection and maintenance only. Little or no action to	Limited inspection programme. Rectification of signage & furniture faults resource	Routine inspection programme. Rectification of signage and furniture faults by next	Routine inspection programme. Rectification of signage, furniture, and surface faults	New inspection programme introduced in 2012. Cutting back of	Good	Improving	

Asset Group	Goals	Service Level					Rating	Trend	Comments
		Poor	Fair	Good	Excellent	Current 2021/22			
Public rights of way		increase disabled access. Maintenance backlog growing.	limited. Cutting back of vegetation reactive. Backlog of surface improvements stabilised. Disabled provision and action on obstruction cases considered on a priority basis.	inspection. Cutting back of vegetation annually. Backlog of surface improvements reducing. Disabled provision and action on obstruction and claims.	within 3 months. Cutting back of vegetation annually. No backlog of surface improvements and annual programme of improvements.	vegetation. Rectification of signing and some surface improvements			
Highway Drainage		Service reactive in nature. All gullies and channelised drainage cleansed annually. Backlog of	Inspection undertaken in response to flooding events. Cleansing frequency less than need and prioritised on traffic use. Backlog of minor	Routine inspection of known flooding hotspots. Cleansing frequency based on need. Backlog of improvements to alleviate flooding of property cleared.	Routine inspection of all drainage assets where flooding occurs due to malfunction. Cleansing frequency meets need. Sustainable	Cleansing frequencies appropriate to network needs. Improvements undertaken on a priority basis with some property flooding	Fair	Steady	

Asset Group	Goals	Service Level					Rating	Trend	Comments
		Poor	Fair	Good	Excellent	Current 2021/22			
Highway Drainage		drainage faults increasing.	improvements relatively stable.		system for disposal of arisings. Backlog of improvements to alleviate flooding cleared. Progressive mapping of underground systems and conditions.	still to be addressed.			
	• % road gullies cleaned to schedule • Number of outstanding repairs	<97% >40	97-98% 20-40	98-99% 5-20	>99% <5	98% 97%	Good Poor	Steady Declining	
Street Furniture		Reactive maintenance only. Growing backlog of maintenance and improvements.	Reactive and ad-hoc maintenance and refurbishment. Backlog of necessary maintenance and improvement stable.	Routine inspections. General repairs undertaken prior to next scheduled inspection. Backlog in maintenance and refurbishment reducing. Annual programme of	All street furniture fit for purpose. Annual inspection and repair programme with works undertaken within 3 months of inspection. Condition of on-		Fair to good	To be developed	

Asset Group	Goals	Service Level					Rating	Trend	Comments
		Poor	**Fair**	**Good**	**Excellent**	**Current 2021/22**			
Street Furniture	Statues and Monuments Condition	Poor 0-65%	Fair 65 – 80%	environmental works such as painting. Good 80-90%	street equipment makes a positive contribution to the street scene Very good 90-100%	Score to be available 2016			
Trees	Achieve a proactive approach to the maintenance of trees	Reactive maintenance to trees in dangerous state	Reactive maintenance to trees in a dangerous state and in response to customer reports	Trees surveyed every 5 years. All required maintenance identified carried out	Annual primary survey of all trees. Full survey every 3 years. All required maintenance identified carried out		Fair to Good	Stable	Still awaiting appropriate software and hardware to achieve goals
	• Frequency of routine inspection • No. of ad hoc inspections • Amenity Index	>10 years	5-10 years	5 years	3 years		Good N/A N/A	Stable	
Highway Green Spaces	Maintain a good standard	Grass only cut to medium standard Some arisings on paths/roads/beds		Grass areas tidy; i.e. Strimming work done on last cycle Beds cleared of arisings Low or only fresh accumulation of	Arisings collected or evenly spread No arisings on paths/roads/beds Defined edges No presence of weeds				Initial LAMS (Land Audit Management System) Survey completed end of

Asset Group	Goals	Service Level					Rating	Trend	Comments
		Poor	Fair	Good	Excellent	Current 2021/22			
Highway Green Spaces		Undefined edges Medium presence of weeds Medium accumulation of leaves/branches Some evidence of pruning		arisings on paths/roads Defined edges; mechanical or herbicide Low presence of weeds / Evidence of successful weed kill Weathered soil surface Some evidence of regular pruning No (or only minor) defects (graffiti/vandalism/litter/detritus/dog fouling/fly tipping/bins overflowing)	No accumulation – leaves/ branches Evidence of regular pruning Evidence of a successful weed kill (summer) Good overall presentation Cultivated soil (winter) No defects (graffiti/vandalism/ litter/detritus/dog fouling/fly tipping/bins overflowing)				September 2015
Data and Data management		Data held on asset groups sufficient for minimum service delivery / valuation. Data held in different formats. Significant gaps in data held. No routine maintenance of data or clear responsibility for accuracy.	Basic inventory data held. Significant gaps in condition data. Ad hoc arrangements for updating data. Data held in various electronic formats with no targets for integration. No documented procedures for data management.	QA systems. Gaps in data identified and being actively addressed. Sufficient data held for accurate valuation of the asset. Majority of the data held on asset groups in single format with consistent referencing. Mechanism exists for routine updating of data held	QA systems. Inventory and condition data held for every asset to a common reference with electronic mapping. Consistency of network hierarchy across asset groups and applications. Clear ownership of data and regular routine updating of information.	Inventory and condition surveys held on main asset groups. Gaps in data identified and being addressed in some areas. Actively working towards consistent referencing and electronic mapping. Lack of routine updating	Fair to good	improving	

Asset Group	Goals	Service Level					Rating	Trend	Comments
		Poor	Fair	Good	Excellent	Current 2021/22			
					Works records extending back to a number of years.				
	• Confidence level for data	None	Low	Medium	High		Low to medium	Improving	

Appendix C2 Performance Indicators

Indicator Ref: H&T	NHT Public Satisfaction Key Benchmarking indicators (KBI)	Current 2019/20	TREND
KBI 1	Overall Satisfaction with Highways & Transport (against local importance)	54% = F	Improving[1]
KBI 2	Overall Satisfaction with Highways & Transport (against National importance)	54% = F	Improving[1]
KBI 11[2]	Overall Satisfaction with Pavements & Footpaths	53% B F	Improving
KBI 12	Satisfaction with specific aspects of Pavements & Footpaths	54% = F	Declining
KBI 13[2]	Overall Satisfaction with Cycle Routes & Facilities	50% A F	Improving
KBI 14	Cycle Routes & Facilities (aspects)	47% A P	declining
KBI 15[2]	Overall Satisfaction with The Local Rights of Way Network	54% B F	Static
KBI 16	Rights of Way (aspects)	52% = F	Static
KBI 17[2]	Overall Satisfaction with Traffic Levels & Congestion	41% B P	Improving
KBI 18	Management of Roadworks	48% B P	Declining
KBI 19	Traffic Management	43% A P	Static
KBI 20[2]	Road safety Locally	54% B F	Static
KBI 21	Road Safety Environment	54% = F	declining
KBI 22	Road Safety Education	50% = F	Static
KBI 23[2]	Condition of Highways i.e. roads & pavements	34% B P	declining
KBI 24	Highway Maintenance	47% B P	Declining
KBI 25[2]	Street Lighting	66% A G	Improving
KBI 26	Highway enforcement/obstructions	44% B P	Declining

[1] Assumes increasing value is improving trend (increased satisfaction can result in reduced perceived importance. Both cause value to increase)

[2] Denotes KBI derived from single questions

Notional Public Satisfaction Service Levels		
A	B	=
Above national Average	Below national average	Equal to national average

Notional Public Satisfaction Service Levels			
Poor (P)	Fair (F)	Good (G)	Excellent (E)
<50%	50-65%	65-80%	>80%

Customer Satisfaction Objectives		Contribution to these KBI	Current 2019/20	TREND
Question	NHT General Satisfaction Theme Results			
2.1	Accessibility	3,4,5	71% = G	Declining
2.2	Public Transport	6,7,8,9,10	62% A G	Improving
2.8	Walking /Cycling	11,12,13,14,15 16	52% = F	Improving
2.10	Tackling Congestion	17,18,19	44% B G	Improving
2.11	Road Safety	20,21,22	53% = F	Improving
2.12	Highway Maintenance	23,24,25,26	48% B P	Improving
NHT Walking and Cycling Benchmarking Indicators (BI)				
WCBI 01	Provision of pavements		63%	
WCBI 02	Condition of pavements		48%	
WCBI 03	The cleanliness of pavements		42%	
WCBI 04	Direction signposts for pedestrians		57%	
WCBI 05	Provision of safe crossing points		59%	
WCBI 06	Drop kerb crossing points		62%	
WCBI 07	Pavements clear of obstruction		45%	
WCBI 10	Condition of cycle routes		49%	
WCBI 11	Cycle crossing facilities at junctions		48%	
NHT Tackling Congestion Benchmarking Indicators (BI)				
TCB 01	Advance Warning of Roadworks		60%	
TCBI 02	Efforts to reduce delays to traffic		46%	
TCBI 03	time taken to complete roadworks		38%	
TCBI 04	Signposting of diversions		56%	
TCBI 05	Helplines to find out about roadworks		44%	
TCBI 06	Minimising nuisance to residents		48%	
TCB 07	Management of roadworks overall		47%	
TCB 11	Tackling illegal parking		36%	
TCB 12	Restrictions of parking on busy roads		44%	
Road Safety Benchmarking Indicators (BI)				
RSBI 01	Speed limits		63%	
RSBI 02	Speed controls (e.g. road humps)		55%	
RSBI 03	Location of speed control measures		56%	

RSBI 04	Safety of walking		61%	
RSBI 05	Safety of cycling		48%	
RSBI 06	Safety of children walking to school		54%	
RSBI 07	Safety of children cycling to school		43%	
RSBI 08	Road safety training/education children		51%	
RSBI 09	Road safety education motorcycles		49%	
RSBI 10	Road safety education young drivers		51%	
NHT Highway maintenance Benchmarking Indicators (BI)				
HMBI 01	Condition of road surfaces		35%	
HMBI 02	Cleanliness of road		51%	
HMBI 03	Condition of road markings		51%	
HMBI 05	Provision of street lighting		61%	
HMBI 06	Speed of repair to street lights		54%	
HMBI 09	Maintenance of highway verges, trees & shrubs		43%	
HMBI 11	Provision of drains		50%	
HMBI 12	keeping drains clear and working		47%	
HMB1 13	deals with potholes and damaged roads		33%	
HMBI 18	Provides information on gritting		42%	
HMBI 19	Cuts back overgrown hedges		40%	

	Local Performance Objectives (LPO)		
	Corporate Objectives, Council Policies		
CO 1	Harness all Hull's assets to become the leading UK Energy City		
CO 2	Make Hull a world-class visitor destination		
CO 3	Keep Hull Moving		
CO 4	Operate sustainably		
CO 5	Support Hull's Future Prosperity		
	Service Objectives	**Contribution to these KBI**	**Contribution to these local PO**
SO 1	Highway Asset Value (excluding trees)		CO 4,5
SO 2	Highway Tree Valuation?		CO 4,5
SO 3	% reactive maintenance as % of total maintenance		CO 4
SO 4	Cost of defects as % total value		CO 4
SO 5	Cost of highway related claims as % of total value		CO 4
SO 6	% repudiation rate for third party claims		CO 4
SO 7	People killed or seriously injured	1,2	

Appendix D Lifecycle Plans

Appendix D1 Carriageways - Lifecycle Plan Summary

Carriageways - Lifecycle Plan Summary

Inventory and Condition

Inventory – August 2015

Class and Length:

National Class Code	Maintenance Category	Group	Type	Quantity Point to Point Length km	Length with account for dualling km
3	2	Strategic	Principal A	32.8	51.9
4	3a	Main Distributor	Non-Principal B & C	9.6	12.1
5	3b	Secondary Distributor	Classified un-numbered	78.2	59.2
6	4a	Link Road	Unclassified U1	100.0	109.2
	4b	Local Residential Road	Unclassified U2	636.1	636.1
Sum			All	736.3	745.3
Sum			Classified Roads	120.6	123.1
Other Categories					
	Other Carriageways Maintained at Public Expense	Adopted Highway	Tenfoots	7.1	7.1

Linear Items:

Linear Items	Type1	Type2	Quantity	Length (m)
Kerbs	Included in carriageways class and length table			859
	Raised borders		765	
Line markings	Lines	Parking Bays		38,000
		Pay and Display Bays in City Centre		4,650
		Double Yellow Lines		308,150
		Single Yellow Lines		23,911
		Advanced Stop Lines	124 on 157 legs of junctions	Not Known
		Other White Lines	Not Known	Not Known
	Symbols		Not Known	
	Letters		Not Known	
Road Studs	Cats Eyes		0	
	Aluminium Studs		0	
	Brass Studs		0	
Boundary	Fence		0	
	Hedge	See Highway Green Spaces		
Hard strips / Verges / Veg	See Highway Green Spaces			

Carriageways - Lifecycle Plan Summary

Condition:

Surface: Results from the annual Scanner survey provide inputs for the national indicators and applies to the **classified road network only** representing 16% (120.6 km) of the total road network.

Road Condition	Year %			
	2009/10	2010/11	2011/12	2012/13
Principal Roads, A				
Green – generally good condition (<40)	**65.8**	**66.1**	**69.5**	**67.3**
Amber – plan investigation (≥40)	27.4	29	26	29.4
Red = plan maintenance soon (≥100)	6.8	4.9	4.5	3.3
Non-principal Roads, B				
Green – generally good condition (<40)	**64.8**	**59.7**	**70.8**	**69.4**
Amber – plan investigation (≥40)	29.5	32.6	25.8	27.8
Red = plan maintenance soon (≥100)	5.6	7.7	3.5	2.8
Non-principal Roads, C				
Green – generally good condition (<40)	**76.8**	**74.2**	**74.8**	**77.7**
Amber – plan investigation (≥40)	19.9	22.1	22	20.1
Red = plan maintenance soon (≥100)	3.3	3.7	2.3	2.2

Road Condition	Year %			
	2013/14	2014/15	2015/16	2016/17
Principal Roads, A				
Green – generally good condition (<40)	**67.0**	**67.5**	**67.64**	**70.14**
Amber – plan investigation (≥40)	28.4	29.3	29.09	27.45
Red = plan maintenance soon (≥100)	4.6	3.2	3.27	2.4
Non-principal Roads, B				
Green – generally good condition (<40)	**66.1**	**66.9**	**69.82**	**72.05**
Amber – plan investigation (≥40)	30.3	30.5	27.06	25.93
Red = plan maintenance soon (≥100)	3.5	2.6	3.13	2.02
Non-principal Roads, C				
Green – generally good condition (<40)	**79.9**	**81.3**	**80.12**	**81.1**
Amber – plan investigation (≥40)	18.5	17.4	18.3	17.38
Red = plan maintenance soon (≥100)	1.5	1.3	1.58	1.52

Road Condition	Year %			
	2017/18	2018/19	2019/20	2020/21
Principal Roads, A				
Green – generally good condition (<40)	**63.0**	**67.6**	**68.9**	**77.6**
Amber – plan investigation (≥40)	32.6	29.2	27.7	20.9
Red = plan maintenance soon (≥100)	4.3	3.1	3.4	1.4
Non-principal Roads, B				
Green – generally good condition (<40)	**66.7**	**67.5**	**63.9**	**73.8**
Amber – plan investigation (≥40)	29.2	29.6	33.0	24.6
Red = plan maintenance soon (≥100)	4.1	2.9	3.1	1.6
Non-principal Roads, C				
Green – generally good condition (<40)	**81.8**	**83.7**	**73.8**	**87.0**
Amber – plan investigation (≥40)	16.8	14.7	16.1	12.4
Red = plan maintenance soon (≥100)	1.5	1.7	1.7	0.6

Carriageways - Lifecycle Plan Summary

The strategic objectives include improving access to key services and supporting economic growth, and these objectives are best supported by a good principal road network. The Council has consistently invested in the A road network to establish good condition as shown. The national average RCI score for the principal road network is 3% while the value for Hull stands at 1.4% in 2020/21.

Similarly the Council has also invested fund in the non-principal road network again maintaining the roads in recent years to a good condition with the national average RCI running at 6% and value in Hull at 1.0% which puts the Authority in the top 4% of the country.

Despite limiting the spending on the unclassified roads to approximately 10% of the annual budget the percentage length which exceeds the point at which repair is required stands at 7% while the national average is 16% placing Hull in the top 12% of the Country. This can be attributed to the use of cost effective pro-active maintenance processes like surface dressing and an extensive micro surfacing programme on the residential streets.

Wet Skid: Results of wet skid resistance survey show that the following lengths of road are below the threshold level and falling in the red zone:

Road Class	**Length of network below Investigatory level (SCRIM survey)**			
	2011/12	**2012/13**	**2013/14**	**2014/15**
Principal Roads, A	15	9	12	6
Non-principal Roads, B & C	17	10	11	9
Total classified road network	32	19	23	15
	2015/16	**2016/17**		
Principal Roads, A	15	15		
Non-principal Roads, B & C	17	17		
Total classified road network	32	32		
	2017/18	**2018/19**	**2019/20**	**2020/21**
Principal Roads, A	13	9	18	10
Non-principal Roads, B	23	11	24	20
Non-principal Roads, C	18	12	20	13
Total classified road network	54	32	62	43

SCRIM results can often vary greatly due to the weather, as a result Hull carries out the survey in accordance with Characteristic SCRIM Coefficient (CSC). The processing and computation of CSC, based on a single annual survey of the network, is defined in Annex 2 of HD 28/15 of Section 3 of Volume 7 of the Design Manual for Roads and Bridges (DMRB).
To satisfy the requirements of CSC, SCRIM surveys are planned such that in successive years each road length is tested in the early, middle and late periods of the season:

Early Period - 1st May to 20th June
Middle Period - 21st June to 10th August
Late Period - 11th August to 30th September

Carriageway Structure: The detailed visual inspection (DVI) survey of both carriageways and footways was conducted over the entire network comprising 5,594,090sqm over a three year period with a third of the network is surveyed each year and the results averaged. This is now carried out annually across 3 wards on the unclassified network. The results are calculated to provide a percentage length which has exceeded the point at which surface or structural repair of the carriageway should be considered. The survey is completely different to the scanner results for the classified roads above and no comparison is possible. Instead both surveys are used in conjunction with each other.

Carriageways - Lifecycle Plan Summary

Moving forward the DVI survey will be carried out over the unclassified roads and footpaths only this allows us to obtain the results of the survey in a shorter period of time and therefore analyse this category of the network separately as the treatment for the majority of the unclassified network is different to the principal road network. The only part of the network which is now surveyed using both SCANNER and DVI's is the unclassified U1 roads.

Road Class					
	2010/11	**2011/12**	**2012/13**	**2013/14**	**2014/15**
Principal Roads, A – DfT class 3	N/A	11	9	9	10
Non-principal Roads, B – DfT class 4	N/A	6	6	5	5
Non-principal Roads, C – DfT class 5	N/A	7	7	6	7
Unclassified Roads – DfT Class 6	N/A	6	6	7	7
Overall general carriageway	6	7	7	7	7

	2015/16	**2016/17**	**2017/18**	**2018/19**	**2019/20**
Principal Roads, A – DfT class 3	10	10	10	10	10
Non-principal Roads, B – DfT class 4	5	9	9	9	11
Non-principal Roads, C – DfT class 5	7	7	7	7	8
Unclassified Roads – DfT Class 6	7	7	7	7	7
Overall general carriageway	7	7	7	7	7

While there is no relationship between the SCANNER and DVI survey results comparisons show that a similar pattern has developed for the classified road network with the Principal roads being in slightly worse condition than the non-principal network. The DVI scores also show the general downward trend similar to the RCI from the SCANNER surveys.

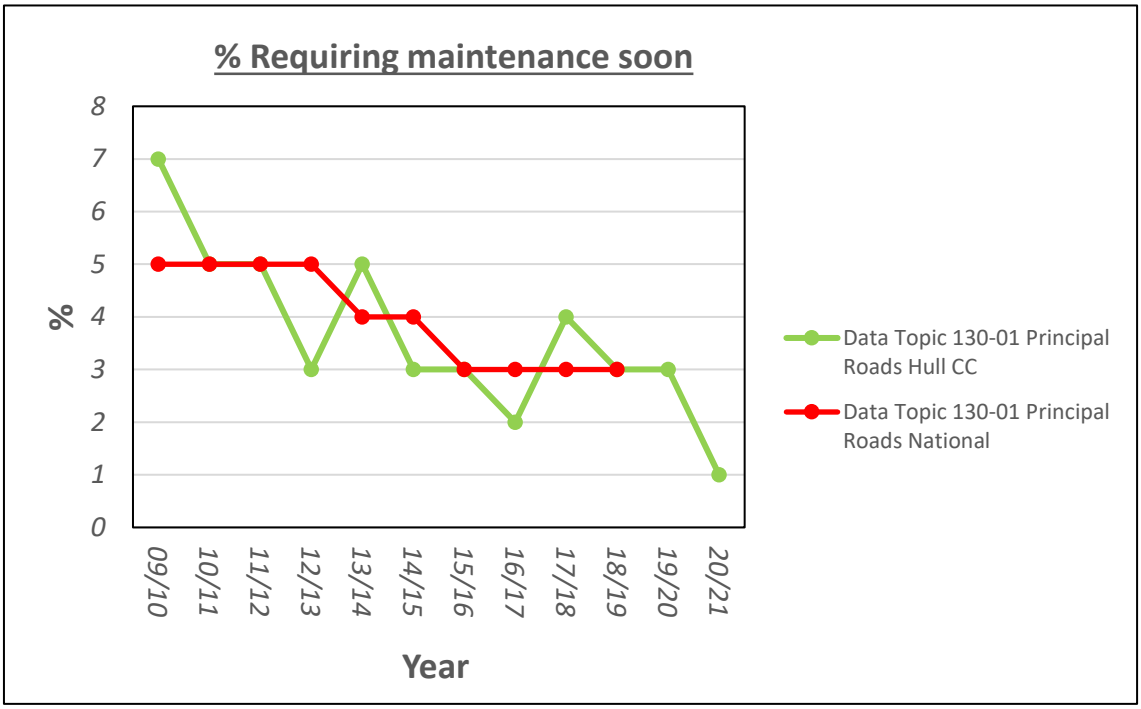
Given this correlation in results for the classified roads it can be assumed that the figures for the unclassified roads from the DVI survey fall in line with the rest of the network in showing the condition to be in a steady reasonable state.

Linear Items:

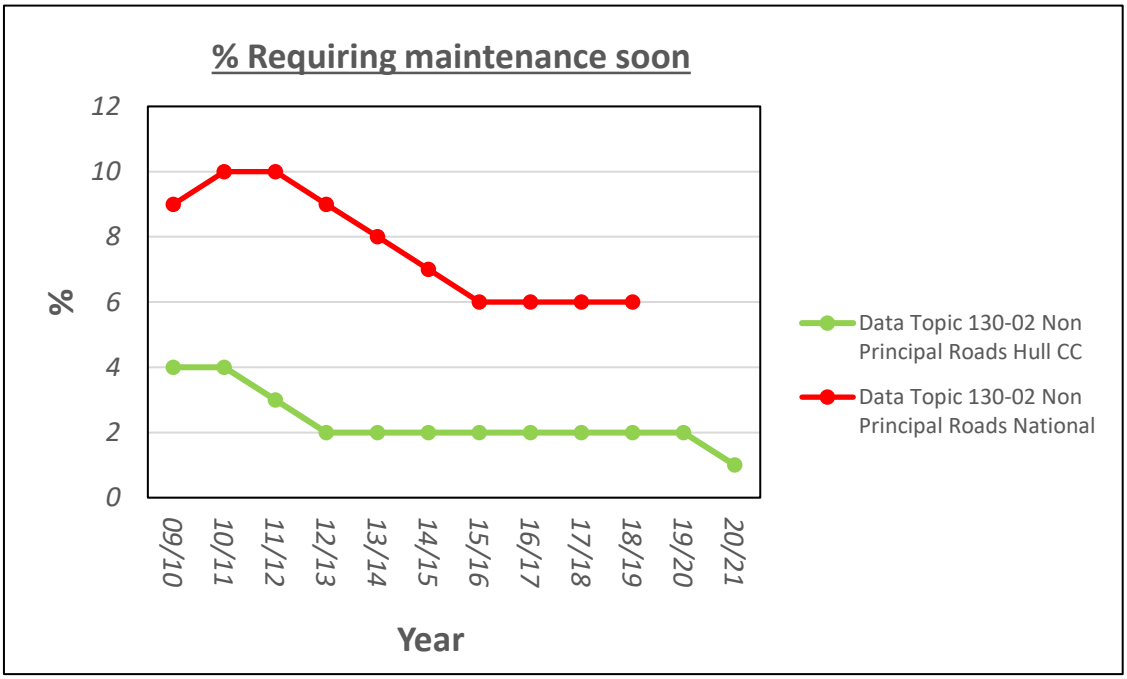
Lines and Markings – The entire road marking network was visually inspected between June 2020 and January 2021.The data collected showed the network to be in a good condition. All areas falling within actionable standard to be refreshed.

KPI Performance History

Principal Roads - DATA TOPIC 130-01

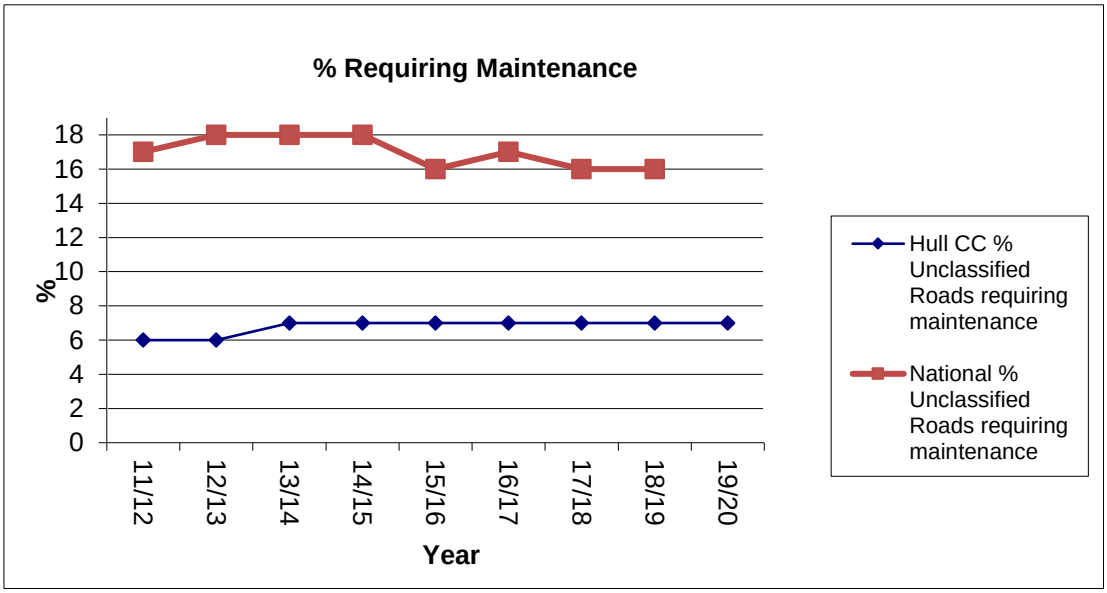


Non Principal Roads - DATA TOPIC 130-02



KPI Performance History

Unclassified Roads – LTP21 Rebased data collected from DVI Surveys



Using the national averages as the LA's benchmarking target for our KPI on the condition of various road categories the above tables show over the past 10 years the condition of the Councils Principal, Non Principal and Unclassified road has consistently performed above the national average figures

Valuation (£M)

Gross Replacement Cost (GRC) (£m):

Asset Class	**10/11**	**11/12**	**12/13**	**13/14**	**14/15**
3. Principal, A	59.1	65.1	67.2	124.1	110.8
4. Non-Principal, B	15.7	17.1	17.8	24.7	23.8
5. Classified, C	104.2	116.4	121.2	100.9	95.5
6. Unclassified	614.7	747.1	708.6	706.9	723.3
All carriageways	793.6	945.7	914.8	956.6	953.4
Asset Class	**15/16**	**16/17**	**17/18**	**18/19**	**19/20**
3. Principal, A	101.9	105.6	109.2	106.3	107.1
4. Non-Principal, B	21.9	23.2	23.1	23.2	22.9
5. Classified, C	87.9	90.4	90.8	90.5	92.3
6. Unclassified	665.4	662.9	662.1	670.9	698.3
All carriageways	877.1	882.1	885.2	890.9	920.6

Note: GRC includes linear items

Depreciated Replacement Cost(£m):

Asset Class	**10/11**	**11/12**	**12/13**	**13/14**	**14/15**
3. Principal, A	44.44	51.24	53.23	110.64	98.04
4. Non-Principal, B	12.51	14.64	15.33	22.12	21.16
5. Classified, C	91.51	104.63	109.22	88.91	83.67
6. Unclassified	572.56	717.57	677.04	672.05	688.51
All carriageways	721.02	888.08	852.43	893.73	891.38
Asset Class	**15/16**	**16/17**	**17/18**	**18/19**	**19/20**
3. Principal, A	88.7	92.4	95.8	93.0	
4. Non-Principal, B	19.2	20.5	20.3	20.5	
5. Classified, C	75.8	78.1	78.7	78.5	
6. Unclassified	630.1	629.6	628.8	638.7	
All carriageways	813.8	820.6	823.6	830.7	

Annual Depreciated Cost (£m/yr)

Asset Class	10/11	11/12	12/13	13/14	14/15
3. Principal, A	1.82	1.16	1.18	1.21	1.13
4. Non-Principal, B	0.39	0.24	0.25	0.26	0.26
5. Classified, C	1.43	1.15	1.20	1.23	1.23
6. Unclassified	5.00	3.83	3.98	4.08	4.08
All carriageways	8.64	6.39	6.61	6.78	6.70
Asset Class	**15/16**	**16/17**	**17/18**	**18/19**	**19/20**
3. Principal, A	1.13	1.18	1.17	1.17	
4. Non-Principal, B	0.26	0.28	0.28	0.28	
5. Classified, C	1.23	1.26	1.26	1.26	
6. Unclassified	4.03	4.02	4.02	4.07	
All carriageways	6.65	6.73	6.73	6.78	

Accumulated Depreciation Cost (£m)

Asset Class	10/11	11/12	12/13	13/14	14/15
3. Principal, A	14.70	13.86	13.96	13.46	12.76
4. Non-Principal, B	3.18	2.46	2.51	2.58	2.64
5. Classified, C	12.65	11.77	11.95	11.99	11.83
6. Unclassified	42.09	29.53	31.58	34.85	34.79
All carriageways	72.62	47.63	60.00	62.87	62.02
Asset Class	**15/16**	**16/17**	**17/18**	**18/19**	**19/20**
3. Principal, A	13.16	13.23	13.48	13.38	
4. Non-Principal, B	2.68	2.73	2.85	2.77	
5. Classified, C	12.09	12.30	12.17	12.04	
6. Unclassified	35.32	33.34	33.36	32.28	
All carriageways	63.25	61.61	61.86	60.47	

Carriageways - Lifecycle Plan Summary

Level of Service

Highways Act 1980; Code of Practice – Well Maintained Highways

Safety and Service Investigation Levels

Road Type	Road Category	Inspection Level			
		Safety			Service
Carriageway		Reactive	Routine	Programmed	
Classified A, B Unclassified C	Strategic and Distributors 2, 3a, 3b	As and when notified	Monthly	Wet skid resistance surveys undertaken annually to 100% coverage for three years, then results averaged for year four	
Unclassified (u)	Link 4a Access 4b		Quarterly Annually		Detailed Visual Inspection (DVI) surveys covering 25% of the network per year from 2019

Safety Intervention Levels

Defect	Intervention Level	Action
Sharp depression (pothole)	>40mm deep – All defects are based on a risk based approach where the local conditions are factored into the decision making process and not just the actual measurement of the defect.	Break out surface Reinstate in flexible surface
	> 100mm long	
Joints, Cracks, Gaps	>40mm wide	Appropriate treatment
	>40mm deep	
Differential in paving levels	> 40mm deep	Re-lay paving
Ironwork / service box covers	Missing or badly damaged	If HCC replace. If 3rd party subject to s81 NRSWA action and emergency 2hr temporary repair
Low wet skid resistance	Any site surveyed being deficient at or below the predetermined CSC level of ≤4.0 units	Resurface
Wet skid accidents	4 or more personal injury collisions in previous three years or 3 personal injury collisions in the last year as determined from a mapped cluster analysis	Anti-skid treatments

Condition Investigations

Survey type	Description	Route category	Survey frequency	Intervention
Surface Condition Assessment for the National Network of Roads (SCANNER)	Automated vehicle mounted machines gather data on the condition of the road and on analysis provides a Road Condition Index (RCI)	Strategic and Distributors Classified A and B; categories 2, 3a and 3b Unclassified U1 distributor Roads	Annually 100 % in both directions on the A, B and un-numbered one direction on the C roads	Road Condition Index (RCI)100 or greater resurface or prevention treatment
SCRIM	Wet skidding resistance	Strategic and Distributors 2, 3a and 3b	Annually to 100% coverage	Characteristic Scrim Co-efficient factor is less than or equal to 4.0 units
DVI	Observations from walking routes	Link Road 4a Local Access 4b	Annually 33% of network from 2012 & 25% from 2019	Priority score to be determined or converted to RCI.

Carriageways - Lifecycle Plan Summary

Not recorded		Lines and Other Markings		

Response Times

Category	Type	Response Time
1. Action Required Defects at or below intervention level from Safety inspections	Emergency	Immediate response within 2 hours to make safe and 24 hours permanent repair
	Priority	Works to be started within 7 days
	Routine	Work to be started within 28 calendar days
2. Action Desired All other defects above intervention level from Safety and Service Inspections	Programmed	Before next service inspection
3. Other Results of SCANNER, SCRIM, DVI	Planned	3 year priority list

Customer Expectations
Satisfactory road surface condition.
Satisfactory speed and quality of repairs.
Removal of vibrations caused by poor road condition either surface or structural
Reduction in noise level

Current Strategy
To maintain roads in a steady state, aiming to maintain current road condition indicator results whilst targeting safety defects in order to reduce pressures on revenue budget, further improve productivity and find more efficiencies.

For those safety defects with a high level of risk, permanent repairs are undertaken within a maximum of 28 days to provide a defence against third party claims. Where around 15% of a section of road is affected and cannot be left, a temporary repair may occur for a maximum of six months duration to allow their programming. Other minor defects not falling within these categories do not require any remedial actions and are monitored for deterioration or included in the routine, planned and programme maintenance activities. The form of the final intervention is a matter of judgement.

Planned maintenance is initially aimed at the principal road network with the focus on rectifying the worst sections within the SCANNER surveyed, 'red', group through major reconstruction if required while forgoing treatment on areas where there is no immediate danger of further deterioration, or safety risk to the public. The principal and non-principal road network is then analysed with the top 25% of the amber zone being considered for priority treatment to prolong their life by either resurfacing or using a pro-active treatment mainly surface dressing. Using HMEP life cycle modelling to determine the distribution of spending throughout the network the aim is to keep the principal road network requiring maintenance below 5% and the non-principal road network below 10%. The remainder subject to further investigation. Thus, preventing such roads from requiring more expensive repairs, such as full reconstruction. The unclassified network is split into distributor and residential road, with the former analysed from the DVI survey and considered for maintenance next in line to the classified roads. The residential roads are then maintained using more cost effective treatments on a priority basis from a predetermined budget allocation with micro surfacing being preferred on the flexible roads and surface dressing used on the concrete roads.

Road markings are maintained/renewed on a reactive basis. The Council has a proactive programme road marking maintenance based on public reports and survey of incident and others in the area from which a local scheme is derived. Where road markings are affected by other planned maintenance

works, these are replaced. Currently, there is a further proactive programme of improving existing pedestrian crossing facilities, especially zebra crossings. This involves surveys and the development of a prioritised programme of work.

Lifecycle Phases:

Creation / Acquisition

New sections of roads are created through capacity improvements and adoption of streets from developers

Maintenance / Renewal / Replacement

Carriageways deteriorate by several causes, including:

- Traffic – level, type and loads cause abrasion and stress leading to fatigue failure
- Weather – the ingress of water into the foundation accelerates deterioration along with alternating freeze and thaw conditions

The rate of deterioration differs across the network depending on the relative construction materials, traffic loading etc.

The future spend is programmed for the next 3 years with specific schemes priced up, and delivery based on 80% of the schemes being undertaken in the first year programme, 75% in the 2nd year advanced programme and 70% in the 3rd year. Fixed allocations for surface dressing and micro surfacing are included in the programmes with specific programmes developed on a year by year basis. The advanced capital programme is available on request.

Treatment Costs 2015/16

Treatment	Description	Purpose	Cost per sqm £[1]	Typical Life Span Years	Whole Life Cycle Cost £/sqm/yr
Carriageways					
Full Reconstruction	Whole road excavated to a depth of up to 1200mm and new materials laid. Requires a capping layer of 600mm to overcome poor ground conditions.	To restore the structural strength	175.00	25	7.00
Overlay	Additional flexible material of new bituminous type laid onto existing carriageway. Usually to a 100mm layer. Involves raising the levels of road kerbs and channels. Suited to locations where there is a wide grass verge separating the road from adjacent properties.	To increase the structural strength. To arrest deterioration. To improve ride quality. To provide surface integrity. To correct adverse cambers. To increase resistance to skidding. To reduce vibration.	59.00	7	8.42
Asphalt Grouted inlay	Composite surface course	To prevent reflective cracking	45	10	4.5
Resin Cementitious Grouted Inlay	Composite, flexible, joint free, heavy duty surface course used where there are large numbers of heavy goods vehicles. Re-open to traffic after 24 to 48 hours	To reduce stress on structure.	60	12	5.0
Plane and resurface	Old surface course is removed and a new material laid usually to a 40 -45mm depth.	To arrest deterioration. To improve riding quality. To provide surface integrity.	35	4	8.75

Carriageways - Lifecycle Plan Summary					
		To increase resistance to skidding.			
Treatment Costs continued					
Treatment	**Description**	**Purpose**	**Cost per sqm £[1]**	**Typical Life Span Years**	**Whole Life Cycle Cost £/sqm/yr**
Carriageways					
Deep plane and resurface*	Removal of old bituminous surfacing layers usually to 100mm depth are removed down to the concrete and new materials laid with 25mm SAMI material, 50-30mm PMB binder course and 45mm PMB surface course.	To restore structural strength. To arrest deterioration. To improve riding quality. To provide surface integrity. To increase resistance to skidding Prevent reflective cracking	55	15	3.66
Structural plane and resurface*	Removal of all bituminous surfacing layers between 200 and 300mm depth are removed down to the sub base and new materials laid with 100-200mm base course, 60mm binder course and 50mm surface course.	To restore structural strength. To arrest deterioration. To improve riding quality. To provide surface integrity. To increase resistance to skidding	95	20	4.75
Surface Dressing (pro-active treatment)	Bitumen is sprayed onto the road surface and chippings of an appropriate size are immediately applied to the bitumen comprising 10 and 6mm double dressing. Any defects are patched or sealed prior to dressing. Re-open to traffic immediately with 20mph speed restriction to allow the surface to stabilise and prevent water damage. After 14 days any lines can be repainted.	To arrest disintegration of the surface. To seal the surface against air and water penetration. To improve surface texture and resistance to skidding. To arrest surface concrete spoiling on residential roads	5.5	7	0.78
Micro Surfacing (pro-active treatment)	A thin surfacing process using a polymer modified cold mix paving system applied in one process onto the existing carriageway surface at between 6 and 15mm. Re-open to traffic immediately.	To arrest disintegration of the surface. To seal the surface against air and water penetration. To improve surface texture and resistance to skidding To improve ride quality.	6.5	8	0.81
Joint Sealing	A technique for repairing and reinstating specific surface cracks and joints using a flexible and durable material by planing out defect joiunt to width between 150-300mm and to a depth of 20-50mm and inlaying	Prevents water ingress and deterioration of the sub-grade. Reduces vibration. Can be used with other treatements.	9.97	8	1.25

Carriageways - Lifecycle Plan Summary					
	material. Re-open to traffic within 20 minutes.				
Patching	Non continuous resurfacing or reconstruction of limited areas.	To remove hazards to road users. As for overlay or resurfacing but on a limited basis.	65	3	21.66
Winter					
Pre-Salting	Spreading of de-icing salt on selected routes when icy conditions are forecast.	To prevent the formation of ice on selected routes. To preserve highway safety.	Not available	Not available	Not available
Snow clearance	Removal of accumulated snow from the highway in accordance with stated priorities.	To remove obstruction to the highway by snow.	Not available	Not available	Not available

Routine Maintenance Strategy (revenue)	**Planned Maintenance Strategy (capital)**
Revenue Investment £800,000 includes footways This is supplemented by pot hole funding which is announced by the government on an ad-hoc basis. 2015/16 - £87,000 2017/18 - £148,000 2019/20 - £128,716 2020/21 - £1,668,000 (Local Transport Capital Block Funding including pot hole & challenge fund)	**Capital Investment** Carriageway capital is generally set at around £2.5m per year but between 2014-16 an extra £1.9m was allocated. An allocation of money is also being set aside from both the capital and revenue budgets to carry out works which do not classify as actionable reactive defects or fall into an area large enough to be a planned scheme. These locations are small plane and resurfacing areas generally between 20 and 150m2 and are undertaken in-house by Highway Operations. Fees levied at 15%.
Routine Maintenance Processes Based on Code of Practice inspections and reaction to requests and complaints as modified by the 2013 Highway Maintenance Inspection Policy; moving towards more planned maintenance	**Planned Maintenance Processes** Based on Code of Practice using survey results, traffic type, ward suggestion surveys, loading and engineering judgement to determine priorities

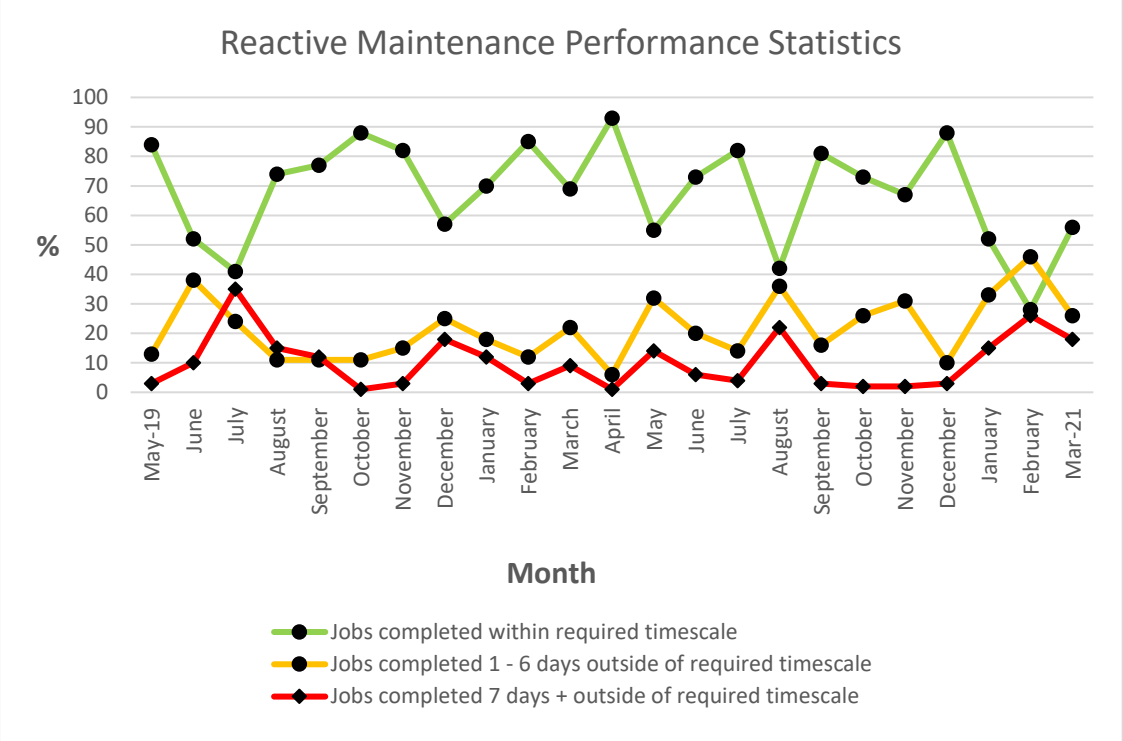
Upgrading
Widening of existing carriageway to upgrade the route and allow higher volumes of traffic or accommodate right turning movements.
The improvement of the structure of existing roads by installing greater depth of tarmac construction then originally used or using a concrete base layer.
The reclassification of existing routes rarely takes place. In-fact roads are more likely to be downgraded as new routes are built i.e. Hedon Road

Disposal / Decommissioning
Roads are rarely disposed or decommissioned except small sections in housing estates as new developments take place. Highway rights may be removed in accordance with highway law; wastes are administered through a waste management plan within construction contracts.

Performance Gaps
The DfT advise that an indicator of <12% on any part of the road network represents a 'Good' level of service this needs to be examined to determine its suitability as a target level of performance.

Carriageways - Lifecycle Plan Summary
There are no local performance levels set. These need to be determined and updated on a yearly basis.
Demands and Risks Third party claims arising from lack of repair to the road surface or an obstruction on the surface, e.g. water by failure to deal with blocked, faulty or inadequate drains.
Investment Strategy Based on annual surveys through the UKPMS model and as reported in the Whole Government Accounts, the annual amount to standstill to arrest and prevent the rate of deterioration of the highway network is £6.78m. This would not reduce a backlog. To clear the backlog by returning the highway network to an as new condition requires £60.5m. National figures show the ideal ratio between planned and reactive maintenance spending is 83% and 17% respectively. Hull City Council are currently matching this recommendation.
Improvement Actions • Identify responsibility for the maintenance and upkeep of all soft landscapes. • Review maintenance hierarchy and practices • Survey and review road lines and markings. • Update process for as-built sign offs and inventory.
Safety Inspections The statutory visual safety inspections are carried out by Lantra trained/qualified highways inspectors. All inspections routes are carried out on foot by the inspectors to maximise the area inspected. We inspect the highway asset in monthly, quarterly or annual time periods based on the recognised hierarchy of the route along with external factors of local industries/schools/bus routes being present. Routes are allocated via the Confirm system to an induvial PDA and once completed it is signed off as complete and these records are then held as a Site History Report on Confirm showing all the inspections carried out and defects identified. All defects that meet actionable standards as per the risk based inspection service introduced in 2019 are geotagged by the inspector who will also take a series of photos to show the defect in situ and surrounding area so as to make clear as to what the issue is. The inspector will allocate a repair timeframe based on the risk posed by the defect and this determines as to how quickly it should be repaired. Category 1 defects will require prompt attention due to the immediate hazard they present. These will be made safe within 2 hours with a permanent repair carried out with 24 hours. Category 2 defects are deemed not to represent an immediate hazard and will then be assessed in accordance with the risk based approach and prioritised to be completed within 7 days, 28 days or programmed when resources are available. The defects are then checked on Confirm and committed to Highways Operations to complete as a reactive repair or passed to Asset Management to consider as a capital scheme due to size of the issue. When repairs have been undertaken by the Highways gang they are closed down on the confirm system with photos attached showing the various stages of the repair operation along with the completed repair. Monthly KPI are recorded showing the % of repairs undertaken within the required time scales along with those taking over 7 days to complete (see graph below) New highway adopted areas that are made known to the department will be added into an inspection route to ensure that continuity of maintenance is maintained. Public reports that come through on the system are allocated to an inspector to investigate and provide a response in the system. If a defect is identified an email response will be sent to the individual who raised the enquiry to confirm that a defect has been identified and a repair raised, a second email will be sent to say that the work has been completed. Alternatively if it is not considered actionable or is found to be on land that is not the adopted highway or under authority ownership and

email will be sent to say that no work will be carried out. Photos are taken to show that it is not a defect or not on our land and these are stored on Confirm.



Highway Operations

HCC internal DLO team has a work force of 25 operatives including 10 gangers carry out the reactive maintenance works along with a percentage of the footway capital programme. 2 Gangs of 4 work on the capital programme with the remaining operatives working in gangs of 2 predominantly on patching with 1 non back gang on bollards, gullies etc.

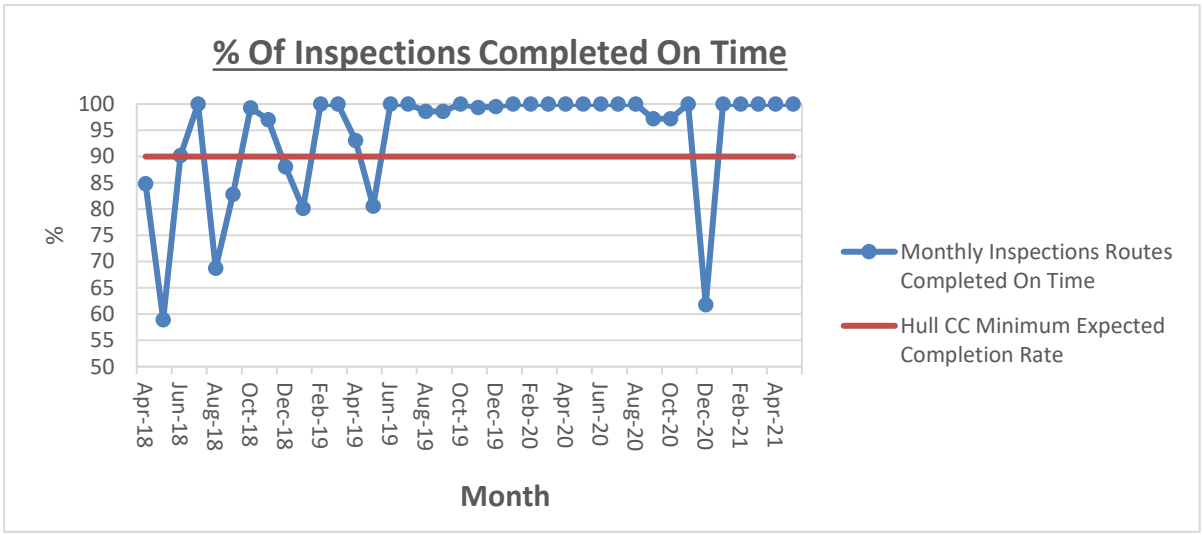
Historically they also undertook minor works funded by the area teams. In recent years the works requested by the area teams has been tendered out to an approved list of small local contractors who traditionally concentrated on vehicle crossings. This has allowed the LA to concentrate the DLO on reactive maintenance resulting in the backlog of uncompleted jobs being kept to a minimum and enabling a large percentage of repairs to be carried out within the required time scales.

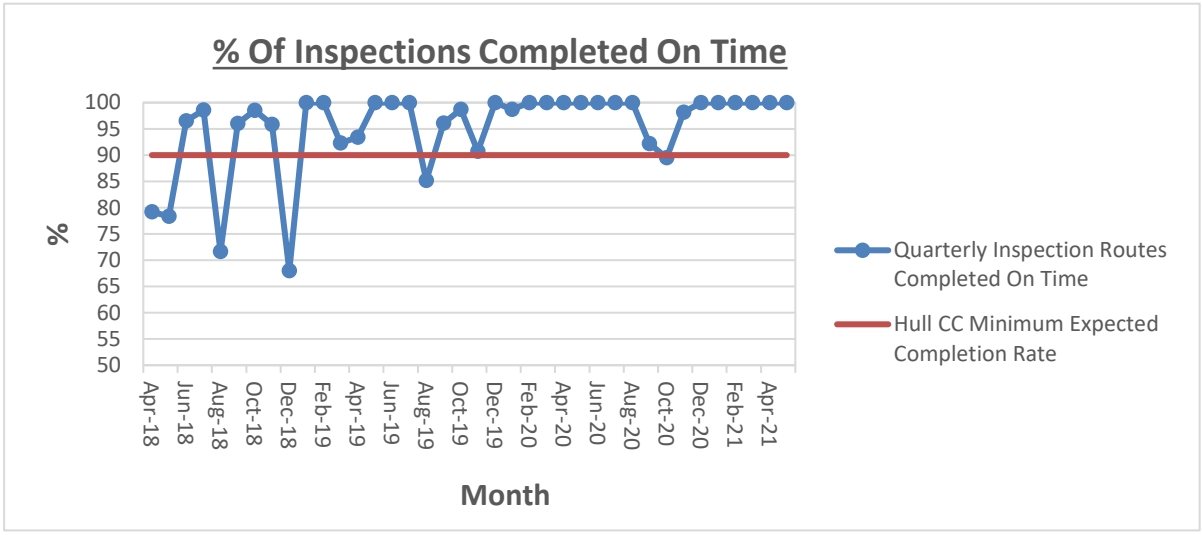
In the winter months the DLO teams are also called on to assist with winter maintenance resulting in the workforce being spread thinly across the various functions. This can have a detrimental effect on the performance statistics for carrying out reactive repairs in the correct time period.

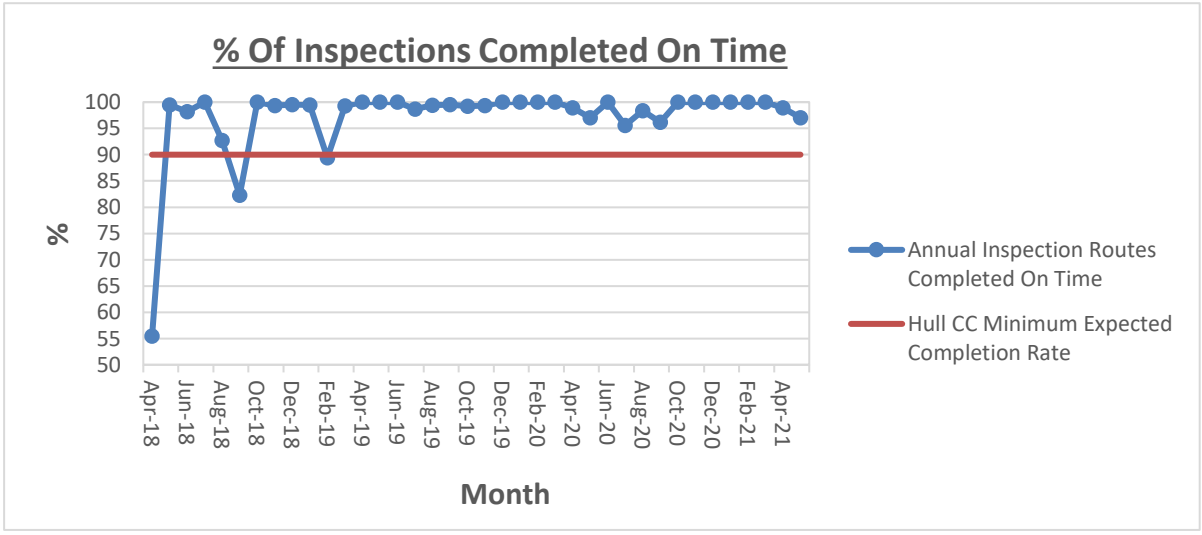
Inspection Performance Figures

The tables below show the inspection completion rates for the three inspection regimes, monthly and quarterly and annually along with the expected acceptable performance for the inspections set by the Local Authority. The acceptable level is agreed at 90% completion of three different inspection regimes below which the authority would start to find it difficult to defend insurance claims against highway defects. As the tables show in 2018 and the first half of 2019 the authority were struggling to meet the acceptable standards agreed but since mid-2019 the performance levels have been far more consistent with just the occasional blip as a result of stab absenteeism.

Carriageways - Lifecycle Plan Summary







Appendix D2 Footways and Cycle Tracks - Lifecycle Plan Summary

Inventory & Condition

Inventory

Group	Maintenance Category	Type	No.	Quantity Length Point to Point km
Footways				
Prestige Walking Zone	1a			12.51
Primary Walking Route	1			94.89
Secondary Walking Route	2			90.73
Link Footway	3			105.36
Local Access Footway	4a and 4b			779.71
Sum				1083.20
Cycleways				
Cycle Lane forming part of the carriageway	A	On road		40.64
	B	On road		10.07
	C	On road		22.91
Off Road cycle lanes	A	Off road		8.44
	B	Off road		0.95
	C			15.87

Local Cycling Policy and Strategy

The Draft Local Walking and Cycling Infrastructure Plan (LCWIP) was presented to the Infrastructure and Energy Overview and Scrutiny Commission on the 12th February 2020. All the documents are available to view on the Council's website here: https://cmis.hullcc.gov.uk/cmis/CalendarofMeetings/tabid/70/ctl/ViewMeetingPublic/mid/397/Meeting/8615/Committee/64/Default.aspx

The Draft LCWIP was subsequently approved by Cabinet on 24th February 2020 subject to the outcome of public consultation, which has been delayed due to the current Covid 19 situation.

National Cycling Policy and Strategy

In 2020 the Department for Transport (DfT) published Gear Change: a bold vision for cycling and Walking. This plan describes the vision to make England a great walking and cycling nation. It sets out the actions required at all levels of government to make this a reality, grouped under four themes:

- better streets for cycling and people
- cycling and walking at the heart of decision-making
- empowering and encouraging local authorities
- enabling people to cycle and protecting them when they do

In support of the Gear Change plan the DfT published Local Transport Note 1/20 "Cycle infrastructure design" which provides guidance to local authorities on delivering high quality, cycle infrastructure including:

- planning for cycling
- space for cycling within highways
- transitions between carriageways, cycle lanes and cycle tracks
- junctions and crossings
- cycle parking and other equipment
- planning and designing for commercial cycling
- traffic signs and road markings
- construction and maintenance

Latest central government funding guidance

The Government indicated, in the guidance mentioned above, that to receive government funding for local highways investment where the main element is not cycling or walking improvements, there will be a presumption that all new schemes will deliver or improve cycling infrastructure to the new standards laid down, unless it can be shown that there is little or no need for cycling in the particular road scheme. In accordance with these recommendations HCC in in the process of undertaking the following cycling schemes:

Current / proposed installations supporting Active Travel
Hull City Council has received DfT Emergency Active Travel for the following schemes to encourage Active Travel

- Extended Bus Lane operating times from peak time tidal to all day operation between 0730hrs to 1830hrs
- Within all the bus lanes, cycle route branding via coloured surfacing and thermoplastic signing has been installed
- The majority of one way streets have been amended to exempt cycles from the one way directional flow
- An experimental one way closure of Wright Street, with exemption for cycles;
- and an experimental point closure (with exemption for cycles) of Baker Street at the Prospect Street junction
- New cycle / bus lanes on Ferensway northbound and a mandatory cycle lane on Ferensway southbound
- New cycle / bus lanes on Spring Bank with additional cycle lane branding where the bus lanes end
- Pop up cycle lanes on Freetown Way with light segregation (flexible wands) along the majority of the road

All of the above are pop up / experimental and due to be reviewed later in the year.

Additional Active Travel from DfT has been / is being committed to the following improvements:
Holderness Road
Anlaby Road,
Witham,
Clarence Street and Alfred Gelder Street
Hessle Road.

Council funding has delivered the following cycling facilities:
Improvements to Foredyke Stream
City Centre to Ferry Terminal route

Hull & East Yorkshire LEP has provided funding for the following permanent Schemes:

Stoneferry Road Corridor providing improvements for pedestrians and cyclist as part of the overall scheme
Beverley Road Corridor Cycle Route Improvements
Hull to Cottingham Cycle Route

Condition: Footways

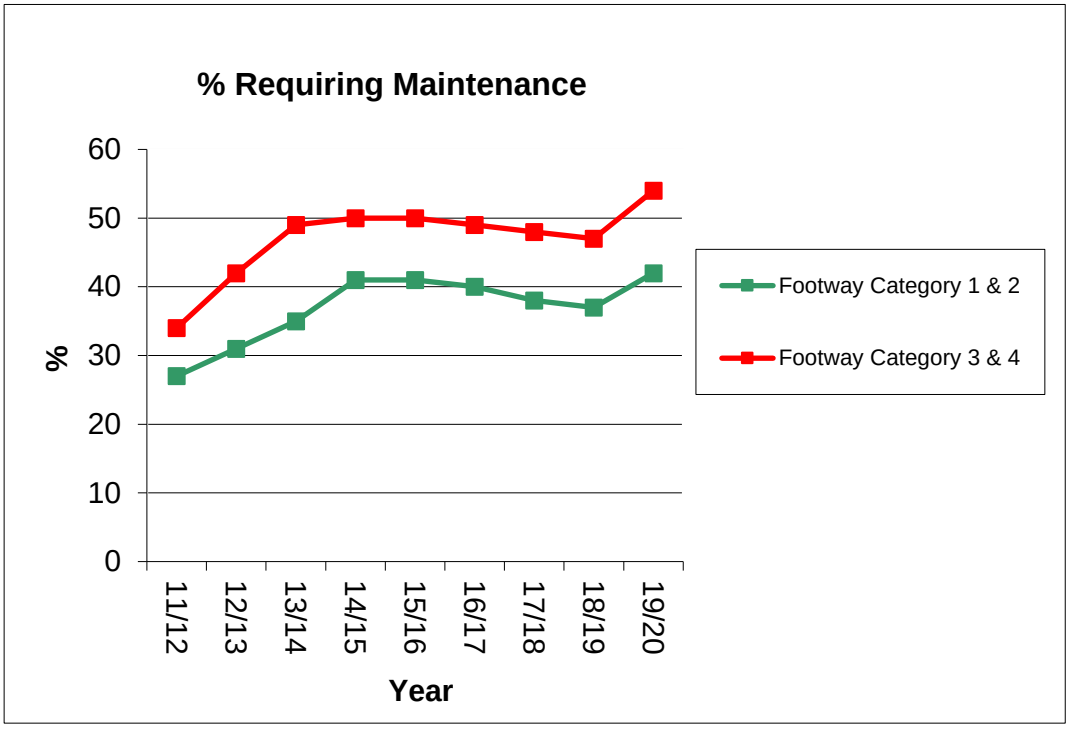
	Year					
Footway Category and Index Band	**2010/11**		**2011/12**		**2012/13**	
	km	**% length over threshold**	**km**	**% length over threshold**	**km**	**% length over threshold**
1 & 2						
20 and over – requires maintenance	**66.0**	**27**	**65.2**	**27**	**78.8**	**31**
Under 20 – monitor for future	82.5		79.7		85.1	
Zero – no work required	99.2		101.0		90.1	
3 & 4						
20 and over – requires maintenance			**257.9**	**34**	**333.0**	**42**
Under 20 – monitor for future			214.3		220.6	
Zero – no work required			289.1		246.8	

	Year					
Footway Category and Index Band	**2013/14**		**2014/15**		**2015/16**	
	km	**% length over threshold**	**km**	**% length over threshold**	**km**	**% length over threshold**
1 & 2						
20 and over – requires maintenance	**69.5**	**35**	**106.8**	**41**	**105.9**	**41**
Under 20 – monitor for future	61.0		76.6		75.7	
Zero – no work required	67.0		79.3		81.2	
3 & 4						
20 and over – requires maintenance	**395.6**	**49**	**405**	**50**	**401.2**	**50**
Under 20 – monitor for future	200.3		205		203.2	
Zero – no work required	214.5		207		210.8	

	Year					
Footway Category and Index Band	**2016/17**		**2017/18**		**2018/19**	
	km	**% length over threshold**	**km**	**% length over threshold**	**km**	**% length over threshold**
1 & 2						
20 and over – requires maintenance	**105.5**	**40**	**95.3**	**38**	**85.6**	**37**
Under 20 – monitor for future	74.0		71.1		67.2	
Zero – no work required	83.2		80.3		76.9	
3 & 4						
20 and over – requires maintenance	**397.9**	**49**	**386.4**	**48**	**376.6**	**47**
Under 20 – monitor for future	200.4		200.7		201.1	
Zero – no work required	213.8		222.6		232.1	

	Year					
Footway Category and Index Band	**2019/20**					
	km	**% length over threshold**	**km**	**% length over threshold**	**km**	**% length over threshold**
1 & 2						
20 and over – requires maintenance	**77.7**	**42**				
Under 20 – monitor for future	54.7					
Zero – no work required	52.3					
3 & 4						
20 and over – requires maintenance	**258.6**	**54**				
Under 20 – monitor for future	148.3					
Zero – no work required	75.7					

PERFORMANCE INDICATORS BVPI 187 - FOOTWAYS



For footways the performance indicator is calculated from the collection and analysis of Detailed Visual Inspection (DVI) measurements expresses as the percentage length of the footway hierarchy having a footway Condition Index greater than or equal to a threshold value of 20. This is calculated using the Variable Length Merge method set out within UKPMS. This threshold is indicative of the need for an investigation to determine whether maintenance is needed to preserve the footway serviceability.

Valuation

Gross Replacement Cost (GRC) (£m):

	Year				
Asset Class	**10/11**	**11/12**	**12/13**	**13/14**	**14/15**
Footways	161.6	187.8	191.2	203.1	201.8
Asset Class	**15/16**	**16/17**	**17/18**	**18/19**	**19/20**
Footways	196.2	193.8	200.4	207.8	201.8

Depreciated Replacement Cost (£m)

	Year				
Asset Class	**10/11**	**11/12**	**12/13**	**13/14**	**14/15**
Footways	N/A	82.8	101.5	94.2	169.7
Asset Class	**15/16**	**16/17**	**17/18**	**18/19**	**19/20**
Footways	160.4	158.0	164.6	172.8	169.6

Annual Depreciated Cost (£m/yr)

	Year				
Asset Class	**10/11**	**11/12**	**12/13**	**13/14**	**14/15**
Footways	N/A	7.71	3.38	4.01	4.04
Asset Class	**15/16**	**16/17**	**17/18**	**18/19**	**19/20**
Footways	5.34	5.28	5.17	6.70	5.38

Accumulated Depreciation Cost (£m)

	Year				
Asset Class	**10/11**	**11/12**	**12/13**	**13/14**	**14/15**
Footways	54.01	73.26	43.4	43.0	41.4
Asset Class	**15/16**	**16/17**	**17/18**	**18/19**	**19/20**
Footways	35.89	35.76	35.76	34.93	32.24

Note:
Accumulative and annual depreciation fell dramatically between 2012 & 13 due to local prices being used instead of default prices when determining the overall cost of repairs to the footway network.

Level of Service

Safety and Service Investigation Levels

Road Type	Road Category	Inspection Level			
		Safety			Service
		Reactive	Routine	Programmed	
Footways					
	Prestige 1a	As and when notified	Monthly		DVI surveys covering 25% of the network per year from 2012
	Primary 1 and shopping areas		Monthly		
	Secondary 2		Quarterly		
	Link 3		Monthly		
	Access 4		Half yearly		
Cycleways					
	Part of carriageway A	As and when notified	As for carriageway		
	Shared with footway B		As for footway		
	Tracks and leisure C		Half yearly		

Safety Intervention Levels

Road Type	Defect	Intervention Level	Action
Footways			
	Sharp depression (pothole)	> 20mm deep	Break out and restore condition. Treatment will primarily be flexible surfacing or dressing and rigid reconstruction will only be utilised in defined areas
	Joints, Cracks, Gaps	> 40mm wide	
		>20mm deep	
	Differential in paving levels	>20mm deep	Re-lay paving
	Flagstones rocking	>20mm on one face	Re-lay flagstones
	Ironwork /service box covers	Missing or badly damaged	If HCC replace. If 3rd party subject to s81 NRSWA action and emergency 2hr temporary repair
	Kerbing	When the defect criteria is exceeded.	Replace in association with other carriageway or footway works
Cycleways			
		As for carriageways and footways where co-exist with the adopted highway; ad hoc in all other cases	Restore condition to mirror carriageway or footway

Customer Expectations

Improve pavement surface condition.
Improve speed and quality of repairs.

Current Strategy

To maintain footways and cycle tracks in a steady state, aiming to maintain current condition indicator results whilst continuing to repair safety defects.

Due to the current backlog the use of more cost effective treatments where ever possible such as recycling, plane and resurfacing and slurry sealing to allow a greater number of footpaths to be maintained each financial year

A 4 year advanced capital programme for footpath reconstruction and recycling is produced which is available on request.

A specific allocation is set aside from the footway budget to maintain small sections of residential footpaths that are not picked up on the DVI survey but are in very poor condition.

Slurry sealing programmes are produced on an annual basis, but the aim is to also produce a longer term plan for these works.

Lifecycle Phase:

Creation / Acquisition

As for carriageways

Maintenance / Renewal / Replacement

Treatment costs:

Activity Type	Activity	Standard	Purpose	Cost per sqm £	Typical Lifespan Years	Whole Life Cycle Cost £/sqm/yr
Renewal	Slurry Seal	Programmes determined, using judgement and DVI survey	To prevent ingress of water	5.5	8	0.68
	Footway re-tread recycling		To provide an adequate and safe access	40	20	2.00
	Plane & resurface			16	15	1.07
Replacement	Reconstruction	Visual Assessment and DVI survey		55	25	2.20

Routine Maintenance Strategy (revenue)	**Planned Maintenance Strategy (capital)**
Much like carriageways maintenance is concentrated on safety defect repairs driven by the Highway Safety Inspection regime	Works in most need locations as determined by DVI survey and engineer's assessment. 10% of the budget is set aside to be allocated to specific small footway schemes in poor condition selected by the areas that have not been highlighted by the DVI survey
Revenue Investment See carriageways	**Capital Investment** Between £750,000 & £900,000, plus £50,000 for pedestrian facilities and other funds through carriageway and other improvements. Fees levied at 15%.
Routine Maintenance Processes As per level of service	**Planned Maintenance Processes** Approximately 16,000m2 per year is targeted at footway surfacing and 30,000m2 slurry sealing.

Upgrading

Works have been undertaken across the public realm over the past 3 years resulting in the upgrading of the paved areas around the city centre using natural stone materials bedded on greater depths of construction with rigid mortar joints. This will result in a longer life expectancy for the public realm areas of the city.

Existing footways are upgraded in improvement schemes to enhance an area by changing the construction from tarmac to paving materials. Footways can be widened in locations of heavy pedestrian movements. Construction depth can be increased in locations subjected to excessive over running by heavy vehicles.
Disposal / Decommissioning As per Carriageways
Performance Gaps No local or national targets are set for footway conditions. A process is required to determine what targets are set annually.
Demands and Risks As per Carriageways
Investment Strategy Included in Carriageways
Improvement Actions: • Survey and review of cycle tracks

Appendix D3 Bridges and Structures - Lifecycle Plan Summary

1. **Team's Remit**

a) **Main function**

The Hull City Council Bridge's team owns 213 structures and it is responsible for inspecting 51 third parties structures and other internal departments' structures. The team is involved at every stage of the life cycle of a structure: acquisition, operation, maintenance, renewal and decommission of structures within the boundary of Hull. These structures include bridges, buried structures, subway underpasses, culverts, earth retaining walls, masts and gantries according to CS 450 table 2.1.

Inventory on HCC Bridges Items	**Quantity (No.) Highway Structures**	**Quantity (No.) Non-Highway Structures**
Bridges	39	0
Footbridge	44	2
Moving bridge	13	0
Culverts >0.9m	14	0
Retaining Walls >1.5m	21	0
River Walls	1	16
Basements/ Chambers / control rooms	0	7
Tunnels	2	5
Cuttings and Embankments	0	1
Pedestrian Subways	17	0
Structures under investigation	31	0
Total No.	182	31

Statues and monuments (*not funded via Capital funding settlement)	64	0
Total No.	64	0

Highway Structures are located on an adopted highway or adjacent to an adopted highway.

Non – Highway structures are structures not located on the adopted Highway ***** this figure does not include structures in Parks and Gardens or LLFA maintained structures. (*not funded via Capital funding settlement)

River Walls are flood protection structures on the Marina and Victoria Dock.

Statues and Monuments * this figure does not include structures in Parks and Gardens or Cemeteries.

Secondary functions

The team also have secondary responsibility for overseeing the following functions:

- Retaining walls
- Abnormal Load Movements
- Oil Pollution (Oil Spill Contingency Plan – River Hull)
- Sports Ground Safety
- Statues and Monuments
- River Hull Harbour Authority
- Asset Management of Hull Marina structures (Lock Gate & Dock Walls)
- Victoria dock structures (River/ Dock walls)
- Highway/Underpass Surface Water Pumping Stations
- Victoria Dock Dewatering Pump System

2. Operations on the life cycle of structures

a) Acquisition

New highway structures tend to be created by major developments or through transfer from other authorities and bridge owners or from recording previously unknown assets. The structures to be adopted by Hull City Council undergo a process of adoption described on the policy document: 'Policy for Technical Approval'

b) Operation and Maintenance

The operation and maintenance of the structures owned by the Bridge's team involve general inspections (every 2 years) and principal inspections (every 6 to 12 years – intervals vary depending based on risk levels in accordance to Section 8 and Appendix A of CS 450). General inspections are a visual inspection of the parts of the structure that can be inspected without any access equipment. Principal inspection are close examination, within touching distance, of all accessible parts of a structure. Inspections are carried out in accordance to CS 450 and recorded on our Bridgestation asset management software.

Furthermore structural reviews are carried out in accordance with CS 451 on the interval of every other principal inspection. If it is noted on the structural review that the structure has deteriorated more than expected or if there was any change on the codes since the last assessment, a new assessment is proposed.

Highways structures owned by third parties undergo superficial inspections every two years to make sure they are safe and fit for purpose. The superficial inspections are undertake similarly to general inspections. Any concerns are treated as individual basis and any defects are reported to the body responsible for the asset. Third party inspection do not include structures owned by Network Rail, Environment Agency, Yorkshire Water, Highways England or Associated British Ports, because agreement was made that they carry an appropriate inspection regime on their structures.

Routine maintenance is also carried out by other departments/teams within the Council on behalf of the Bridge's team (e.g. footway and carriageway repairs, gulley cleaning, maintenance of vegetation and clearance) in accordance with the internal policy "Policy for Reporting Bridges Related Works".

c) Renewal, Planned & Reactive Maintenance

The inspections and assessments highlight the need for any further works. Works are raised as a ticket using the Bridgestation 'Workbank' module. These works are prioritised by using engineering judgement taking into account risks to public safety, Bridge Condition Indicator scores, importance of the route, resources available, other highway works in the area and the consequences of delaying the works. On some occasions, a defect may lead to reactive works.

Examples of works raised can vary from routine maintenance (as above) to repointing, repainting, re-waterproofing, cathodic protection, major structural repair work to concrete, masonry or steelwork and whole refurbishment schemes.

d) Disposal / Decommissioning

The decommissioning activities are initially subjected to consultation and an impact assessment. The decisions regarding any outcome are taken by Cabinet. Typical decommissioning activities by Hull City Council are infilling/removal of highway structures due to lack of use, security concerns, the need to reduce maintenance liabilities and where strengthening/refurbishment is uneconomic.

3. Availability Indicator

The Availability Indicator measures the impact of structures which restrict the use of the highway network, either by height or by weight limits. The number of structures includes structures owned by others e.g. Network Rail under the Hull City Council area.

Height Restrictions	21 Structures under 16'6" or 5.030m
Weight Restrictions	8 Restricted or Substandard Structures *

*The bridges team is currently looking into decreasing this number by carrying out more detailed assessments using modern software, acting upon interim measures and developing strengthening schemes where possible.

4. Asset management planning

a) Short term

The majority of our works is planned up to 5 years in advance and this is reviewed every end of financial year. Asset management planning is changeable due to variations in the annual budget and the backlog of works. Therefore this 5 year plan is subject to change as further investigation works are carried out, identifying potentially higher priority works.

b) Medium and Long term

The Bridges team uses the nationally recognised 'Structure Asset Management Planning Toolkit' (SAMPT) module available on the BridgeStation software for medium and long term planning. BridgeStation is software and database developed by the London Bridges Engineering Group (LoBEG) and it is used by several local authority in the UK.

Deterioration of highway structures is dependent on component materials, age, condition, exposure and function. Condition scores are attributed from inspections to each component (element) of each structure. These scores will be subjected to a matrix of deterioration rates (refer to Structures Asset Management Planning Toolkit documentation from DfT for further information) and this with other parameters enable 'what-if' scenarios to be analysed. The SAMPT toolkit models how the condition of the stock of assets will deteriorate over time depending on level of annual spend; or inversely, the required annual spend in order to maintain a given stock condition.

c) Feedback to Central Government - Accounting Requirements & BCI

Every year local authorities need to produce a set of financial statements to the Whole of Government Accounts (WGA). Bridgestation software also incorporates a module for Asset Valuation where the information available and used in section b) above is used to calculate Gross Replacement Cost and Depreciated replacement cost (refer to 'CIPFA's Code of Practice on Transport Infrastructure Assets: Guidance to Support Asset Management, Financial Management and Reporting' for further information).

Furthermore the BCI (Bridge Condition Indicator – also more recently referred as Condition Performance Indicator) figure is also sent to central government every year. This figure reflects the condition of the structures in Hull and it is calculated based on the element scores given on each inspection. The BCI score is divided into critical (where only the score of the critical elements are considered) and average (where the score of all the structure's element are considered). For further information on the calculation of the BCI (or Condition PI) refer to 'Guidance Document for Performance Measurement of Highway Structures – Part B1:

Condition Performance Indicator' reported on behalf of Highways Agency and CSS Bridges Group.

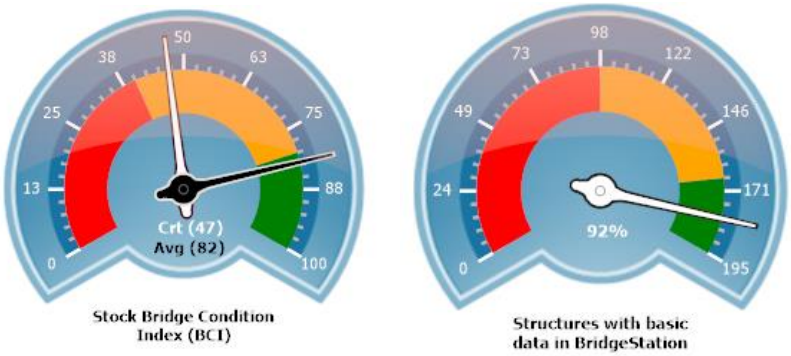


Figure 1 – Example of performance indicator dashboard for year of 2021-2022

5. Future asset management targets

With an appropriate budget and resources the main long term targets of the bridge's team are to:

- Maintain assets in a steady state, aiming to maintain and/or improve current bridge score condition indicator results whilst ensuring bridges and structures are safe to use and fit for purpose.
- Manage abnormal loads to ensure performance is maintained and structures are protected
- Continue the development of a data register and records.
- Eliminate the backlog of assessments (for construction and use traffic and abnormal loads)
- Complete each financial year inspection's regime
- Develop and carry out strengthening works to ensure that the main load bearing elements can safely carry vehicle loadings.
- Reduce the number of redundant assets and reduce maintenance liabilities.
- Improve the inspection regime of hidden elements and reduce the risk of collapse.
- Improve historically substandard parapets
- Assess supports (piers and columns) ability to withstand vehicle impact loads and strengthen as necessary
- Provide more accessible routes to footbridges and subways

Appendix D4 Highway Lighting, Illuminated Signs and Bollards

- Lifecycle Plan Summary

Highway Lighting, Illuminated Signs and Bollards - Lifecycle Plan Summary

Inventory & Condition

As at April 2015

Description	Quantity (no.)
Lighting Columns (excl heritage)	33620
Lighting mounted on walls etc	808
Heritage Columns	1053
High mast columns	23
Illuminated Bollards	308
Illuminated Signs	2662
Refuge Beacon Poles	64
Belisha Beacon poles	244
Subway Fittings	Not Known
Feeder Pillars	143
Underground equipment	Not known

Column Material Types (excl lanterns mounted on walls etc)

Type	Quantity (No.)
Steel	32553
Concrete	777
Aluminium	264
Cast Iron	1053
Other	26

Age Profile of Lighting Columns

Age (Years)	Quantity (No.)
<10	5912
10-20	11593
20-30	10361
30-40	4035
>40	2782

Performance History

Not available. Anticipated to be available from 2022 following
development of cyclic structural testing regime with contractor,
KWL, including monitoring defect repeat visits.

Highway Lighting, Illuminated Signs and Bollards - Lifecycle Plan Summary

Valuation

Gross Replacement Cost (GRC) (£m):

Asset Class	**11/12[1]**	**12/13**	**13/14**	**14/15**	**20/21**
Street Lights	25.2		**25.3**	**33.15**	**42.15**
Feeder Pillars	0.9				**0.06**
Illuminated Signs	1.8		**1.87**	**1.96**	**2.13**
Illuminated Bollards	0.9		**0.63**	**0.59**	**0.92**
All Lighting	28.1		27.83	35.7	45.26

Annual Depreciated Cost (£m/yr)

Asset Class	**11/12[1]**	**12/13**	**13/14**	**14/15**	**20/21**
Street Lights			**1.1**	**1.23**	**1.32**
Feeder Pillars					**0.01**
Illuminated Signs			**0.05**	**0.06**	**0.07**
Illuminated Bollards			**0.01**	**0.01**	**0.01**
All Lighting	N/A		1.16	1.3	1.41

Depreciated Replacement Cost (DRC) (£m)

Asset Class	**11/12[1]**	**12/13**	**13/14**	**14/15**	**20/21**
Street Lights			**9.08**	**11.69**	**22.41**
Feeder Pillars					**0.05**
Illuminated Signs			**0.15**	**0.27**	**1.23**
Illuminated Bollards			**0.2**	**0.14**	**0.35**
All Lighting	10.5		9.4	12.1	24.04

Accumulated Depreciation Cost (£m)

Asset Class	**11/12[1]**	**12/13**	**13/14**	**14/15**	**20/21**
Street Lights			**16.22**	**21.46**	**25.16**
Feeder pillars					**0.01**
Illuminated Signs			**1.72**	**1.69**	**1.9**
Illuminated Bollards			**0.43**	**0.45**	**0.01**
Lighting	17.5		18.43	23.6	27.08

1 Estimated values

Level of Service

To accord with:

- The Highways Act 1980
- The Electricity at Work Regulations, 1990
- Well-Lit Highways Code of Practice
- Institution of Lighting Engineers standards
- Traffic Signs Manual 2013
- BS 5489 Code of practice for the design of road lighting – lighting of roads and public amenity areas

Highway Lighting, Illuminated Signs and Bollards - Lifecycle Plan Summary

- Institution of Electrical Engineers (IEE) Regulations
- BS 7671- Requirements for Electrical Installations Testing
- Contractual specification with KWL and energy providers.

Activity	**Frequency**
Cleaning	
Lanterns and lamp changing	On request
Illuminated bollards	On request or when resources allow
Illuminated signs	When resources allow
Inspection and Testing	
Unlit street lights or street furniture	14 day cycle Monday to Thursday night's city wide. Find and repair being introduced between November to May on ward by ward basis.
Structural and Mechanical	Every 12 years
Electrical	Every 6 years
Activity	**Frequency**
Fault Rectification	
Emergency to safeguard health and safety	2 hour of notification available 24 hrs 365 days a year
Non-emergency:	
• Rectification of non-operating mandatory traffic signs and bollards	Within 5 working day
• Rectification of non-operating Belisha Beacons and School flashing Lights	Within 5 working day
• Check where group of lights defective (3 or more)	Within 1 working day
• Replacing components	5 working days reduced to 3 working days where target cannot be repaired after initial investigation
• Replacing component unit	5 working days
• Repair or replacement of DNO equipment	20 working days
• Removal of graffiti or unauthorised attachments from apparatus	Within 5 working day
• Replacement of bollards, globes, signs etc. after knock down	5 working days
• Replacement of non-approved attachments	5 working days
Correspondence response and individual requests for information	10 working days – general 5 working days – councillors
Responding to complaints regarding on-going site works	Within 1 working day
Responding to other complaints	Within 5 working days
Electrical supply failures	Dependent upon supplier usually within 28 days

Highway Lighting, Illuminated Signs and Bollards - Lifecycle Plan Summary	
Customer Expectations To keep lights lit during hours of darkness Encourage fault reporting through the HCC website and call centre.	
Current Strategy To ensure that the illuminated street furniture is functioning correctly at all times, and inspections and repairs are undertaken to faulty / damaged stock to timescales as specified in the maintenance contract; invest in new energy efficient technologies, adopt dimming and trimming protocols on all new installations to control energy expenditure and reduce carbon footprint. Further development of the management information systems in line with timeframe agreed in the maintenance contract, including performance indicators, schedule of rates and work programmes for additional maintenance activities.	
Lifecycle Phases:	
Creation / Acquisition New assets are created or updated through the adoption of roads, new schemes, and replacement of stock beyond its useful life.	
Maintenance / Renewal / Replacement Duty of care to maintain existing lighting stock in a safe condition and that it is fit for purpose. Columns at end of design life and/or as recommended in Technical Report 22 Managing a Vital Asset: Lighting Supports are replaced and modernised based on circa 340 per annum; Capital Programme of column replacement works are programmed 3 years in advance (copy of Programmes available upon request). Find and repair service undertaken during November and May planned ward by ward Generally, highway lighting deteriorates through age, corrosion, metal fatigue, cracking, vandalism, urine, vehicular strikes, ground conditions, grass cutting, gritting of highway. Lighting deteriorates with age with the intensity of the illumination reducing and energy demand increasing.	
Routine Maintenance Strategy (revenue) Reactive in response to customer reports. Preventive through rectification of defects and faults inspection of structural and electrical condition checks and monitoring.	**Planned Maintenance Strategy (capital)** Improvements to stock and upgrades as technology develops.
	Replacement of approximately 1000 columns.
Revenue Investment £0.63m per annum	**Capital Investment** £1.09m
Routine Maintenance Processes Undertaken on open book collaborative basis with contractor KWL	**Planned Maintenance Processes** Undertaken on open book collaborative basis with contractor KWL over 5 years to March 2017 to result in a 10% additional replacement of units on like for like basis, i.e. replacement of a nominal 340 columns a year.
Upgrading	
Disposal / Decommissioning Redundant equipment disposed by taking account of current standards and legislation.	
Performance Gaps Cleaning and service of illuminated bollards not to standard of every 4 weeks between November and March. Cleaning and service of signs not to standard of once every 3 years. Backlog on inspection and testing regime, but extent not identified. Data gaps within databases and rationalisation of fields required. Monthly meetings are held with KWL to discuss current situation and progress (refer Appendix F: Street Lighting Operational Meeting Minutes)	

Highway Lighting, Illuminated Signs and Bollards - Lifecycle Plan Summary
Demands and Risks The existing annual capital budget is not sustainable equating to 110 year replacement cycle leading to a deterioration of the asset. Ensuring maintenance schedules are up to date to meet statutory duties and minimise liability No improvement in management and performance regimes and non-compliance with standards New LED lanterns have reduced historical energy demands and costs but energy demands and costs will increase year on year. LED lighting unit change interval increased to 20 years. Other risks include full or partial structural failure, electrical faults; difficult maintenance of certain materials, such as concrete columns.
Investment Strategy Standstill - to provide minimum annual capital budget no lower than required to maintain the existing asset base at its current average age as minimum standard Backlog – To identify requirements to clear the backlog of electrical inspection and testing

Improvement Actions:
• Revised content and programme of maintenance
  ○ Introduction of pro-active scouting and benchmarking using APSE performance network for find and repair service
  ○ Identifying requirements to clear the backlog of electrical inspection and testing
  ○ Cleaning and servicing of illuminated bollards and traffic signs
  ○ Complete data checking of inventory by linking data management systems between KWL and HCC (Commit and Confirm)
  ○ Street lighting maintenance option table
  ○ Introduction of remote monitoring
• Continued use of LED's
• Continued use of dimming and trimming programme
• Introduction of smart column replacements.

Appendix D5 Public Rights of Way – Lifecycle Plan Summary

<table>
<tr><th colspan="2">Public Rights of Way – Lifecycle Plan Summary</th></tr>
<tr><td>Inventory & Condition</td><td>Performance History</td></tr>
<tr><td>Inventory November 2020

<table><tr><th>Type</th><th>Quantity</th><th>km</th></tr><tr><td>Footpaths</td><td>33</td><td>39.43</td></tr><tr><td>Signposts and signs</td><td>44</td><td></td></tr></table>
Condition:
Where accessible all passable</td><td>Inspection annually up until 2012 related to 10% length of network. In 2012, the entire network was inspected and found several PROW’s to be obstructed which have been cleared. Signs and posts damaged and replaced, minor repairs needed and undertaken. Since 2014 reactive inspections only, undertaken following reports from users.</td></tr>
<tr><td colspan="2">Valuation
Estimated and included in Carriageways</td></tr>
<tr><td colspan="2">Level of Service
Paths should be available for use without undue hindrance.
Any gates or stiles in a safe condition.
Paths signposted or way marked where they leave a metalled road.</td></tr>
<tr><td colspan="2">Customer Expectations
Paths should be free from obstructions, in good repair to enable use without undue inconvenience, and accessible to all members of the community</td></tr>
<tr><td colspan="2">Current Strategy
As per level of service</td></tr>
<tr><td colspan="2">Lifecycle Phases:</td></tr>
<tr><td colspan="2">Creation / Acquisition
Modifications of the Definitive Map and Statement permitted where documentary or user evidence exists.
Paths can be created, diverted or stopped up using the Highways Act 1980. If the right of way has to be moved because of development for which planning consent has been given, then the Council is able to make an order under the Town and Country Planning Act 1990</td></tr>
<tr><td colspan="2">Maintenance / Renewal / Replacement
Until 2012 all maintenance was conducted on a reactive basis with 10% of network inspected. In 2012 maintenance and improvements initiated from the annual inspection of all routes. Since 2014 reactive inspections only, undertaken following reports from users.</td></tr>
<tr><td>Routine Maintenance Strategy (revenue)
Based on inspection</td><td>Planned Maintenance Strategy (capital)
Special projects</td></tr>
<tr><td>Revenue Investment
£26,328 per annum</td><td>Capital Investment
None</td></tr>
<tr><td>Routine Maintenance Processes
Based on annual inspection last undertaken in 2013 for all PROWS
Reactive to requests for action</td><td>Planned Maintenance Processes
None</td></tr>
<tr><td colspan="2">Upgrading
Widening or new surfacing and improving accessibility</td></tr>
<tr><td colspan="2">Disposal / Decommissioning
Public Rights of Way are only decommissioned through a legal process</td></tr>
<tr><td colspan="2">Performance Gaps
Routes inaccessible for use due to development or other reason</td></tr>
</table>

Public Rights of Way – Lifecycle Plan Summary
Demands and Risks: Network to be open 24 hrs, 365 days per year and accessible to all Bank erosion on west bank of River Hull north of Ferry Lane and part of western section of north bank of River Humber between MAKRO and City boundary. Warm and wet weather often leads to overgrowth that cannot be addressed more than once a year.
Investment Strategy As per Rights of Way Improvement Plan 2009-2019 subject to available resources
Improvement Actions • Valuation assessment • Upgrading of major routes • Reopening of routes where curtailed.

Appendix D6 Highway Trees - Lifecycle Plan Summary

Highway Trees - Lifecycle Plan Summary

Inventory & Condition

Inventory

Type1	Type2	Quantity
Species		272
Trees		29,000
	Located in grass	N/A
	Located in tree pits/ grid	N/A
	Located in tarmac	N/A
	Located in other hard surface	N/A
	Other	N/A

All trees classified within the highway boundary surveyed in 1997, and updated in 2002.
Database 6-12 mths behind and updated after tree work complete
Database not being updated at present due to transfer to alternative management system and training requirements.

Condition
All highway trees assessed as having high – medium amenity value because of visual presence in the landscape

Performance History
Not available

Valuation
As at September 2015 -Total value of highway tree population £17,180,000 increase on 2012/13 estimated value of £16,840,000.

Level of Service
Ongoing regular inspections in accordance with DMRB Volume 10 Environmental Design and Management.
Code of practice recommends inspections once every five years.
Routine maintenance schemes and planned tree management schemes being carried out.

Customer Expectations
Call centre enquiries dealt with on priority basis following site inspections.

Current Strategy
Routine maintenance schemes and planned tree management schemes.

Lifecycle Phases:

Creation / Acquisition :

From development proposals and council sponsored schemes.

Maintenance / Renewal / Replacement

Succession of rolling programmes across the city based on inspections and assessments.
All funded through revenue budgets

Routine Maintenance Strategy (revenue)	**Planned Maintenance Strategy (capital)**
In accordance with Grounds Maintenance specification to set annual budget.	None

Highway Trees - Lifecycle Plan Summary	
Revenue Investment	**Capital investment**
£300,000 financial year – 2019/2020	None
Routine Maintenance Processes	**Planned Maintenance Processes**
Based on 5 yearly inspections covering suitability, sustainability and biodiversity	None
Upgrading None	
Disposal / Decommissioning When dead, dying or potentially hazardous trees, for new development work or by special permission.	
Performance Gaps Lack of up to date inventory data.	
Demands and Risks Demands from customer enquiries and improvements to visual amenity. Less stable ground conditions and flood risks.	
Investment Strategy Established general policy – At least two new trees planted for each tree felled.	
Improvement Actions • More regular updating of database planned when possible. • Formulate 5 year forward programme dependent on condition surveys.	

Appendix D7 Highway Green Spaces - Lifecycle Plan Summary

<table>
<tr><th colspan="2">Highways Green Spaces - Lifecycle Plan Summary</th></tr>
<tr><td>Inventory & Condition</td><td></td></tr>
<tr><td colspan="2">Inventory:
Information as September 2020

<table>
<tr><th>Type1</th><th>Quantity Sq m</th></tr>
<tr><td>Grass Areas</td><td>1,761,168</td></tr>
<tr><td>Shrub Bed Areas</td><td>134,425</td></tr>
<tr><td>Hedges</td><td>16,006</td></tr>
</table>

Condition:
Grassed Areas - Not known unless reported by users.
Shrub beds – Beds are regularly maintained and works identified as being necessary are undertaken at that time.
Hedges – The condition noted where trimming required.</td></tr>
<tr><td colspan="2">Performance History
Currently trialling LAMS (Land Audit Management System) which will deliver performance figures relating to grounds maintenance across all open spaces including highways. Performance figures may be available in the future.</td></tr>
<tr><td colspan="2">Valuation
As land value calculations</td></tr>
<tr><td colspan="2">Level of Service
As per Grounds Maintenance Specification</td></tr>
<tr><td colspan="2">Customer Expectations
Well maintained verges throughout the city</td></tr>
<tr><td colspan="2">Current Strategy
To Grounds Maintenance specification</td></tr>
<tr><td colspan="2">Lifecycle Phases:</td></tr>
<tr><td colspan="2">Creation / Acquisition
Additional sites through planning and development processes</td></tr>
<tr><td colspan="2">Maintenance / Renewal / Replacement</td></tr>
<tr><td>Routine Maintenance Strategy (revenue)
All maintenance is revenue funded and reactive or routine to meet ground maintenance specification.</td><td>Planned Maintenance Strategy (capital)
None</td></tr>
<tr><td>Revenue Investment
Limited and project specific</td><td>Capital investment
Limited – via area teams funds and Section 106 monies</td></tr>
<tr><td>Routine Maintenance Processes
Frequencies dictated though grounds specification</td><td>Planned Maintenance Processes
None</td></tr>
<tr><td colspan="2">Upgrading
Currently maintaining assets to current condition no budget available for any upgrades</td></tr>
<tr><td colspan="2">Disposal / Decommissioning</td></tr>
</table>

Highways Green Spaces - Lifecycle Plan Summary
Disposal of any green space over 0.25ha is not supported. Removed where repeatedly damaged or vandalised, prone to flooding or where budgets are insufficient for adequate maintenance.
Performance Gaps Lack of funding
Demands and Risks Creation of a pleasant and visually attractive environment and attractive for definition of spaces. Lack of green space increases flood risk. Ever increasing budget pressures leading to reduced maintenance standards below recommended levels.
Investment Strategy None at present
Improvement Actions • Currently maintaining assets to current condition no budget available for improvements

Appendix D8 Street Furniture - Lifecycle Plan Summary

Street Furniture - Lifecycle Plan Summary

Inventory & Condition

Inventory:
Bus stops and shelters – April to May 2019
Finger posts - 2020

Type1	Type2	Quantity (No.)
Barriers		Not Known
Bus Shelters		26
Bus Stop Flags		1339
Bus Stops		1339
Cycle Parking Stands		750
Finger Post Signs		52
Fountains		
Grit Bins		410
Seats		312
Guard Rail		Not known
Information / Interpretation Boards		Not known
Litter Bins		4060
Motorcycle Stands		Not Known
Non-illuminated Bollards		Not known
Non-illuminated Traffic Signs		11927
Parking infrastructure	See Parking	
Planters		Not Known
Real time bus information boards (on street)		41
Statues and monuments		41 (highway only)
Street Nameplates	On wall	Not Known
	On one concrete post	Not Known
	On two metal posts	Not Known
Street Seats		Not Known
Timetable cases		1319
Verge Markers		none

Condition:

Not available

Performance History
Not available

Street Furniture - Lifecycle Plan Summary

Valuation – part only

Gross Replacement Cost (GRC) (£m):

Asset Class	11/12[1]	14/15[1]	15/16[1]
Street furniture	3.4	8.74	6.14

Depreciated Replacement Cost (DRC) (£m)

Asset Class	11/12[1]	14/15[1]	15/16[1]
Street furniture	1.7	7.01	2.78

Annual Depreciated Cost (£m/yr)

Asset Class	11/12	14/15[1]	15/16[1]
Street furniture	N/A	1.64	1.64

Accumulated Depreciation Cost (£m)

Asset Class	11/12[1]	14/15[1]	15/16[1]
Street furniture	1.6	3.37	1.73

1. Estimated values

Level of Service

Not available

Customer Expectations

Not available

Current Strategy

Based on reactive maintenance with budget and spending requirements ad hoc and piecemeal. In need of further assessment.

Lifecycle Phases:

Creation / Acquisition

Bus stops via developer, operator or special funding
Other items as part of integrated projects
Street seats via Area Teams or specially funded public realm projects

Maintenance / Renewal / Replacement

Routine Maintenance Strategy (revenue)	**Planned Maintenance Strategy (capital)**
Reaction to requests or complaints	As part of special projects
Revenue Investment Statues - £11,000 per annum Others - None specified	**Capital investment** Occasionally as part of integrated projects; usually unspecified
Routine Maintenance Processes Reactive only	**Planned Maintenance Processes** None

Upgrading

Disposal / Decommissioning

Bus stops declared obsolete when route or passenger generator demolished.
Others as part of renewals.

Performance Gaps

Not available.

Demands and Risks

Street Furniture - Lifecycle Plan Summary
The current level of inventory and condition data held is insufficient to manage the asset to the required level. Items often introduced without reference to or co-ordination with relevant section of Highway or Transport Authority and lack of maintenance budget for upkeep.
Investment Strategy None
Improvement Actions • Survey and review all items for which there are no details available and ensure placed into inspection regime. • Formulate data management procedure to capture future changes to the asset. • Assess budget and spend requirements based on life of asset. • Develop procedures and processes to enable whole life cost to be provided. • Define risk management process. • Establish long term works programme. • Develop and agree service options. • Develop performance indicators.

Appendix D9 Parking Infrastructure – Lifecycle Plan Summary

Car Parks and On-Street Parking – Lifecycle Plan Summary

Inventory & Condition

Type1	Type2	Quantity (No)	
Anti-Misuse Gates / Barriers	Multi storey	5	
Car Park Monitoring Equipment	CCTV		
	Counters	12	
Lighting	See Highway Lighting		
Lining Bay Marking	See Carriageways		
Lorry Parks		0	
Park and Ride Sites – Priory Park		1	
Payment Machines		0	
Roller shutter doors		6	
Rolling Barriers		5	
Signs		36	
Ticket Machines		112	
Variable Message Signs	See Vehicle Management Systems		

Note: All car park are leased to the Highway and Transport Authority, but form part of the City Council's assets

Performance History
Pay and display machines – out of 112 machines 38 are old and have reached the end of their life span. Their value is limited to little more than scrap. The remaining 74 are more recent the majority being only 2 years old, they have a life span of up to 15 years.

Valuation
Parking Ticket Machines GRC -£180,000

Levels of Service
Car Parks - Secure by Design.
Provide car parking that is well maintained and simple to use.

Customer Expectations
Consideration will have been given to the safety of the car park user with lighting, CCTV and the quality of the flooring.

Current Strategy
In line with transportation and parking policies

Lifecycle Phases:

Creation / Acquisition
New assets created by special projects or by private sector development.
"Pop up car parks" to be considered for council owned land which could be available for parking for a lengthy period.

Maintenance / Renewal/ Replacement
Car Parks vested under property asset system; external service contracts apply to equipment.

Car Parks and On-Street Parking – Lifecycle Plan Summary	
Routine Maintenance Strategy (revenue) Car parks are leased from NPS who are responsible for day to day maintenance. Pay and display machines are maintained subject to contract with Parkeon Plc Reactive maintenance to signs and lining on car parks	**Planned Maintenance Strategy (capital)** Not available
Revenue Investment Not available	**Capital Investment** Not available
Routine Maintenance Processes Pay and display machines are maintained subject to contract with Parkeon Plc	**Planned Maintenance Processes** None, we are reactive to any incident.
Upgrading On renewal	
Disposal / Decommissioning Car Park sites are treated as plots for future development. There are three multi storey car parks. 1. Osborne Street car park is to be closed in March 2016 and will be fully refurbished before reopening. 2. George Street car park is reaching the end of its life span. It and the entire block in which it stands are available for redevelopment. 3. Pryme Street car park has a long term viable future	
Performance Gaps Attempts are being made to increase the number of car park users by advertising and reducing prices. We would still like to see an increase in the use of some car parks. Payment for parking charges using mobile telephone and on line technology is in use by the Council. The take up rate has remained static despite attempts to make it appeal more to the public. This could be improved.	
Demands and Risks Car parks are a saleable asset and it has to be debated if the Council should maintain sufficient car parking spaces to fulfil its obligations.	
Investment Strategy We react to change in parking patterns where possible.	
Improvement Actions Advertising vacant parking spaces using an IT solution is available but at present considered too costly.	

Appendix D10 Vehicle Management Systems - Lifecycle Plan Summary

Vehicle Management Systems - Lifecycle Plan Summary

Inventory & Condition

Traffic Signals and VMS - April 2019

Type1	Type2	Quantity (No.)
In Station hardware		5
Real Time Passenger Information	Remote Displays	33
	Bus Fits	148
Rising Bollards		4
Signal Controlled Pedestrian Crossings	All	113
	Toucans	21
	Puffin	37
	Pelican	55
Traffic / Safety Cameras		0
Traffic monitoring Equipment	Cycle Counters	6
	Vehicle Counters	22
Traffic Signals		72
Traffic Signals other	School Crossing Patrol Flashing Ambers	7
Traffic Signal Controllers		188
	Wig Wags	2
Urban Traffic Control System	SCOOT	1
Variable Message Systems	Signs	41
	Car Park Monitoring	9
Vehicle Activated Signs		60

Valuation

Gross Replacement Cost (GRC) (£m):

Asset Class	**11/12**	**12/13**
All Traffic Management Systems	24.6	23.1
Asset Class	**13/14**	**14/15**
All Traffic Management Systems	23.3	23.6
Asset Class	**15/16**	**16/17**
All Traffic Management Systems	23.8	23.6
Asset Class	**17/18**	**18/19**
All Traffic Management Systems	5.3	4.9
Asset Class	**19/20**	**20/21**
All Traffic Management Systems	5.4	

Depreciated Replacement Cost (DRC) (£m)

Asset Class	**11/12**	**12/13**
All Traffic Management Systems	10.5	12.9
Asset Class	**13/14**	**14/15**
All Traffic Management Systems	12.9	10.8
Asset Class	**15/16**	**16/17**
All Traffic Management Systems	10.7	10.7
Asset Class	**17/18**	**18/19**
All Traffic Management Systems	4.9	4.8
Asset Class	**19/20**	**20/21**
All Traffic Management Systems	4.7	

Level of Service

Provide a Traffic Control and Maintenance Service for Intelligent Transport Systems (ITS).

Customer Expectations

Provide a Traffic Control and Maintenance Service for Intelligent Transport Systems (ITS).

Current Strategy

The principal objectives of the strategy are to maintain the ITS equipment in a fault-free condition, and to respond to, and rectify, any fault condition which may arise on the equipment promptly and within the time scales detailed in the councils Key Performance Indicators (KPI's). Also to carry out routine maintenance inspections and lamp changes at the appropriate intervals to check they adhere to current standards. In addition, to provide an effective Urban Traffic Control service in the Kingston upon Hull authority area, by a gradual but continuous improvement in the reliability of the equipment on street.

Lifecycle Phases

Creation / Acquisition

New ITS schemes are usually funded by available revenue budget, also some schemes are funded by developers or as a result of 278 agreements. New equipment is acquired through existing term maintenance ITS supply contract.

Maintenance / Renewal / Replacement

Routine Maintenance Strategy (revenue)	**Planned Maintenance Strategy (capital)** Special projects
Revenue Investment £107k PA.	**Capital investment** Traffic Signal Improvements - £208,000
Routine Maintenance Processes All ITS equipment inspected annually for correct operation & electrical safety, Bi annual bulk lamp change & clean,	**Planned Maintenance Processes** All ITS equipment's replaced once equipment obsolete / uneconomical to repair or at and of useful life cycle.

Upgrading

Present budgets only allow ITS equipment to be upgraded if equipment obsolete /, uneconomical to repair or at and of useful life cycle

Disposal / Decommissioning

Redundant ITS equipment disposed of correctly, in practice complete decommissioning of ITS assets without replacement rarely occurs.

Performance Gaps

Investment from HE on A63 Trunk Road not forthcoming, in particulate VMS signs and requests for additional CCTV to manage Trunk road.

Demands and Risks

Presently able to manage all demands placed on ITS Team, risks unexpected periods sickness can effect ability to provide service due to small team.

Investment Strategy

Presently, only investments made is in replacing equipment which has become obsolete / uneconomical to repair or at and of its useful life cycle. As ITS equipment is mainly electronic based, technology advances mean the average practical life expectancy of ITS equipment is only 7 years.

Improvement Actions

Not available

Appendix D11 Highway Drainage - Lifecycle Plan Summary

Highway Drainage - Lifecycle Plan Summary

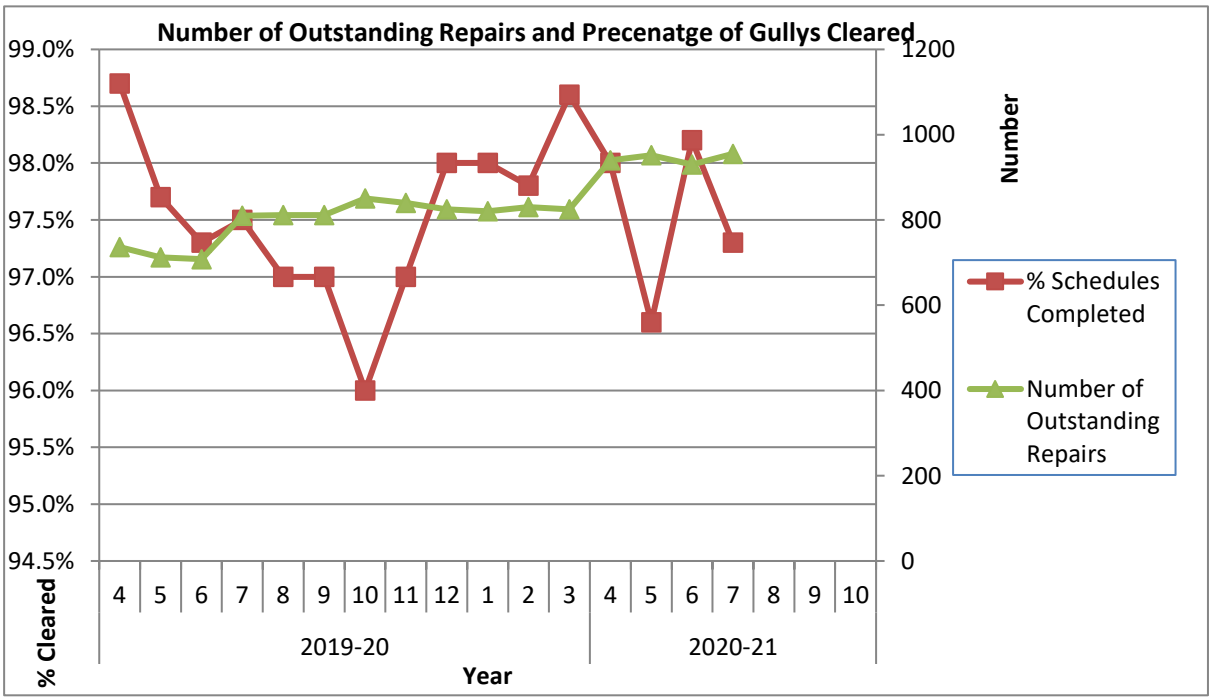
Inventory & Condition

Inventory: 2015

Type1	Type2	Quantity	Length m
Gullies		64,677	-
Adopted tenfoot gullies		261	-
Gully lid	Diamond	20,043	-
	Other	44,634	-
Linear Drainage		-	10,230
Pumping Station - Stoneferry Road		1	-
Underground pipes drainage pipes less than 0.9m diameter		-	Not Known
Beany Blocks		-	4066
Carrier Drainage		Not Known	Not Known
Catch Pits		Not Known	Not Known
Man Holes		Not Known	Not Known
French Drains		Not Known	Not Known
Surface Water Drainage		Not Known	Not Known

Condition:
Defective gullies at 29/10/2015 = 878. Currently, the Council's recording of new defective gullies and repaired gullies are out of step: with repairs being a month late.

Performance History
Available only for gullies and benchmarked through APSE



Highway Drainage - Lifecycle Plan Summary	
The 2013 version of this summary included a bar chart showing the number of gullies emptied each month along with the number of gullies where the crew were unable to gain access. The percentage of schedules NOT completed is made up of these “No Access” locations and the bar chart has been removed. This latest version of the summary also includes the number of outstanding repairs. These are gullies which have been identified as being defective. The reported figure currently does not include repairs carried out in the previous month as these reports are currently out-of-step; resulting in a higher figure being reported (please see narrative under “Condition”). This asset management indicator is monitored by the City Streetscene Manager.	
Valuation GRC for Gullies is included within the carriageway figures. Other drainage not available	
Level of Service Statutory duty to maintain the highway including the physical defects in the fabric of the drains and clearance of blockages in drains otherwise in good physical repair. Code of Practice for Well-maintained Highways with gully cleansing based on risk of flood potential. Minimum of one cleanse and inspection per year. Increased to twice a year on Class ‘A’ and ‘B’ road where there is evidence shown of a build-up of detritus Water Framework Directive to prevent deterioration of, and to enhance and restore bodies of, surface and ground water. Ground Water Directive Management of Flood Risks Directive The Flood and Water Management Act.	
Customer Expectations Highway maintained in good condition.	
Current Strategy In line with Code of Practice and feedback from local authority’s and industry. Reactive to reported incidents	
Lifecycle Phases	
Creation / Acquisition: As per carriageways	
Maintenance / Renewal / Replacement	
Routine Maintenance Strategy (revenue) Resources for gully cleaning in line with agreed protocol following 2007 flooding.	**Planned Maintenance Strategy (capital)** Special projects
Revenue Investment £126,000 per annum excluding housing account	**Capital Investment** Drainage Improvement Programme £195,000
Routine Maintenance Processes Risk based approach - for gullies a minimum of one cleanse and inspection per year. Increased to twice a year on Class ‘A’ and ‘B’ road where there is evidence shown of a build-up of detritus.	**Planned Maintenance Processes** With carriageways
Upgrading As per carriageways	
Disposal / Decommissioning As per carriageways	
Demands and Risks	

Highway Drainage - Lifecycle Plan Summary
Addition of SUDS and other new regulations and obligations under various Directives. As for carriageways. Flood risk management from climate change.
Investment Strategy None
Improvement Actions • Conduct survey above and sub surface to DBRM Standard HD43 Drainage Data Management System for Highways to better define the drainage assets, determine location and attributes of gullies by digital means using mobile hardware, and to build database transferable between owners. • Replacement of diamond style gullies. • Work is needed to bring in step; the reporting of defective gullies; and repairs done

Appendix D12 Road Markings - Lifecycle Plan Summary

<table>
<tr><th colspan="2">Road Markings - Lifecycle Plan Summary</th></tr>
<tr><td colspan="2">Inventory & Condition
A database of all road markings associated with Traffic Regulation Orders is held within the Parkmap software system. 75% of all road markings are also stored within a master ACAD drawing of the city.</td></tr>
<tr><td colspan="2">Performance History
Not Known</td></tr>
<tr><td colspan="2">Valuation
Not Known</td></tr>
<tr><td colspan="2">Level of Service
Not Known</td></tr>
<tr><td colspan="2">Customer Expectations
That all road markings are visible and clear.</td></tr>
<tr><td colspan="2">Current Strategy
The principal objective of the strategy is to maintain the road marking network, respond to, and rectify, any areas that have fallen below acceptable standards as reported by members of the public or identified through inspection.</td></tr>
<tr><td colspan="2">Lifecycle Phases</td></tr>
<tr><td colspan="2">Creation / Acquisition
From development proposals and council sponsored schemes.</td></tr>
<tr><td colspan="2">Maintenance / Renewal / Replacement
Road markings deteriorate by several causes, including:

• Traffic – level, type and loads cause abrasion and stress leading to failure
• Weather – the ingress of water accelerates deterioration along with alternating freeze and thaw conditions

The future spend is programmed annually at a fixed rate which has historically been proved to be sufficient to maintain the network to a good standard.</td></tr>
<tr><td>Routine Maintenance Strategy (revenue)</td><td>Planned Maintenance Strategy (capital)
Special project</td></tr>
<tr><td>Revenue Investment
Sum: £20,000</td><td>Capital Investment
Sum: £86,000</td></tr>
<tr><td>Routine Maintenance Processes
Based on inspection</td><td>Planned Maintenance Processes
Based on inspection</td></tr>
</table>

Appendix D12 Other Items - Lifecycle Plan Summary

Other Items - Lifecycle Plan Summary

Inventory & Condition

Type1	Type2	Quantity	Length
Archaeological Features	Beverley gate	1	-
Emergency Access Roads	Bude Road	1	
	Victoria Dock	1	
Land		8,371,000sqm	-
Retaining Structures less than 1.5m		Not available	
River Hull	Timber Walkways		
Hull Marina	Dock Walls		
	Lock Gates		
	Other facilities		
Lifebuoys - Rivers Hull and Humber			
Victoria Dock	Fountains		
Victoria Pier		1	

Performance History
Not Known

Valuation
Not Known

Level of Service
Not Known

Customer Expectations

Current Strategy

Lifecycle Phases

Creation / Acquisition
Transfer from other estates or from new development

Maintenance / Renewal / Replacement

Routine Maintenance Strategy (revenue)	**Planned Maintenance Strategy (capital)**
	Special project
Revenue Investment Victoria Pier - £11,600 River Hull timber walkways **-** £61,320 Lifebuoys - £1,700 Hull Marina - £6,520 Victoria Dock - £32,560 Archaeological features - £300 Sum: £114,000	**Capital Investment**
Routine Maintenance Processes Based on inspection	**Planned Maintenance Processes** Based on inspection

Other Items - Lifecycle Plan Summary	
Upgrading Based on assessment	
Disposal / Decommissioning Based on assessment	
Performance Gaps Not available	
Demands and Risks Not available	
Investment Strategy As identified from inspections	
Improvement Actions Not available	

Appendix E Lifecycle Planning Scenarios

Appendix E1 Carriageways

Lifecycle planning scenario

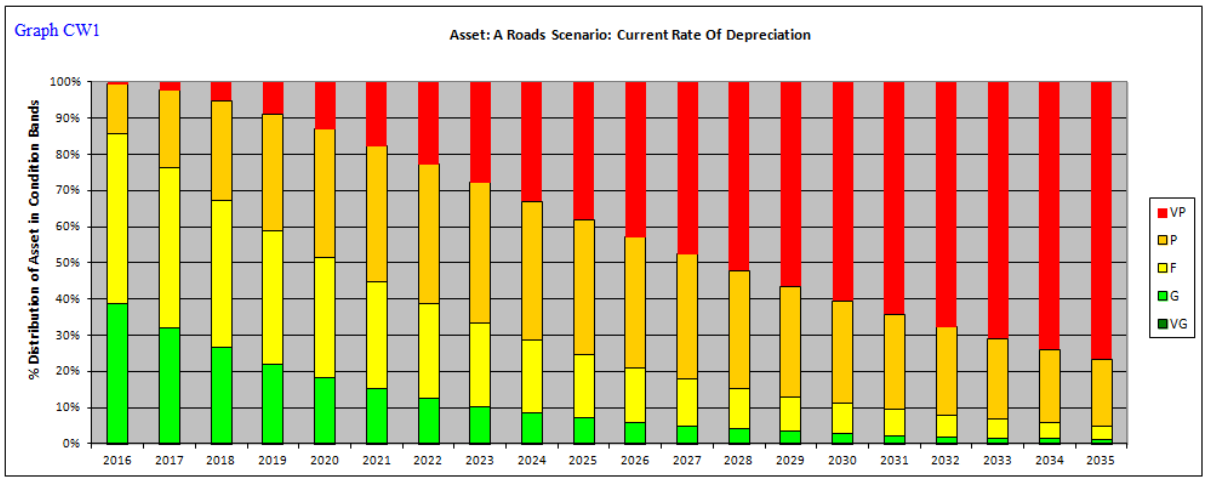
The Principal 'A' road network and the non-principal 'B' & 'C' road network

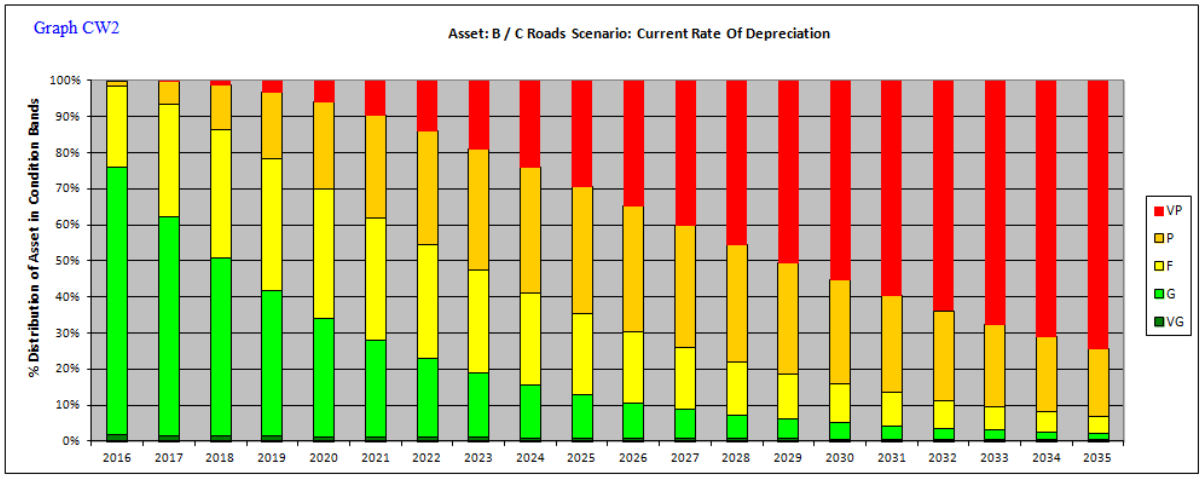
Current rates of Depreciation

The Council's Classified Road Network (CRN) comprises principal 'A' roads and non-principal 'B' and 'C' roads which account for roughly 17% of the entire adopted carriageway network. The A1033 and the A63 trunk roads are under the ownership of Highways England and currently fall under its jurisdiction.

Carriageway Condition Index (CCI) figures are used to determine the overall condition of the adopted road network based on five different condition bands. The five condition bands are very good, good, fair, poor and very poor. Current CCI figures show the current condition of the Council's principal 'A' road network and the non-principal 'B' and 'C' road network to be in a healthy state as none of the carriageways currently appear within the threshold of the very poor condition band and are therefore not considered to be failing. The CCI figures, also, show only a small percentage of the network is considered to be in a poor state and therefore recommended for condition monitoring.

The number of carriageways that require maintenance will increase as the condition of the network starts to depreciate. If the Council was to neglect the network and undertake minimal or no repair work over an extended period of time, then the network would increasingly fall into disrepair. The current rate at which the Council's roads are projected to depreciate over the next 20 years for both the 'A' and the 'B' and 'C' road networks is shown in graphs CW1 and CW2 equivalent to around 4% per year.



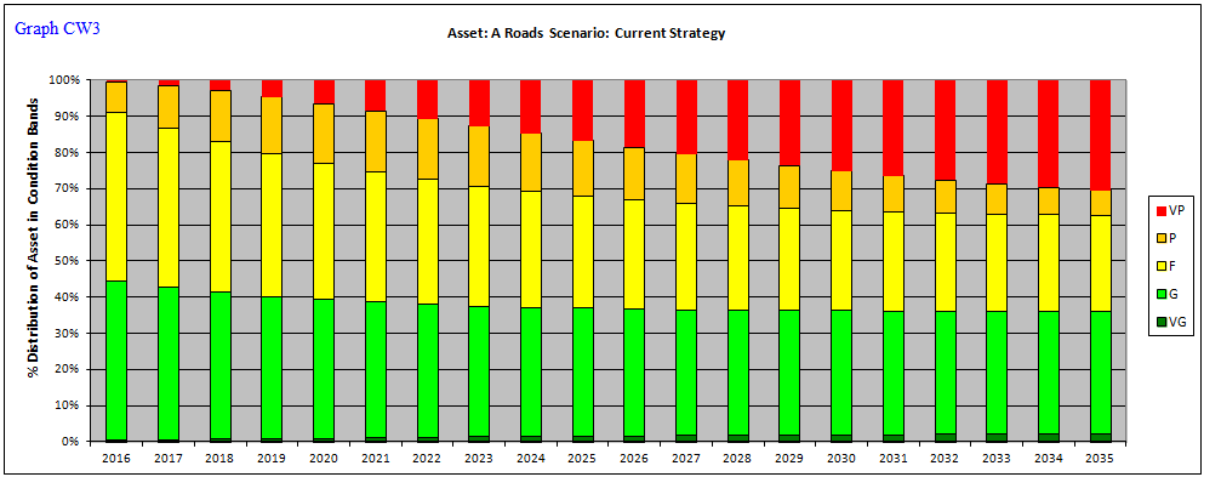


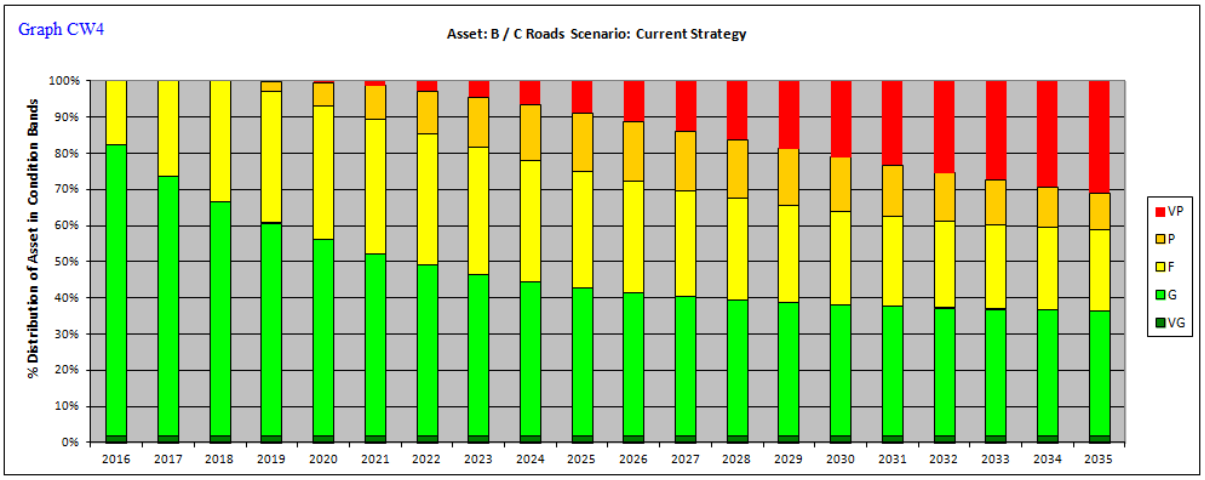
Current and future strategies

The current strategy employed by the Council involves spending a large percentage of its current budget allocation on the classified road network using a combination of proactive and reactive treatments. This is a strategy that is in accordance with the HMEP and after liaising with other local authorities, it was found to be one that is favoured nationally. The proportion of the budget that is allocated to the CRN varies annually and is determined by the results of condition surveys.

The sections of the network that have recently fallen within the parameters of the poor condition band and are showing early stages of failure are targeted for proactive treatments and more specifically surface dressing. Those sections of the network that score in the higher regions of the poor condition band and are close to the threshold of failing are targeted for resurfacing work in the form of either minor inlay, moderate inlay or deep inlay. The sections of the network that fall within the very poor condition band and are already considered to have failed are targeted for either deep inlay resurfacing or a full reconstruction.

The HMEP lifecycle planning toolkit is designed to give local authorities the opportunity to trial different strategies to see how they are predicted to affect the depreciation of the network and its overall condition. The information produced by the toolkit can then aid local authorities in making the most cost effective decisions on how to spend existing budgets and any additional income in order to generate the optimum results. The graphs CW3 and CW4 have been created using the HMEP lifecycle planning toolkit and show how the Council's current strategy can dramatically reduce the predicted rate of depreciation in the 'A' and in the 'B' and 'C' road networks over the next 20 years. The graphs show that overall; the network condition will continue to deteriorate, beginning to level out to a steady state by about 2032. The overall condition of the carriageways during this steady state will generally be worse than at the moment.





The comparison between graphs CW1 and CW3 for the 'A' road network is summarised in table CW1 below and the comparison between graphs CW2 and CW4 for the 'B' and 'C' roads is summarised in table CW2 below. Table CW1 shows how the current strategy allows the Council to reduce the amount of 'A' roads that are expected to be in a state of failure in the year 2035 by over 46% points from 77% to 31%. In addition, table CW2 shows how using current strategies, the projection that 74% of the 'B' and 'C' roads will be in a state of failure by the end of 2034, has been reduced by over 43% with only 31% of the network now expected to be failing.

Table CW1

A Roads

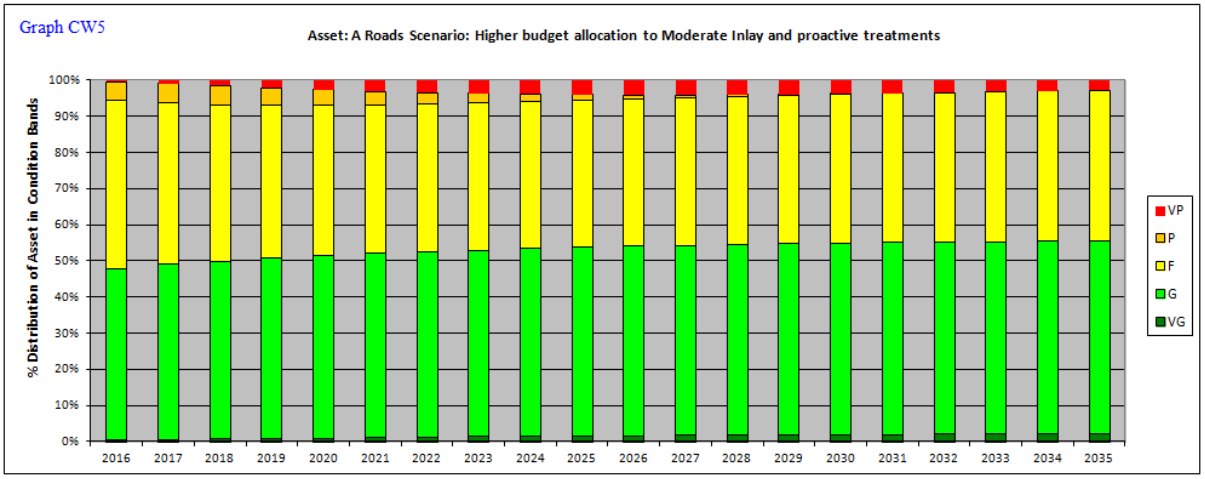
	Current Rate Of Decline		Current Strategy		
	Percentage of Network		Percentage of Network		
Road Condition	2016	2035	2016	2035	Comparison
Very Good	0.16	0.03	0.36	2.71	2.68
Good	38.49	1.09	44.15	34.03	32.94
Fair	47.2	3.71	46.54	26.38	22.67
Poor	13.61	18.61	8.53	6.96	-11.65
Very Poor	0.55	76.56	0.41	30.45	-46.11

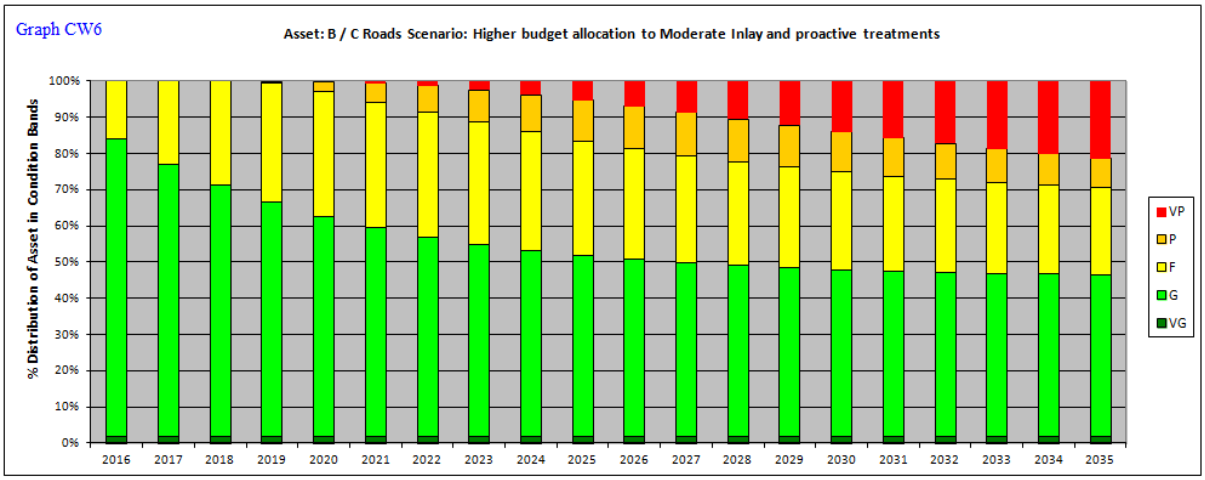
Table CW2					
B / C Roads					
	Current Rate Of Decline		Current Strategy		
	Percentage of Network		Percentage of Network		
Road Condition	2016	2035	2016	2035	Comparison
Very Good	1.77	0.44	1.89	1.77	1.33
Good	74.21	1.73	80.35	34.64	32.91
Fair	22.43	4.73	17.76	22.35	17.62
Poor	1.6	18.79	0	10.27	-8.52
Very Poor	0	74.31	0	30.97	-43.34

The previous graphs and tables help to illustrate how the Council is currently working to try and reduce the rate of depreciation and improve the overall condition of the principal 'A' road and the non-principal 'B' and 'C' road networks. Although the rate of depreciation has been dramatically reduced to just under 2% per year, it has not been achievable to stop or indeed reverse the downward trend.

The majority of the Council's classified road network is made up of carriageways with an existing structure that consists of a 300mm concrete base topped with 100mm of flexible surfacing. As sections of these carriageways start to fail and become highlighted for treatment, The Council's has predominantly chosen to use a variety of inlay techniques for resurfacing whilst leaving the existing concrete base untouched unless extensive repair work or reconstruction is required. Due to the nature and depth of some defects, recent internal surveys have shown that in some cases, a minor inlay surfacing treatment produces a finished surface that extends the life expectancy of the carriageway by no longer then if a patch and surface dressing technique was adopted whilst costing 4 times as much.

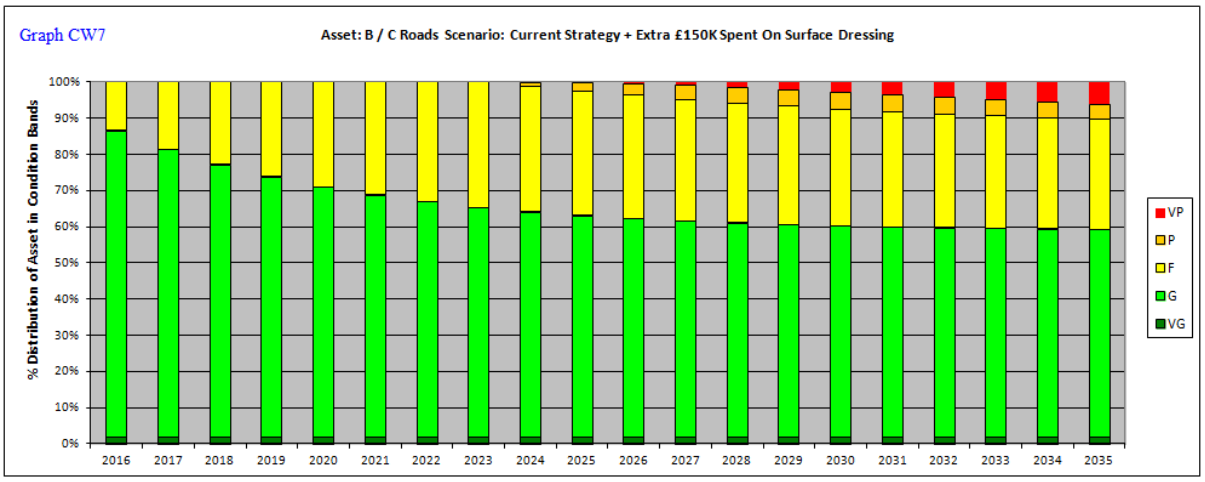
Looking ahead and where viable, the Council will seek to alter its investment strategy whereby surface dressing is considered as an alternative treatment option to use on those carriageways currently earmarked for minor inlay resurfacing. The HMEP lifecycle planning toolkit has allowed the Council to trial this strategy and to see if it can have a positive impact on the current rate at which the 'A', 'B' and 'C' networks are declining. Based on current budgets, if the Council is able to employ a strategy that involved reducing the amount of money currently spent on minor inlay whilst at the same time increasing the money currently spent on moderate inlay and surface dressing, then the overall condition of the 'B' and 'C' road network and in particular the principal 'A' road network is expected to be dramatically improved compared to the current strategy and is shown in graphs CW5 and CW6 below.





On testing the change in strategy described above would not have as big an impact on the non-principal ‘B’ and ‘C’ road network as it would on the principal ‘A’ road network.

The Council can use the HMEP lifecycle planning toolkit to help demonstrate the impact a minimal increase in funding can have on the overall condition of the network and the rate at which it is declining. The graph CW7 shows how the depreciation of the non-principal ‘B’ and ‘C’ road network is expected to be reduced if it is possible for the Council to secure an additional £150k a year to spend on surface dressing.

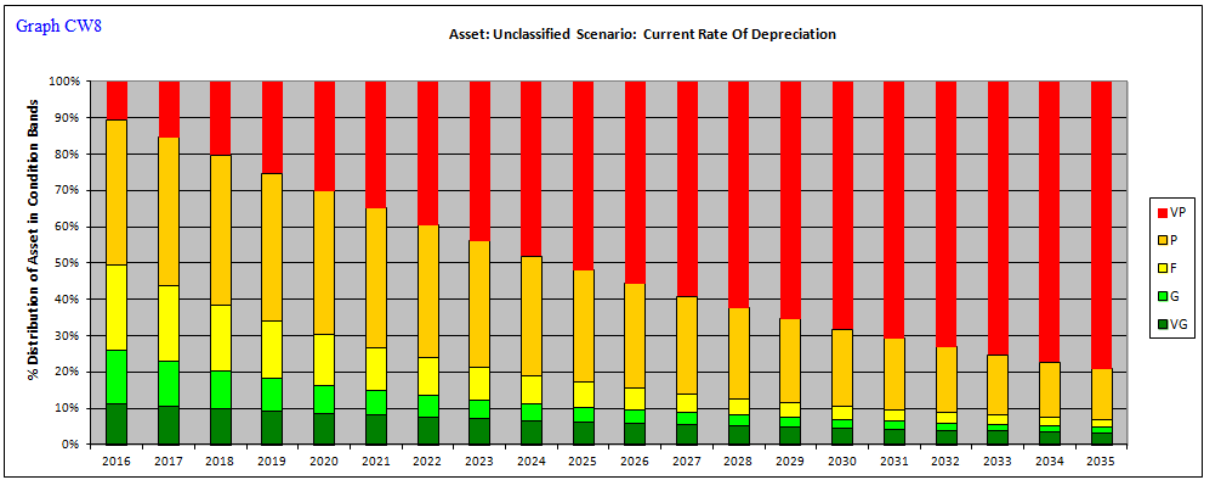


Unclassified Network

Current rates of depreciation

The remaining carriageways that make up 83% and the largest proportion of the Council's adopted network are referred to as unclassified. The unclassified road network can be assessed in the same way the CRN using CCI figures and condition bands. There is a current back log in maintenance of approximately £34.8 million required to repair the unclassified road network in Hull alone. When this is factored alongside the Council's current strategy of prioritising improvements to the classified road network achieving an acceptable condition is not currently feasible.

The graph CW8 that follows shows the existing condition of the unclassified network and how it is declining at around 4% per year.



Current and future strategies

The strategy used to improve the unclassified network is to target the sections of carriageway that are considered to be in a very poor condition and to carry the work out on a priority basis. Priority is determined based on two sources of information, the results of a detailed visual inspection (DVI) survey and the results of detailed site assessments which are carried out by qualified members of staff with local

engineering knowledge. Although the strategy does not slow the rate of depreciation to the same extent as it does with the 'A', 'B' and 'C' networks, the graph CW9 shows how the strategy has somewhat reduced the rate at which the unclassified network is predicted to deteriorate over the next 20 years.

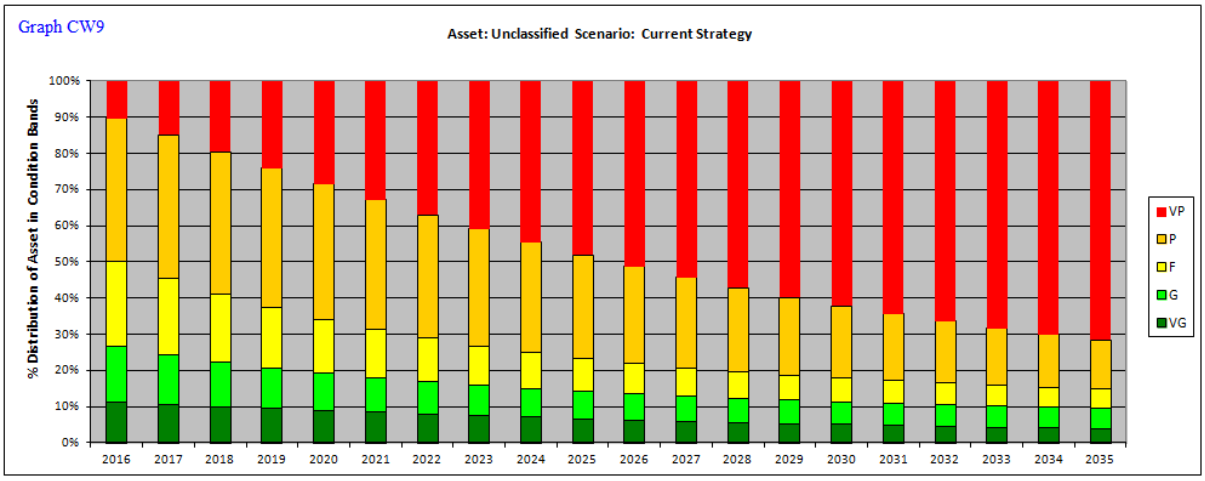


Table CW3 below shows the comparison between the graphs CW8 and CW9 and shows how the Council's current strategy will affect the projected rate of depreciation for the unclassified road network over the next 20 years.

Table CW3

Unclassified Network

	Current Rate Of Decline		Current Strategy		
	Percentage of Network		Percentage of Network		
Road Condition	2016	2035	2016	2035	Comparison
Very Good	11.24	3.27	11.3	3.91	0.64
Good	14.61	1.58	15.4	5.59	4.01
Fair	23.62	2.11	23.62	5.29	3.18
Poor	39.97	14	39.29	13.6	-0.4
Very Poor	10.56	79.03	10.38	71.61	-7.42

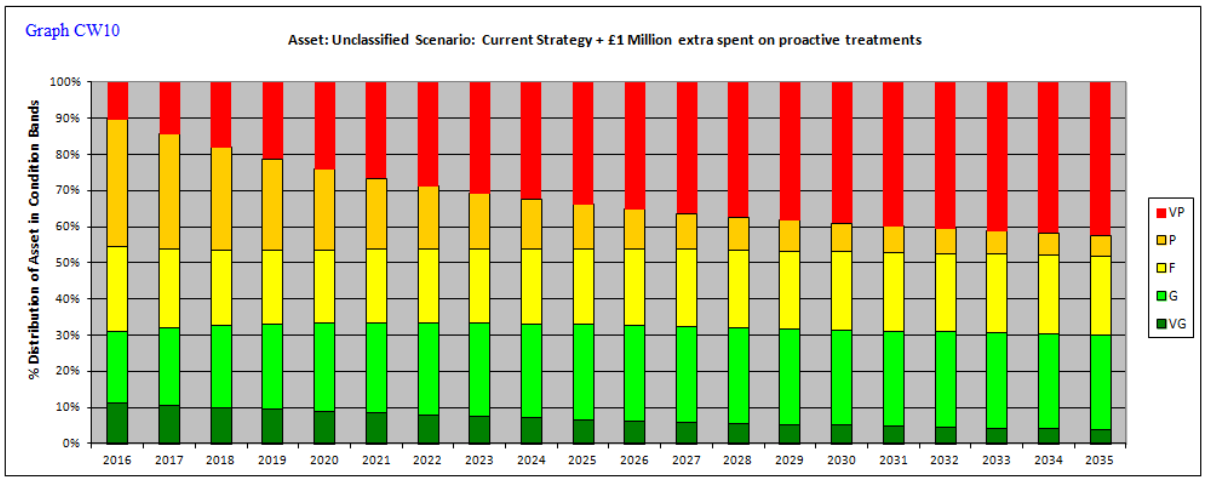
The analysis illustrates how the Council is currently working to try and reduce the rate of depreciation and improve the overall condition of the unclassified road network. The Council's figures show that over 50% of the unclassified network is expected to be in either a poor or very poor state by the year 2016. When these figures are compared with those provided by other local authorities they show that a poor and declining unclassified network has become something of a national trend. Although the current condition of the unclassified network is considered to be substandard, national comparisons have indicated that the existing condition of the Council's unclassified network to be within the top 20% of local authorities around the country.

It has not been possible to stop or indeed reverse the downward trend due to the backlog of work, and the funding levels available. The HMEP lifecycle planning toolkit will again be used to ensure that the current budget is spent in the optimum way and any changes made to the current strategy are expected to have a minimal

impact on the rate of depreciation due to the size of the network and its comparison with the amount of funding currently available.

The Council can use lifecycle planning to demonstrate the impact a significant increase in funding is expected to have on the overall condition of an already declining network. If the Council is able to allocate an additional £1million a year to the unclassified network to spend on proactive treatments, such as micro surfacing and surface dressing. Although after 20 years a lot of the network is still expected to be in a state of failure, the percentage predicted is less than a half.

On running this scenario, the HMEP lifecycle toolkit has helps to highlight how much of a significant increase in funding is required to get the network up to standard and for it to remain healthy when an additional £1million a year is not substantial enough to avoid a continued decline of just over 3% per year.



Appendix E2 Footways

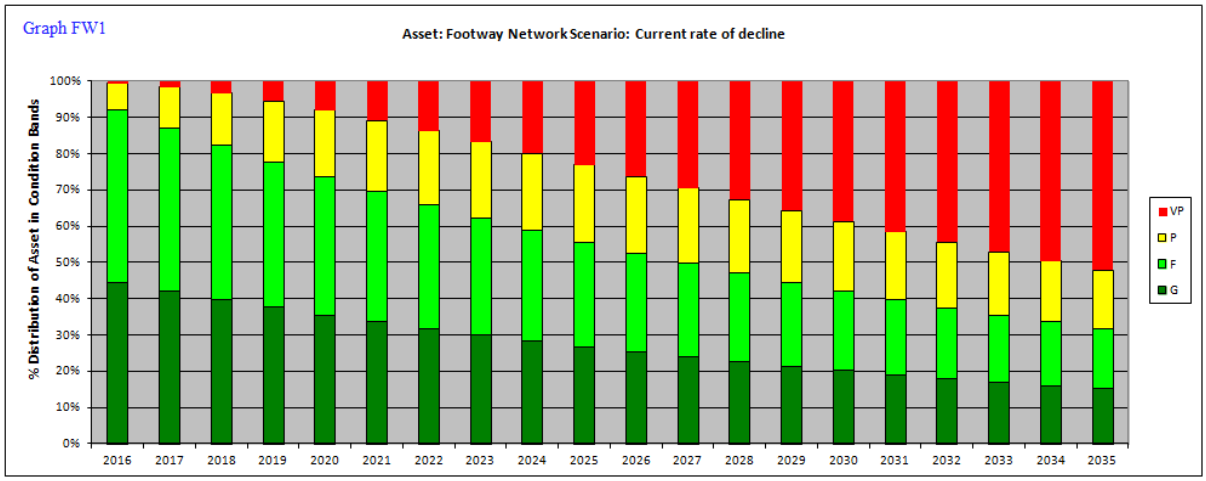
Lifecycle planning scenario

The Footway Network

Current rates of depreciation

The Council's current footway network is split up into 5 categories, comprising prestigious walking routes, primary walking routes, secondary walking routes, link footways and local access routes. There is no priority given to any specific category of footway.

The condition of the Council's existing footway network and the rate at which it is declining is determined by the results of a DVI (detailed visual inspection) survey. From the results of the DVI survey, each footway is given an average overall score based on what percentage of that footway is considered to be in a failed or failing state and then placed within one of four condition bands. The four condition bands are good, fair, poor and very poor. The graph FW1 shows the current condition of The Council's footway network and the rate at which it is expected to decline over the next 20 years if it was to be neglected and no repair work is carried out equivalent to a rate of just under 3% per year.



Current and future strategies

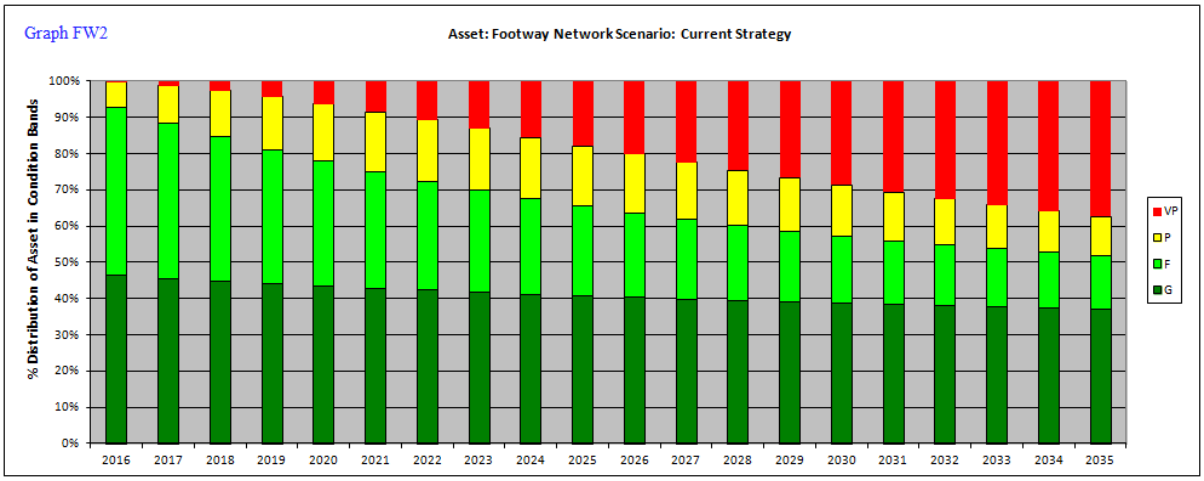
The current strategy used by the Council to improve the condition of its footways is to carry out the work on a priority basis and to use a combination of proactive and reactive treatments to target those footways that currently fall within the fair, poor or very poor condition bands.

The footways that are considered to be fair but on the threshold of becoming poor are targeted for proactive treatments and in particular slurry sealing. The footways that are considered to be in a poor state and on the threshold of becoming very poor were until recently targeted for reconstruction work. The Council has now opted to use a recycling process on these footways as the quality of the end product is not compromised and the cost is 50% less than that of a full reconstruction. This

method has allowed the Council to increase the area of annually planned maintenance carried out on the footway network. The footways that fall within the parameters of the very poor condition band and are considered to have already structurally failed are targeted for a full reconstruction.

The priority of the footway is based on the results of the DVI survey as well as the results of detailed site assessments carried out by qualified members of staff with local engineering knowledge. Other factors are also taken into consideration when prioritising footway improvements, such as pedestrian footfall figures, footways used by vulnerable members of the public such as the elderly as are those that are within close proximity to schools.

The graph FW2 was created using the HMEP lifecycle planning toolkit and demonstrates how the Council current strategy is expected to reduce the rate at which the network is expected to decline over the next 20 years to just under 2% per year.



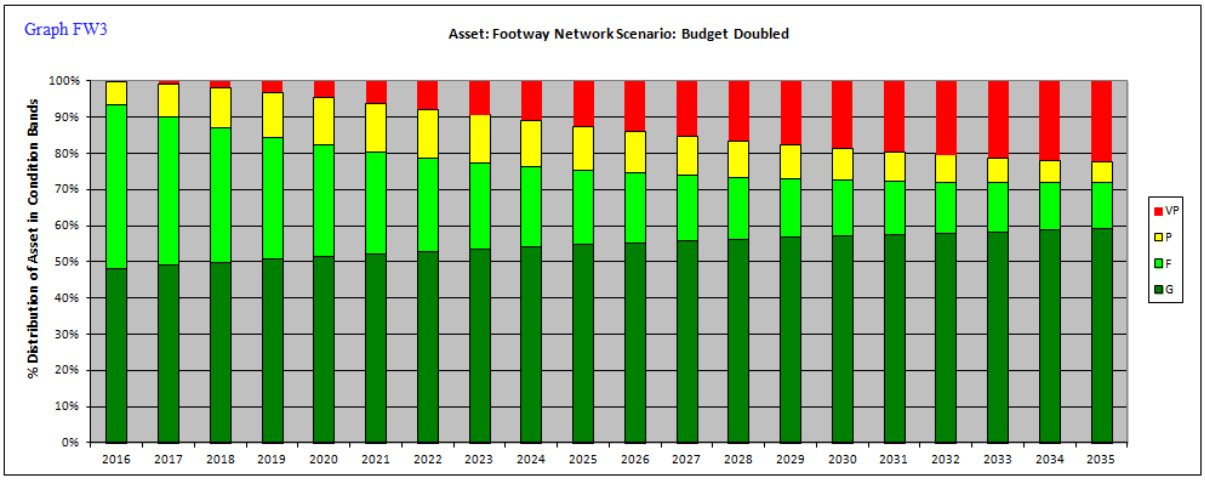
The comparison between the graphs FW1 and FW2 is summarised in table FW1 below. The table shows how the current strategy has allowed The Council's to reduce the amount of footways that are expected to be in a state of failure in the year 2035 by nearly 15% from 52% to 37%.

Table FW1

Footway Network

	Current Rate Of Decline		Current Strategy		
	Percentage of Network		Percentage of Network		
Road Condition	2016	2035	2016	2035	Comparison
Good	44.56	15.21	46.34	37.14	21.93
Fair	47.43	16.54	46.33	14.68	-1.86
Poor	7.49	16.08	7	10.09	-5.99
Very Poor	0.52	52.17	0.33	37.27	-14.9

Current results show the condition of the Council's footway network to be of a sufficient standard. 8% of the existing footways are expected to be within the poor or very poor condition bands by 2016 and will be considered to be either in a state of failure or close to failure. A further 50% of the footways are considered to be in a fair state and, therefore, should be considered for treatment. When these figures are added to recent survey results a substantial amount of additional investment is still required to try and reduce the rate at which the footway network is currently deteriorating and to improve its overall condition; there being a current backlog of work estimated at over £41million to repair the footway network to a standard that would eliminate fair, poor and very poor footways. On using the HMEP lifecycle planning toolkit the Council again shows how additional funding can help to reduce the rate at which the footway network is depreciating. The graph FW3 shows that by doubling the existing budget the Council can expect to reduce the rate of depreciation further still whilst also increasing the amount of footways that are considered to be in a good overall condition.



Lifecycle Planning Toolkit

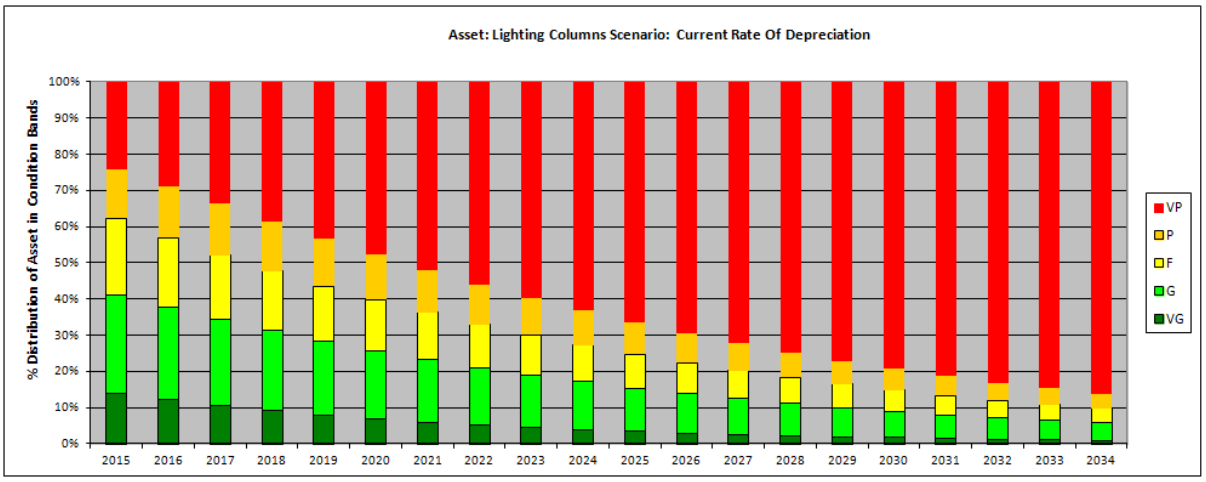
Street Lighting Assets

Current rates of depreciation

The City Council has a duty of care to maintain existing lighting stock in a safe condition and that it is fit for purpose. Generally, highway lighting deteriorates through age, corrosion, metal fatigue, cracking, vandalism, urine, vehicular strikes, ground conditions, grass cutting, gritting of highway. Lighting deteriorates with age with the intensity of the illumination reducing and energy demand increasing.

The graph below shows the existing condition of the Street Lighting stock and how it is declining based on age where a column has a design life of 30 years. Columns less than 7.5 years being classed as in a very good position, 7.5 to 15 years good, 15 to 22.5 fair, 22.5 to 30 poor and over 30 years of age classed as very poor. Apart from the Council's current plan to upgrade all lanterns to LEDs in the next two years, the Council does not currently have a programme of regular lantern replacement that is independent of column replacement. In the following graphs the condition of lanterns is ignored.

There is presently 20% of current stock in the very poor condition band which equates to a £7 million backlog of maintenance which is increasing circa 4 to 5% per annum (£1.7 million). At this rate, after 20 years the number of very poor columns will be 86%. Currently, only £520k of stock, roughly 350 columns are renewed at present funding levels).



Current Strategy

The Council replaces columns at the end of their design life and / or as recommended in the Technical Report 22 Managing a Vital Asset: Lighting Supports i.e. over 30 years of age and/or classed as in a very poor state of repair.

Existing budget constraints limit expenditure to circa £520K per annum, (350 columns). Based on a column's design life expiring at 30 years, the overall Street Lighting stock will experience a year on year degradation with 3.5% dropping into the very poor condition band. As a result the total of very poor columns is expected to rise from a 2015 base of 20% to 65%, a rise of 40% over the modelled 20 year period, compared to the 86% level without capital intervention and is illustrated in the graph and table below :

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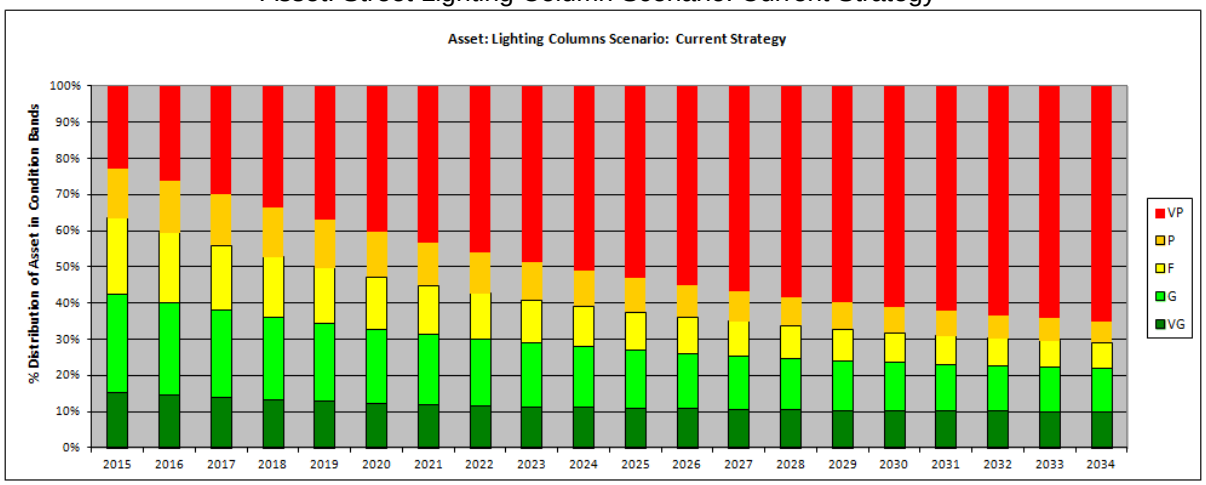
Asset: Street Lighting Column Scenario: Current Strategy



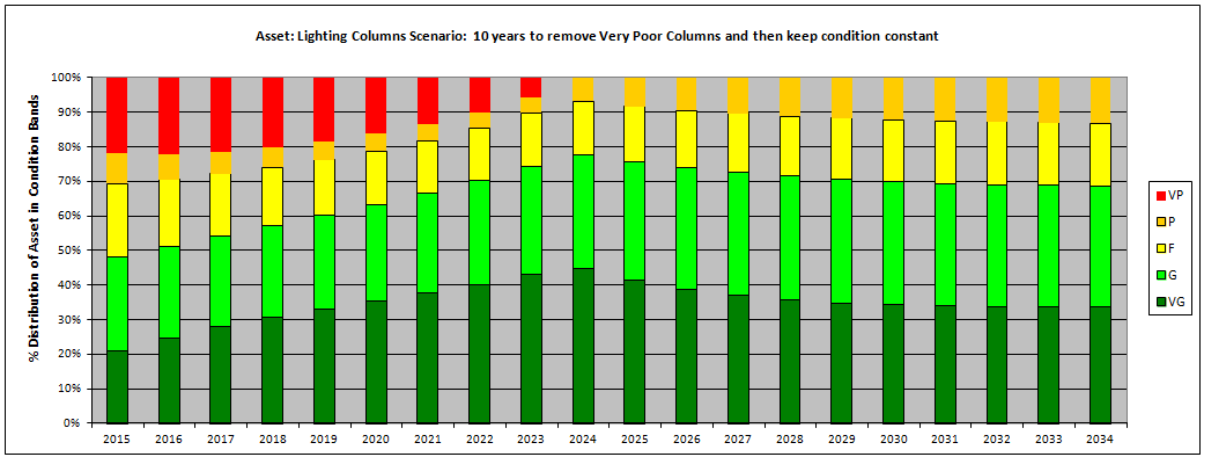
	Current Rate of Decline			Current Strategy			
	Percentage of Stock			Percentage of Stock			
Condition	2015	2034		Condition	2015	2034	Comparison
Very Good	16.0	0.99		Very Good	16.0	9.97	+8.98
Good	29.0	4.74		Good	29.0	11.96	+7.22
Fair	23.0	4.01		Fair	23.0	7.11	+3.1
Poor	12.0	4.03		Poor	12.0	5.09	+1.06
Very Poor	20.0	86.23		Very Poor	20.0	65.07	-21.16

The previous graphs and table illustrate how the Council is currently working to try and reduce the rate of depreciation and improve the overall condition of its street lighting stock. The Council's figures show that 32% of lighting columns are currently considered to be in either a poor or very poor state.

The modelling has shown that it is not been achievable to stop or indeed reverse the depreciation trend due to the backlog of work, and the funding levels available. The lifecycle planning techniques will again be used to ensure that the current budget is spent in the optimum way, but any changes made to the current strategy are expected to have a minimal impact on the rate of depreciation due to the size of the network and its comparison with the amount of funding currently available. The Council will therefore use lifecycle planning to demonstrate the impact a significant increase in funding is expected to have on the overall condition of an already declining stock and how it can make the most cost effective decisions of how to spend any additional income in order to generate optimum results. The graph below shows that if the Council is able to allocate additional funding to a 10 year column

replacement programme it is possible to eliminate all columns in the very poor condition band. The following graph demonstrates just how much of a significant increase in investment is required to be able to reverse the rate of depreciation.

Asset: Street Lighting Column Scenario: Proposed Strategy



	Current Strategy	
	Percentage of Stock	
Condition	2015	2034
Very Good	16.0	9.97
Good	29.0	11.96
Fair	23.0	7.11
Poor	12.0	5.09
Very Poor	20.0	65.07

	Proposed Strategy		
	Percentage of Stock		
Condition	2015	2034	Comparison
Very Good	16.0	33.71	+23.74
Good	29.0	34.94	+22.98
Fair	23.0	18.24	+11.13
Poor	12.0	13.11	-8.02
Very Poor	20.0	0	-65.07

Proposed Strategy to Eliminate Very Poor Street Lighting Stock

The current strategy will see a continued rise in very poor condition columns. To negate this trend additional monies are required. To stop the increase in columns falling into the very poor condition band and maintain the current 20% level of very poor stock capital expenditure would need to rise by £1,000,000 per annum.

Ideally, all very poor columns should be replaced, however, the cost of doing so, over a 10 year programme, would require additional funding of approximately £2.5 million per annum with a total expenditure over the 10 years of circa £29 million. To then maintain the street lighting stock without any very poor condition columns the Council would need to increase its capital expenditure from £0.5 million to £1.8 million per annum.

Appendix F Communications Strategy

Communications Strategy

Background

Hull City Council's Strategy is to use proactive communications to ensure that our residents, businesses and stakeholders are increasingly better informed about the services the Council provides on their behalf and its ambitions for the future good of our community.

Through the highway infrastructure asset management plan Streetscene Highways seeks to:

- Develop an improved public communications strategy
- Create improved links between customer feedback and services delivered

There are a number of key documents and plans for this service area which guide what services delivered and the method of delivery. These include the:

- City Plan
- Local Transport Plan
- Transport Asset Management Plan and its successor Highway Infrastructure Asset Management Plan
- Bus Strategy
- Parking Strategy
- Rights of Way Improvement Plan.

To view these documents in full visit the Council's website at: www.hcc.gov.uk

Others include emerging documents, such as the cycling and road safety strategies

The purpose of this Communication Strategy is to set out how Highways communicates now and preferences for the future. This document identifies:

- Objectives
- Audiences - partners, delivery agents, staff, funders, politicians, user groups, interested parties and individuals, residents, business and the media
- Messages
- Tools and activities
- Resources
- Timescales
- Evaluation and amendment requirements.

It provides actions and targets to meet:

- Legislation and good practice in communication relating to freedom of information, data protection and transparency.
- The Council's requirements to put the community first.

The Council acknowledges that:

- The provision of timely and accurate information helps to ensure the safe and efficient movement of people and goods
- The provision of information about travel options and impacts on journeys, and it describes:
    - The provisions for services and how to access them
    - The Use of feedback to help guide the design of schemes and services
    - Improvements in efficiency and delivery of cost savings.

Our Services Provided

Everyone who lives, works or visits Hull uses the Highway services, travelling on 860 km (534 miles) length of roads, tenfoots and paths. Road pavement condition, street lighting and ease of safe travel are often reported as being uppermost people's thoughts. The use of roads, increasing congestion and disruption due to their digging up for repair or the laying of new services pose risks and have impacts on residents, businesses and the general public.

The Highway Service covers a broad range of functions:

- Managing the condition and provision of the public highway (roads, pavements, drains, bridges and structures and public rights of way) for maintenance purposes
- Ensuring the provision of local public transport, and school and social service transport
- Coordinating all local road works, road closures and major events on the highway
- Managing the condition and provision of street lights, traffic signals and electronic road signs for maintenance purposes
- Developing, consulting and delivering highway and transport network projects
- Managing Council and other contractors working on, under or near the highway
- Providing road safety education and supporting awareness campaigns
- Liaising with schools and businesses to provide sustainable travel plans
- Managing highway records and temporary licences
- Providing highway advice to planners, landowners, developers and their agents
- Setting local transport policy.
- Providing Winter Service
- Assisting with emergency incidents.

Our Current Position

From public satisfaction and other surveys the Highways' Service understands that:

- Roads and highways are highly valued.
- Highway condition is extremely important
- Gaps occur between importance of the issue and public satisfaction with the situation of road repairs

The following areas indicated average or lower than average levels of satisfaction:

- Quality of repairs of roads and pavements
- Availability of parking for residents

The following areas indicated above average levels of satisfaction:

- Advance warning of roadworks.

Where we want to be:

The highways' Service would like to be:

- More proactively engaging with our customers and users
- Using the appropriate tools to improve information provision and help change public perceptions of the Highways' Service
- Providing information that is open, honest, timely, relevant and in the right format to suit the customer.
- Getting regular and meaningful feedback from residents, businesses and stakeholders to help Inform and develop the way we deliver services for the future.

Objectives

Operational or Policy Objectives	Communication Objectives
To build strong relationships	To provide a regular flow of information to key stakeholders
To provide road safety education services for road users	To showcase organisational successes in the local media
To improve public and Member satisfaction with the Highways' Service	To publicise how we do the best we can within resource constraints To provide feedback on actions taken in response to public contacts To help people understand why they are delayed by roadworks and how we are keeping this to a minimum To publish performance / condition data to demonstrate improvements and compare ourselves to others.
To improve co-operation from people affected by roadworks for mutual benefit	To provide reliable information and make reasonable requests for co-operation
To reduce congestion and disruption caused at key hotspots and by roadworks	To provide effective early warning to encourage avoidance to to give clear directions to traffic To understand how traffic in the immediate vicinity may be affected and to tailor activities to minimise impacts
To ensure that the needs of all users are taken into consideration in designing and operating the service	To provide the opportunity to be heard and have confidence that the Council is listening
Maintain road and pavement condition	To publish performance / condition data to demonstrate improvements and compare ourselves to others.

In all communications to ensure that we:

- Demonstrate that our residents are our first priority every step of the way
- Understand our audiences and use appropriate, targeted, accessible communications methods to engage with all residents, businesses and stakeholders
- Adopt and adapt modern communications methods, with increasing use of social media to engage with specific sectors of our community
- Promote an inclusive environment with open channels of communications to allow people to provide their views and ideas
- Help change behaviours and perceptions for the good of our community
- Help increase residents' satisfaction with Highways' Service
- Reinforce transparency, openness and accountability.

Our Audience

Our audience comprises diverse users with varied requirements which can be summarised below:

Audience	**What they need to know**	**Key communication messages**
Service users	What we offer How to access services Where to go for advice	We provide useful, practical information and advice We are trustworthy and reliable We put services first and value their opinions We have a robust evidence base to support our work
Local MP and Councillors	What we want to see changed Evidence base Options and risks to enable sound decision making	We have sound knowledge of the regulatory and policy environment We are a well-respected, authoritative organisation That advice we give is sound and can be trusted
User groups	How we plan to co-ordinate streetworks and manage traffic	We will listen to the and take their views into consideration
Businesses	Ditto	Ditto

Audience	What they need to know	Key communication messages
Partners	Shared objective, how we plan to achieve them and how they can help	We communicate openly and co-operatively. We collaborate to achieve shared goals
Service providers / Suppliers	Service standard required, our work programmes, and how they can engage and collaborate with us	We provide clear briefs We form good working relationships We pay on time
Other Council Departments and Teams	How our service affects them What advice we need How they can influence our plans Key contacts	The scope of our role and responsibilities on behalf of the Council Where and how we interface with them.

For a complete list of Stakeholder see Annex A.

Our Channels / Methods of Communication

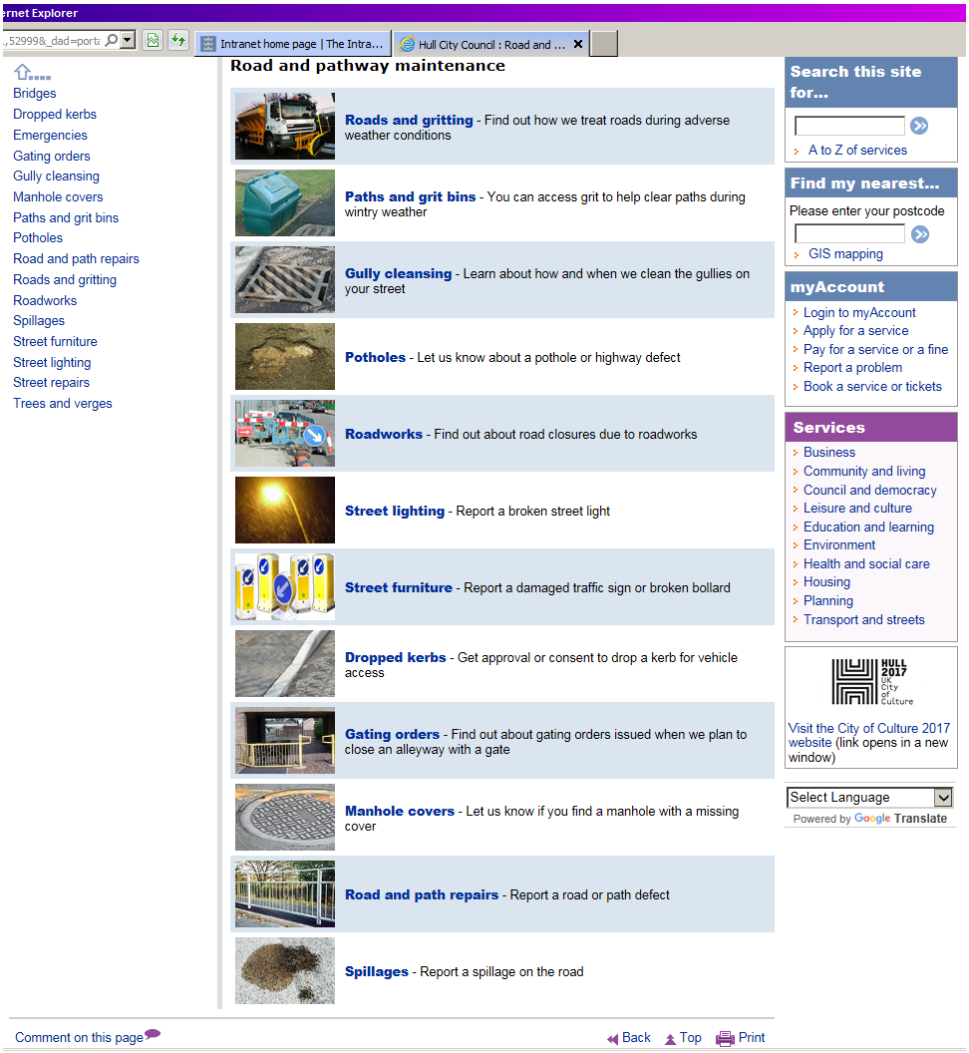
Identified below are our favoured ways of communicating:

- Website, interactive and published materials
- Service requests and feedback via the Customer Relationship Management System
- Reports
- Email
- Direct and indirect mailing
- Telephone
- Posters
- Newsletters
- Press releases
- Stakeholder briefings and meetings
- Presentations and workshops
- Surveys
- Social Media
- Temporary and permanent road signs
- Variable Message Signs

The Customer Relationship Management system allows the monitoring of the effectiveness and efficiency of the service in providing a quality response to service requests.

The City Council presently notifies advance warning of roadworks by consultation, press release, and letter drop. Streetworks are notified onto the City Council's web pages to the 'roadworks.org' website on a daily basis. Information in leaflet form is available too. Additionally, information is displayed on variable message signs. General consultation with the public regarding their interest in highway matters rarely includes reference to highway structures. Public consultation from elsewhere has shown that maintaining the safety of the bridge stock is a primary public objective and local residents in Hull are considered unlikely to have different views.

A screen shot of the current roads and pathway maintenance web page is shown below:



Screen shot of the current* roads and pathway maintenance web page

(* at time of writing 24 Nov 2015)

Suggested Communication Channels

Audience	Key communications messages	Key communications channels
Service users	We provide useful, practical information and support We are trustworthy and reliable We put services users first and value their opinions	Service user e-bulletin Quarterly service user meetings Service user representation Media map
Local MPs and Councillors	We have a strong evidence base and our calls are grounded in robust evidence We have a good knowledge of the policy environment We are a well-respected, authoritative organisation	Quarterly policy briefings on specific policy areas Ensure all press releases are sent to relevant advance Positive media coverage
Statutory undertakers and others with apparatus in the highway	Effective streetwork notification and follow-ups	HUAC meetings
Users Groups	We provide useful, practical information and support We are trustworthy and reliable We put services users first and value their opinions	Service user e-bulletin Quarterly service user meetings
Businesses	Ditto	Ditto
Service Providers / Suppliers	We provide service standards and specifications	Briefings
Other Council Departments and teams	Advice and contacts	Ditto

Areas for Action

- Survey how best to communicate:
  - What do you read/see/hear?
  - What works/doesn't work?
  - What do you want to see more of?
  - What information do you need that you are not currently supplied with?
  - How often do you want us to communicate with you?
- Promoting Services and media relations
- Providing simple, accurate and timely information
- Web site and social media
- Multi-channel access and Call Centre
- Direct Contact with residents
- Written Communications and information requests
- Performance checks.

Annex A – Stakeholders

Key Stakeholders (Asset Management Plan)	**Audience Group**
Elected members	Local MP and Councillors
Members of the public including residents, visitors and people employed in the city. Anyone who uses the city's streets	Service users
Equalities Team	Other Council Departments and teams
East Riding of Yorkshire Council (ERYC)	Partners
Bus Companies – Bus Forum	
Bus station management – 1st Trans Pennine	
Hull Access Improvement Group (HAIG)	User groups
Hull Bid Group	
Other Stakeholders	**Audience Group**
Central Government	Partners
Train Station & British Transport Police	
Highways England	
Associated British Ports (ABP)	
Environment Agency	
English Heritage	
Emergency Services especially the Police	
Events Team	Other Council Departments and teams
Planning	
Property Services (and NPS)	
Legal Services	
Procurement	
Town Clerk	
Housing	
Leisure Company	

Key Stakeholders (Asset Management Plan)	Audience Group
Waste Management	
Major Projects and Infrastructure	
Local Schools	Service Users
Council Staff	
Choices ,	User groups
Rights Disability Coalition	
Hull and East Riding Institute for the Blind (HERIB)	
Learning Partnership board	
Hackney Carriage Drivers	
Statutory undertakers	Statutory undertakers etc
Companies and others with apparatus in the highway	
Network Rail	
KC Stadium management company	Businesses
KC Lightstream Stadium management (Craven Park)	
The Marina Company	
Princes Quay	
St Stevens	
Prospect Centre	
JCDecaux - bus shelters and advertising infrastructure	Service providers / Suppliers
Contractors	
Suppliers	

Appendix G Improvement Plan

Improvement Plan

The table below presents the actions identified to progress highway asset management:

Action	Asset Type	Target Date	Benefit
Identify responsibilities for the maintenance and upkeep of soft landscapes	Carriageways & Highway Green Spaces	On-going	Clarity in responsibilities. Update:- responsibilities are clarified and split between Streetscene Operations and Parks and Open spaces
Review maintenance hierarchies to take account of current use and in the light of the Council's Emergency Plan	Carriageways	2017	To ensure maintenance appropriately targeted
Data collection and valuation • Road lines and marking • Highway Drainage • Cycle Tracks • Street Furniture • Public Rights of Way	 Carriageways & Footways and Cycle Tracks Highway Drainage Cycle Tracks Street Furniture Public Rights of Way	2018 2017	))) To ensure data set is available for asset management) and to enable valuation reporting for WGA)
Complete bridge assessments and structural reviews.	Bridges and Structures	2027 (on-going 12 year cycle)	Improved asset management and ensure bridges are fit for purpose
Complete Inventory on Statues and Monuments. Update:- Survey of existing assets complete. establish responsibilities for asset maintenance on an individual basis and consider same for new features as part of public realm changes	Bridges and Structures	2019	Improved asset management details.
Complete Inventory on River Walls and Walkways. Update:- Inventory now contained in BridgeStation. Establish periodic survey regime and maintenance resource commitment.	Bridges and Structures	2017	Improved asset management details.
Update processes for as built sign offs and inventory updates. Update:- progress made but improved IT support required for asset data to be incorporated into systems in a timely manner.	Carriageways Structures Drainage Street Lighting	2018	To ensure dataset is kept up to date and accurately recorded

Action	Asset Type	Target Date	Benefit
Completing accuracy and quality check of asset inventory	Street Lighting Trees Highway Green Spaces Parking	2017/8	Improved integrity of data sets, management and contract preparation and management
Providing new data on existing assets including asset changes and maintenance performed. Establish interface between CONFIRM and NorthPoint (KWL system)	All Street lighting	2017/8	Added value
Financial modelling and reporting	All	On-going	Demonstrable investment benefits. Requirement for future funding bids.
Revising maintenance content & programming	Highway Green Spaces Illuminated assets Trees	On-going	Reduced reactive maintenance
Completing of whole life costing	Green Spaces Street Furniture Trees Vehicle Management Systems	2017	Improved asset management
Researching and applying where appropriate new construction techniques	All	On-going	Improved asset management
Introducing new survey techniques to better capture asset (video / 3D modelling, remote monitoring) Dependant on IT support	Street Lighting Drainage Street Furniture	2018	Improved accuracy, reduced time taken to collect, clean and analyse data Reduced staff travel time, opportunity for more effective data collection and draw down of condition data from staff being able to view network at desk top / handhelds.
Data mapping new and updating Requires IT Support.	All	2017	Production of both physical asset data maps and asset layers on a GIS
Review of indicators Update:- review partly complete. Work needed on indicator recording mechanisms. Set targets.	All	2017	To ensure fit for purpose and to drive continuous improvement.
Trade-off between asset groups.	All	2018	Advanced Asset Management - holistic asset management approach across asset groups to make most effective use of resources.
Customer Survey Reviews to include questions on highway structures to supplement NHT	Carriageways Footways & Cycle Tracks Bridges and Structures	2017	Improved feedback for performance monitoring

Action	Asset Type	Target Date	Benefit
Establishment of asset risk assessments and register Update:- Included in Strategy and Streetscene Risk Register .	All	2017	Advanced Asset Management
Assessment of resourcing and budget planning on level of service Update:- Use of toolkits as available and appropriate. Roads, footways and street lighting completed.	All	2017	Improved Asset Management
Long term programming and projection Update:- 3 year programmes developed for main assets	All except Carriageways, Footways, Bridges and Structures	2017	Improved Asset Management
Progressively develop and expand this plan as new information becomes available	All	On-going	Improved Asset Management
Investment in new installations and technologies	Vehicle Management control and information systems Moving Bridge Control Management Systems Replacement and sustainable urban drainage systems Back office Lantern replacement with LED's Smarter lamp column replacements Lighting control management system – dimming and trimming	2017 2019 On-going On-going On-going On-going On-going	Improved resilience and savings in journey times, collisions, maintenance.
Reintroduce CONFIRM and mobile technology to highway gangs. Introduce it to Gully crews. Extend CONFIRM to cover other asset groups	All	2017 2017 2019	Better data quality, improved customer interface, Improved asset management Completed
Structural testing of lighting columns	Street lighting	2018	Better risk and asset management
Electrical testing of lighting units as part of LED programme	Street lighting	2017	Better risk and asset management
Establish 6 year rolling programme for electrical testing and 10 year programme for structural testing of street lighting	Street lighting	2018	Better risk and asset management
Update Streetworks Gazetteer with Streets of special engineering difficulty	Carriageways and footways	2017	Better protection of assets from damage by utilities Completed

Action	Asset Type	Target Date	Benefit
(existing concrete roads and new public realm)			

Appendix H Glossary

Glossary

Term	Definition / Description
Accumulated Depreciation Cost	The total cost of decrease in the value of an asset up until the present time. An asset which is new will have no accumulated depreciation. As the asset ages, accumulated depreciation increases
Annual Depreciated Cost	The cost of the asset divided by the length of its useful life, assuming the straight line method, or the cost of the asset minus its depreciated value, depreciable basis, which is multiplied by a factor based on the life of the asset. The factor accelerates the rate of depreciation
Asset	Integral feature of the highway infrastructure infrastructure, such as road, highway structures, lighting and traffic management systems
Asset Class	Grouping of assets of similar type and use
Asset Condition Assessment	The process of continuous or periodic inspection, assessment, measurement and interpretation of the resultant data to indicate the condition of a specific asset so as to determine the need for preventive or remedial action
Asset Management	The combination of management, financial, economic, engineering and other practices applied to assets with the objective of providing the required level of service in the most cost effective manner to meet the need of the current and future users
Asset Value	The calculated current monetary value of an asset or group of assets after depreciated has been taken into account
Backlog	The monetary value of work required to close the gap between the current performance provided by an asset and the required performance
BI	National Highway and Transport (NHT) Survey, Benchmarking Indicators
Capital Expenditure	Relatively large spend for investment in renewal, expansion and upgrade of assets
CRN	Classified Road Network
Detailed Visual Inspection (DVI)	Condition assessment of roads and footways performed to a strict code. Input data for Pavement Management System. Inspections are carried out on foot.
Depreciated Replacement Cost	The cost of replacing the asset less the value due to ageing, usage, deterioration, damage, reduced level of service and obsolescence
Depreciation	The allocation of amounts due to use, ageing, deterioration or obsolescence
Deterioration	The change in a physical asset time due to age, damage, weather etc. that can be observed and measured through condition surveys
DfT	Department for Transport
Gross Replacement Cost	The cost of replacing an asset to current specifications / standards using standardised unit rates
HIAMP	Highways Infrastructure Asset Management Plan (this Plan)
Highway infrastructure Assets	Land, property, and equipment owned by the Authority for highway purposes
HMEP	Highways Maintenance Efficiency Programme
Inventory	Information used to describe an asset, such type, quantity, dimensions, construction data, records of use

Term	Definition / Description
KBI	National Highway and Transport (NHT) Survey, Key Benchmarking Indicators
Level of Service	The defined service quality for a particular service against which service performance are measured. Service levels usually relate to quality, quantity , reliability, responsiveness, environmental, acceptability, and cost using readily understood terms
Lifecycle Cost	Cost to provide the asset or service over its Lifecycle. It includes annual maintenance and other expenses
Lifecycle Plan	A plan to cover the expected life of an asset or treatment cycle from as new condition back to as new, including timing, nature and cost of treatment needed to maintain the service potential of the asset over its useful life
LPO	Local Performance Indicator
Maintenance and Renewal Gap	Difference between estimated budgets and projected expenditures for maintenance and renewal of assets totalled over defined periods of time, e.g. 5, 10, 15 or 20 years
Network	The collective term for the whole of the highway network maintained at public expense, including roads, paths, cycle routes, structures, lighting etc.
NHT	National Highways and Transport Survey
NHT CQC Efficiency Network	National Highways and Transport Customer Quality Cost efficiency benchmarking network.
Pavement Management System	A process for measuring and predicting the condition of road surfaces and substrate over time and recommending corrective action
Performance	A term used to describe the service achieved or delivered
Performance indicator	A numerical measure of the degree to which an objective is being achieved expressed as a percentage, index, rate or other comparison monitored at regular intervals and compared to criterion / criteria. Can reflect historic outcome / results achieved and predictive to identify critical parameters / inputs / trends for determining outcomes based on best practice
Planned Maintenance	Repair work that is identified and managed in a systematic way covering activities of inspection, condition assessment, prioritising, scheduling, allocating work and reporting to develop a maintenance history and improve maintenance and service delivery performance
Reactive Maintenance	Unplanned repair work that is carried out in response to service requests and management / supervisory directions
Residual Value	The net amount which the asset expects to obtain at the end of its useful life after deducting the expected costs of disposal
Revenue Expenditure	A cost charged to an expense as it is incurred: • *Maintaining a revenue generating asset* includes repair and maintenance expenses, which are incurred to support current operations, and do not extend the life of an asset or improve it. • *Generating revenue covers* all day-to-day expenses needed to operate a business, such as sales, rent, office supplies, and utilities.
Risk Management	The application of a formal process to the range of possible values relating to key factors associated with a risk in order to determine the resultant ranges of outcomes and their probability of occurrence
TAMP	Transport Asset Management Plan (the Council's TAMP is superseded by the HIAMP)
Useful Life	The period over which an asset is expected to be available for use
Whole Life Cost	Consideration of all costs and revenue associated with the acquisition and ownership of an asset over its life
Whole of Government Accounts	The consolidated accounting system for the whole of the public sector