Environment and Sustainable Communities Overview and Scrutiny Committee

5 October 2023

Highways Asset Management

Report of Alan Patrickson, Corporate Director of Neighbourhoods and Climate Change

Electoral division(s) affected:

Countywide

Purpose of the Report

1 To provide background information to Members of the Environment and Sustainable Communities Overview and Scrutiny Committee in relation to highways asset management service delivery.

Executive summary

2 Members will be provided with current data in relation to highways maintenance within the county together with relevant performance data.

3 The overall highway maintenance backlog has increased to £175.1m (based on 2021/22 data). Note this data is under review to reflect unprecedented price increases through inflation.

4 The overall condition of the classified network remains quite static. However, the condition of the unclassified road network where maintenance should be considered is at all 23.0% (based on 2022/23 data).

5 The percentage of footways that are classified as requiring maintenance is 31% (based on 2021/22 data).

6 The condition of highway structures continue to be steady with a slight improvement in the bridge condition index, they continue to be monitored using a more robust inspection regime.

7 Investment continues into replacing life expended streetlighting columns and is funded through streetlighting capital budgets.

8 Independent public satisfaction surveys demonstrates that the overall satisfaction in highways is generally above the North East and the national average.

Recommendations

9 It is recommended that the Environment and Sustainable Communities Overview and Scrutiny Committee note the information provided in the presentation.

Background

10 At the Environment and Sustainable Communities Overview and Scrutiny Committee held in May 2022, the committee received a report providing an overview in relation to highways in the county. The report contained data in relation to the condition of highway assets, maintenance backlog and public satisfaction. However, the data available was dated 2020/21.

11 It was therefore agreed by Members that a further highways assets management report would be provided and would include current data for 2022/23.

Highways Maintenance

12 The Highways Act 1980 sets out the main duties of a local highway authority in respect of highways maintenance. In particular, Section 41 imposes a duty to maintain the adopted highway at public expense.

13 The Highways Act does not specify the level of maintenance although national Codes of Practice offer guidance in line with best practice. The purpose of highway maintenance is to maintain the highway network for the safe and convenient movement of people and goods.

14 The highway network is the council's largest and highest value asset. It is used every day by nearly all County Durham residents and businesses together with many visitors. The highway network is therefore fundamental to economic and social activity in County Durham.

Service Delivery Model

15 The current service delivery model for highway construction, maintenance and design is via the in-house provision which is supplemented as required with external resource, this is referred to as a mixed economy model. This comprises of an in-house Highways Services team supplemented by a competitively procured supply chain of external sub-contractors and joint procurement exercises through the North East Highways Alliance (NEHA). Approximately 50% of Highway Services work is delivered by in-house staff with 50% delivered through the supply chain.

16 In addition to highway maintenance, the Highway Services team delivers highway improvement and civil engineering works on behalf of other directorates within the council.

17 The Strategic Highways team undertake the client, policy, capital budget and asset management functions in relation to highway maintenance.

Inventory

18 The inventory is a database containing details of the individual assets that make up the highway network. It is vital to know what assets exist and where so they can be inspected, surveyed and maintained to appropriate service levels.

19 The 2022/23 inventory is summarised in the table below:

Asset	Unit	Adopted	DCC Unadopted	Private Unadopted	Total
Carriageway					
A	Km	417.14	0	0	417.14
B	Km	406.05	0	0	406.05
C	Km	695.48	0	0	695.48
Unclassified	Km	2,324.69	18	117	2,459.69
Sub-Total		3,843.40	18	117	3,978.40
Drainage					
Gullies	Number	110,633	1,371	3,864	115,868
Structures					
Road bridges	Number	487	0	0	487
Footbridges	Number	51	455	0	506
Street lighting					
Columns/ Lanterns	Number	83,676	0	0	83,676
Lit Signs	Number	5,737	0	0	5,737
Traffic Management					
Traffic lights	Number	69	0	0	69
Pedestrian crossings	Number	73	0	0	73
Unlit signs	Number	63,460	808	2,277	66,381
PROW/ bridleway signs	Number	4,312	0	0	4,312

Highway Maintenance Plan

20 The Highway Maintenance Plan sets out service levels for safety inspections, service inspections, condition surveys, reactive maintenance and routine maintenance.

21 The main types of highway maintenance are:

Type of Maintenance	Description
Reactive	Responding to inspections, complaints, or emergencies
Routine	Regular consistent schedule, generally for carriageway and footway repairs
Programmed	Flexibly planned schemes primarily of resurfacing, reconditioning and reconstruction

Highway Safety Inspection Regime

22 The council is committed to ensuring that the adopted highway is maintained in a safe condition as far as reasonably practicable. All adopted roads and footpaths in County Durham are inspected by the team of Highway Inspectors at a frequency appropriate to their usage which varies between 2 weeks and 12 months. Defects are assessed against intervention criteria set out in the Highway Safety Inspection Manual and reactive repairs are undertaken to those defects which exceed the intervention criteria in accordance with the response times set out in the Highway Maintenance Plan.

23 The council's Highway Safety Inspection Manual and Highway Maintenance Plan are aligned with the National Code of Practice.

24 The council also rely on reports from the public to identify highway defects that may arise in between scheduled safety inspections. These should be reported to the Customer Services team by one of the following routes:

- website: http:/www.durham.gov.uk
- email: help@durham.gov.uk; or
- telephone: 03000 261000

Condition Surveys

25 Condition surveys are primarily intended to identify deficiencies in the highway fabric which, if untreated, are likely to adversely affect its long-term performance and serviceability.

26 Condition surveys help determine programmed maintenance subject to the Highways Asset Management Plan (HAMP) and available budgets.

27 The types of survey undertaken, and frequencies are as follows:

Asset	Survey	Frequency
A - Roads	Surface Condition Assessment for the National Network of Roads (SCANNER)	100% surveyed in one direction only annually
B - Roads		100% surveyed in one direction only annually
C – Roads		100% surveyed in one direction only annually
Unclassified Roads	Coarse Visual Inspection (CVI)	Minimum 25% annually
Footway Hierarchy 1, 1a, 2, 3, 4	Footway Network Survey (FNS)	Minimum 25% annually
Carriageway Hierarchy 2,3a & 3b	Skid Resistance – using Sideway-force Coefficient Routine Investigation Machine (SCRIM)	Annually Both Directions
Carriageway Hierarchy 4a and 4b		Not routinely undertaken
All locations	Vehicle Restraint Systems	On a 2-year cycle if more than 10 years old or a 5 year cycle if less than 10 years old
All highway structures with a span > 1.5m	Structures – General Inspections	Every 2 years
All principal road network and other significant structures	Structures – Principal Inspections	Frequency varies between 6 and 12 years depending upon risk assessment
Any structure identified through the general inspection or from reports	Structures – Special Inspections	As required
All structures on rivers subject to fast changing environment or deep water	Underwater Inspections	Every 2 years or following severe flood conditions

Highway Asset Management Plan

28 HAMP sets out the council's long-term plan for managing the highway asset by applying programmed capital maintenance subject to available budgets to maintain the condition of the highway. The HAMP applies asset management principles to ensure that the right maintenance treatment is selected at the right time to ensure a safe, serviceable and sustainable highway network.

29 The HAMP aims to minimise whole life costs but this is not always possible as budget constraints may result in not all the right treatments being undertaken at the right time particularly where there is an existing

maintenance backlog. In this case the budget is prioritised based on the following criteria:

- safety;
- return on investment; and
- network hierarchy.

30 The council was the first highway authority in the United Kingdom to achieve British Standard BS ISO 55001:2014 Asset Management in 2015 and this quality management system underpins the council's asset management approach.

31 In October 2021, Durham County Council received a full reaccreditation of its ISO 55001:2014 Asset Management achievement. This demonstrated the continued use of asset management principles in the day-to-day delivery of the highways function.

Condition

32 Condition is summarised as follows for the major asset groups:

Asset	Description	Performance							
		2017/ 18	**2018/ 19**	**2019/ 20**	**2020/ 21**	**2021/ 22**	**2022/ 23**	**Good Condition Target**	**Fair Condition Target**
A – Roads	% where maintenance should be considered	2.6 %	2.6%	3.0%	3.1%	3.7%	2.6%	0.0%	4.0%
B – Roads		4.7%	4.7%	3.3%	3.0%	3.3%	2.9%	0.0%	4.0%
C – Roads		3.7%	3.7%	2.3%	2.6%	3.5%	2.4%	0.0%	4.0%
Unclassified Roads	% where maintenance should be considered	20.0%	21.0%	21.3%	22.5%	25.0%	23.0%	0.0%	8.0%
All Roads	% where maintenance should be considered	13.5%	14.1%	11.7%	11.1%	16.15%	14.9%	0.0%	6.4%
Footways	% structurally unsound	22.8%	21.5%	20.9%	22.5%	31.0%	Not currently available	0.0%	5.0%
Structures	Bridge Condition Index – Principal roads	80.0	80.7	81.1	82.0	85.0	85.3	100.0	95.0
	Bridge Condition Index – Non-Principal Roads	81.0	79.9	80.1	81.0	85.0	85.5	100.0	95.0
	Other (using form of Bridge Condition Index)	66.0	66.0	66.0	66.0	80 83.9	79.9 83.7	100.0	85.0
Street Lighting	% columns > 40 years	15.3%	13.3%	13.9%	14.1%	14.0%	15.5%	0.0%	5.0%
	% lanterns > 20 years	18.3%	15.8%	15.3%	15.4%	11.6%	9.0%	0.0%	5.0%
	% lit signs where replacement should be considered	17.1%	17.1%	17.1%	17.1%	16.8%	16.6%	0.0%	5.0%

33 The good condition target represents where the maintenance backlog will be zero with no defects. This is an ideal theoretical target which is not realistic in practice.

34 The fair condition target represents a realistic target of acceptable condition subject to available funding.

35 The figures above illustrate the percentage of structural maintenance required to improve the road network. The classified road network is within target, but the unclassified network and our footways remain a key priority.

Highway Structures Condition

36 The condition of the bridge stock is measured by the use of a Bridge Condition Indicator (BCI). This provides a measure of the physical condition of the highway bridge stock.

37 The annual condition is determined by improvement works carried out during the year together with the annual inspection of the stock undertaken that year which will determine its rate of deterioration.

38 The BCI scores range from 100 (best possible condition) to 0 (worst possible condition) and can be interpreted broadly as the "percentage service potential" of a structure. Thus, a value of 100 implies that the structure has retained 100% of its service potential; a value of 60 implies that the structure has lost 40% of its service potential; while a value of 0 implies that the structure is no longer serviceable.

39 The following table explains the range of BCI scores in more detail:

BCI Range	**Comments**
$90 \leq x \leq 100$	Bridge stock is in a very good condition. Very few bridges may be in a moderate to severe condition.
$80 \leq x < 90$	Bridge stock is in a good condition. Some bridges may be in a severe condition. Potential for rapid decrease in condition if sufficient maintenance funding is not provided. Minor to moderate backlog of maintenance work.
$65 \leq x < 80$	Bridge stock is in a fair condition. A number of bridges may be in a severe condition. Maintenance work historically underfunded and there is a moderate to large backlog of maintenance work. Essential work dominates spending.
$40 \leq x < 65$	Bridge stock is in a poor condition. Many bridges may be in a severe condition. Maintenance work historically significantly underfunded and there is a large to very large backlog of maintenance work. A significant number of structures likely to be closed have temporary measures in place or other risk mitigation measures. Essential work dominates spending.
$0 \leq x < 40$	Bridge stock is in very poor condition. Many bridges may be unserviceable or close to it. Historical maintenance work grossly underfunded and a very large maintenance backlog. Only essential maintenance work performed. Many structures likely to be closed have temporary measures in place or other risk mitigation measures. All spend likely to be on essential maintenance.

40 Durham County Council uses the Bridge Condition Indicators developed by the County Surveyors Society and Highways England. The severity, extent and priority of defects on highway structures are recorded as part of the principal and general inspections which are used to produce Condition Indicators for individual structural elements on a bridge, for a bridge as a whole and finally for the overall inventory of highway bridges.

41 The overall average condition of the bridge stock is less than fair as outlined in the bridge condition index. However, further investment is required to maintain the bridge stock in a “steady state” condition.

Footway Condition

42 The Council carries out a variety of maintenance schemes throughout the year to deliver a safe, serviceable and sustainable network. These include:

(i) Minor patching works
(ii) Footpath surface treatments
(iii) Resurfacing works
(iv) Full reconstruction.

43 Cyclic safety inspections are carried out to specific frequencies that are determined by a number of local factors including traffic volume and composition, use with particular reference to the vulnerable, importance of the route to access local facilities, accident history and traffic sensitivity

44 Safety inspections are undertaken by a team of 16 Highways Inspectors who complete over 11,000 cyclic planned inspections each year throughout the County. The frequency is identified in the Highway Safety Inspection Manual after taking into account the factors detailed above.

Category	Name	Description	Frequency
1a	Prestige Walking Zone	Very busy areas of towns and cities with high public space and streetscene contribution	2 weekly
1	Primary Walking Routes	Busy urban shopping and business areas and main pedestrian routes.	1 month
2	Secondary Walking Routes	Medium use routes through local areas feeding into primary routes, local shopping centres.	3 months
3	Link Footways	Linking local access footways through urban areas and busy rural footways.	6 months

Category	Name	Description	Frequency
4	Local Access Footways	Footways associated with low use, short estate roads to the main routes and cul-de-sacs.	1 year

45 The Highway Inspector will then apply a risk-based approach to initiating a repair of the identified defect based on their local knowledge, the number and composition of road users and the risk of injury. The defect is then identified for repair within agreed response times as detailed in the Highway Safety Inspection Manual.

46 Footpath inspections assist in the development of future capital footpath works alongside the Footway Network Surveys, reported CRNs, third party highway claims and member queries.

47 The overall condition of our footway network is a key concern. With the introduction of the Government national project to provide high speed broadband to all homes in the UK, it is anticipated its condition will deteriorate further.

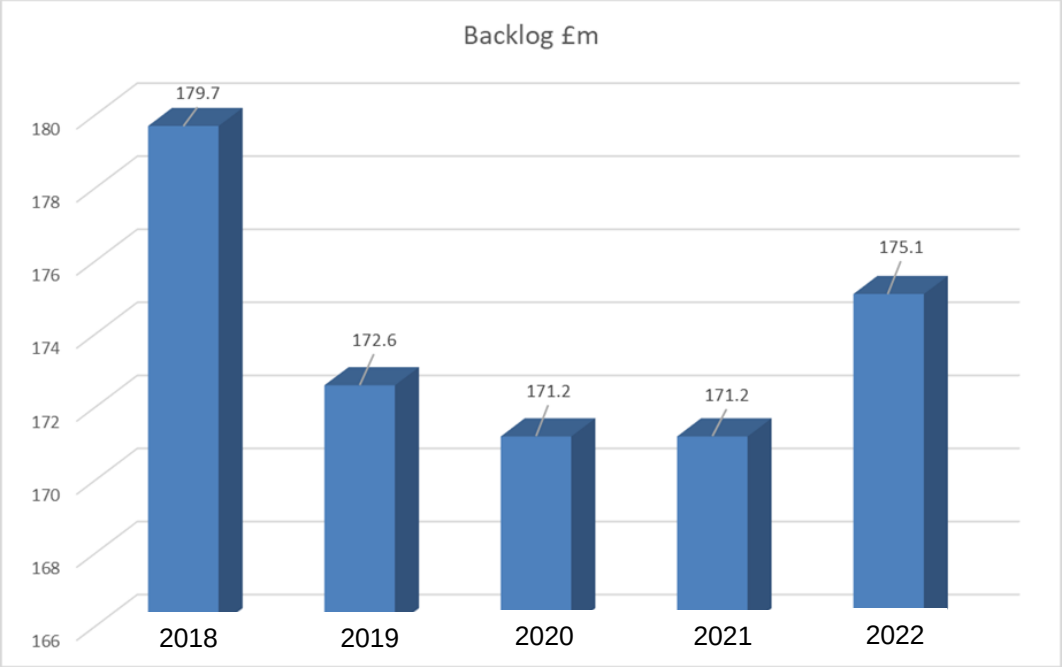
48 As an authority we have made the difficult decision to temporarily postpone all capital footway replacement schemes, due to the impact of the broadband installation works. These works will have an adverse effect on the condition of the footways whilst the install programme is underway. Additional revenue budget has been allocated to footpath repairs to ensure they remain safe and serviceable; consideration will be given to reimplementing the capital footway replacement schemes once the install programme is nearing completion.

Maintenance Backlog

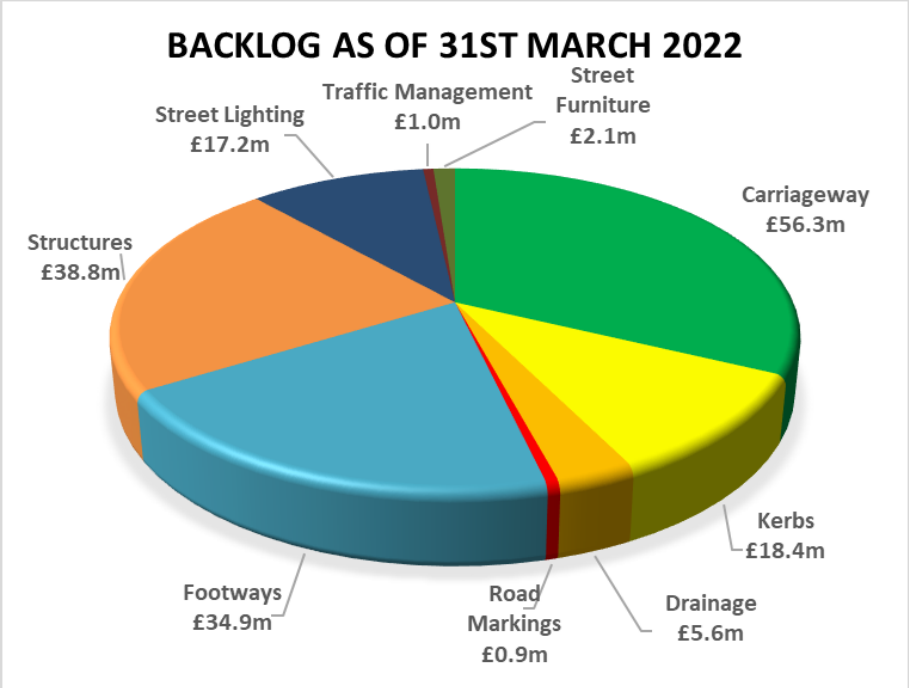
49 The highway maintenance backlog is the value of capital maintenance required to bring the highway infrastructure assets to a good, or ‘as new’ condition.

50 Note this data is under review to reflect unprecedented price increases through inflation.

51 The following chart shows how our backlog has changed over the past 5 years:



52 The backlog is a combination of all highway infrastructure assets, the breakdown is as follows:



53 The council's maintenance backlog is broadly in line with other councils on average taking into account the size of the highway network.

Public Satisfaction

54 The Council participates in the National Highways & Transportation (NHT) Public Satisfaction Survey, which is undertaken by IPSOS/MORI. In 2012 it was agreed that we would participate biennially.

55 These public satisfaction surveys have shown that a well-maintained highway network is very important to residents.

56 Durham's theme scores are compared with the NHT average scores below. Durham County Council compares favourably with the national average.

Theme	Description	Score	NHT Average	Trend	Gap
	Overall	52%	50%	-2%	2%
	Accessibility	65%	68%	-6%	-3%
	Communications	45%	46%	-6%	-1%
	Public Transport	49%	51%	-7%	-2%
	Walking/Cycling	51%	51%	-3%	0%
	Tackling Congestion	49%	44%	-1%	5%
	Road Safety	51%	52%	-2%	-1%
	Highway Maintenance	47%	46%	-2%	1%

Budgets

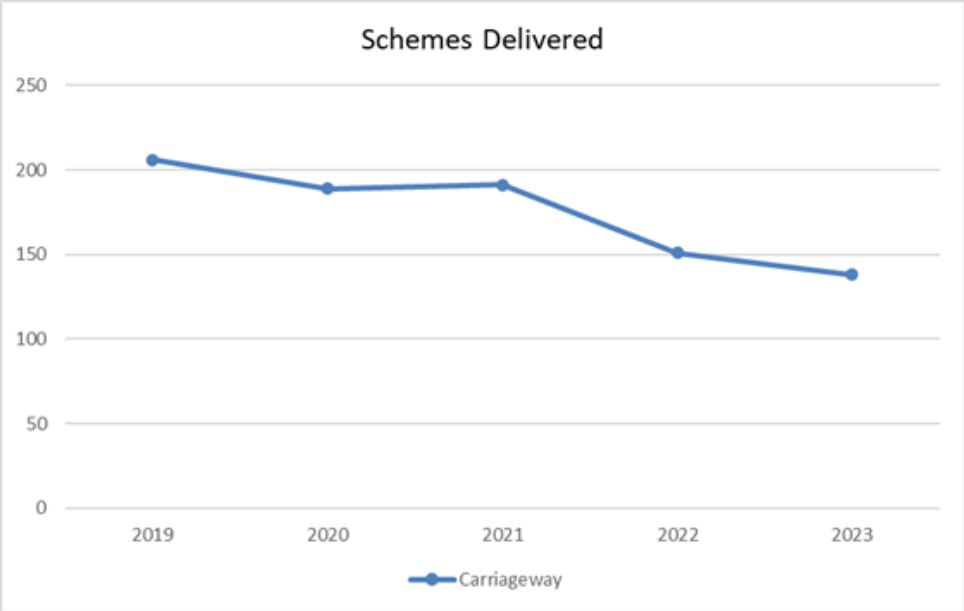
57 The table below show the budget allocation for capital highways works 2022/23, and a comparison with the past 5 years:

Funding Stream	2018/19	2019/20	2020/21	2021/22	2022/23
	£millions				
Local Transport Plan	9,564	9,564	9,564	6,596	6,596
Incentive Fund	2,008	1,992	1,992	1,649	1,649
Pothole Fund	1,297	662	8,448	6,596	6,596
Additional Highway Maintenance Fund	5,269	-	-	-	-
Local Authority Funding	7,486	8,864	6,431	9,100	13,410
Total	**25,624**	**21,082**	**26,435**	**23,941**	**28,251**

58 Although the allocated budgets show variation, it must be noted that the cost of undertaking works has steadily increased. The most significant increase has been seen in the past year, as the global impact of world events has caused construction costs to soar.

59 This effect can be shown by looking at the number of carriageway schemes we have been able to deliver, with the allocated budget. The

chart below shows the number of schemes delivered over the last 5 years:



60 In the current financial climate, it is vital that we continue to align our available maintenance budget, where they will have the greatest impact.

Investment

61 In order to make improvements to our highway network, there will always be a need for high levels of funding. Using the nationally accredited lifecycle modelling toolkits, produced by Highway Maintenance Efficiency Programme (HMEP), the level of funding can be determined.

62 The current investment levels are allowing our classified carriageway asset to remain in a reasonably state.

63 To generate improvement in the unclassified network, to meet the national average of 15% requiring treatment, the required funding level over a 5-year period would need to be £14.4m per year. Currently 23% of the unclassified network requires treatment.

64 This additional funding is only what is required to improve the carriageway network, if the other assets are accounted for, the budget required will be significantly higher. Based on the backlog figure of £175.1m, over a 5 year period the Authority would need to invest an additional £35.02m. This is unrealistic, so a longer time period would need to be agreed, for example over 20 years this additional requirement would be £8.76m.

Department for Transport's Incentive Fund

65 The council has achieved the maximum Band 3 efficiency rating under the DfT's Incentive Fund which was introduced in 2020. Durham was one of only two highway authorities to achieve this maximum efficiency rating out of 119 participating highway authorities in England in 2016 and has maintained the maximum Band 3 efficiency rating in 2022. This rating will help ensure the council maximises funding from the DfT's Incentive Fund going forward.

North East Highway Alliance

66 The council has led the development and implementation of the North East Highways Alliance which was formally established in September 2013. This is a forum for collaborative working for all 12 North East councils. The North East Highways Alliance has delivered a number of initiatives that are helping all councils involved, including Durham, maximise efficiencies in highways through collaborative procurement and knowledge sharing.

67 This partnership working together with ongoing collaborative working of the in-house Highway Services team with the supply chain of competitively procured external sub-contractors has led to the council being one of the first in the UK to be awarded British Standard BS11000 – Collaborative Business Relationships.

Plastic Roads and Rubber Crumb Surfacing

68 The Council has continued to support and introduce environmental initiatives to reduce carbon emissions. Working with Rainton Construction to develop new road surfacing techniques that incorporate plastic and rubber crumb.

69 Using plastic and rubber crumb in roads reduces the amount of bitumen required in the binder. The benefits of this are:

- provide an outlet for single use plastic and rubber that would otherwise be sent to landfill or incinerated; and
- reduces the amount of bitumen required which reduces fossil fuels and carbon emissions and thus contributing to arresting climate change.

Conclusion

70 The report provides a comprehensive update on how highway maintenance is managed and delivered in County Durham.

71 This includes the key policies, inventory, condition, maintenance, backlog, funding and performance.

72 The report also explains the detailed spend and rationale behind the monitoring of condition, repair and maintenance for footways.

Other useful documents

- None

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Appendix 1: Implications

Legal Implications

Durham County Council, as the local Highway Authority, has a statutory duty under the Highways Act 1980 to maintain the adopted highway at public expense.

Finance

As detailed in the report.

Consultation

None.

Equality and Diversity / Public Sector Equality Duty

None.

Climate Change

Highways continue to explore opportunities to reduce waste, save energy and reduce carbon emissions.

Human Rights

None.

Crime and Disorder

None.

Staffing

Highway maintenance is delivered by the Council's in-house Highway Services team supported by a supply chain of competitively procured external sub-contractors.

Accommodation

None.

Risk

None.

Procurement

External sub-contractors are procured through a competitive tendering process which is reviewed on a regular basis to ensure value for money is achieved.