North Yorkshire County Council

Business and Environmental Services

Executive Members

12 November 2018

Approval and Adoption of Highways Asset Management Plans

Report of the Assistant Director – Highways and Transportation

1.0 Purpose Of Report

1.1 This report seeks approval from the Corporate Director, Business and Environmental Services (BES) and BES Executive Members to adopt the following Highways Asset Management documents:

i. The Carriageway Infrastructure Asset Management Plan (CIAMP) – new document
ii. The Street Lighting Asset Management Plan – revised document

2.0 Background

2.1 This report seeks approval from the Corporate Director, Business and Environmental Services (BES), in consultation with the BES Executive Members, to adopt two Asset Management documents:

- The Carriageway Asset Management Plan – a new document
- The Street Lighting Asset Management Plan – a revised document

2.2 Both of these documents form part of the overarching North Yorkshire County Council Highways Asset Management Framework (**"the Framework"**). The Framework is continually being improved with the identification of additional documents being required to meet best practice and those already in existence being reviewed and updated. The documents pertaining to this report are highlighted for reference.

2.3 For information a glossary of terms can be found in Appendix A.

2.4 A schematic overview of the Framework can be found in Appendix B.

3.0 Carriageway Infrastructure Asset Management Plan ("the CIAMP")

3.1 The purpose of the CIAMP is to provide a strategic level overview of how North Yorkshire County Council manages its carriageway assets. The CIAMP outlines the extent of the carriageway, its condition, investment level and performance in relation to the Highways and Transportation agreed targets. It also links to other key documents within the Framework

3.2 As can be seen in Appendix B the CIAMP fits into the Framework underneath the:

- Highways Asset Management Policy which outlines the guiding principles for asset management across all assets, and
- Highways Asset Management Strategy which provides a comprehensive plan on how to accomplish organisational objectives, again across all assets.

The CIAMP then specifically details the plan for carriageway assets, and sits above operational highway documents which will provide technical information relating to how

we maintain the carriageway, different treatment types, methods for design and environmental considerations, among other aspects.

3.3 The proposed CIAMP can be found in Appendix C.

4.0 Street Lighting Asset Management Plan (SLAMP)

4.1 The purpose of the SLAMP is to provide a strategic level overview of how North Yorkshire County Council manages its street lighting assets.

4.2 This document has been revised in accordance with industry standards and current codes of asset management practices.

4.3 The proposed revised SLAMP can be found in Appendix D.

5.0 Equalities

5.1 Consideration has been given to the potential for any adverse equality impacts arising from the recommendations. The principles and documents discussed in this report are recommended for use in the Well-managed Highway Infrastructure Code of Practice. Officers consider that there are no adverse impacts arising from the recommendations in this report.

5.2 A copy of the 'Record of Decision that Equality Impact Assessment is not required' form is attached as Appendix E.

6.0 Finance

6.1 There are no financial implications associated with this report.

7.0 Legal

7.1 The County Council, in its capacity as the Local Highway Authority, Street Authority and Local Traffic Authority must act in accordance with a wide range of statutory powers and duties imposed by legislation.

7.2 The relevant the CIAMP and SLAMP have been produced in accordance with the relevant duties and powers provided by the relevant legislation, in particular, the Highways Act 1980, The Road Traffic Regulation Act 1984, The Transport Act 2000 and the Traffic Management Act 2004.

8.0 Recommendations

8.1 It is recommended that the Corporate Director, Business and Environmental Services (BES) in consultation with BES Executive Members:

i. Approve and adopt the Carriageway Infrastructure Asset Management Plan
ii. Approve and adopt the revised Street Lighting Asset Management Plan

BARRIE MASON
Assistant Director - Highways and Transportation

Author of Report: Andy Davies

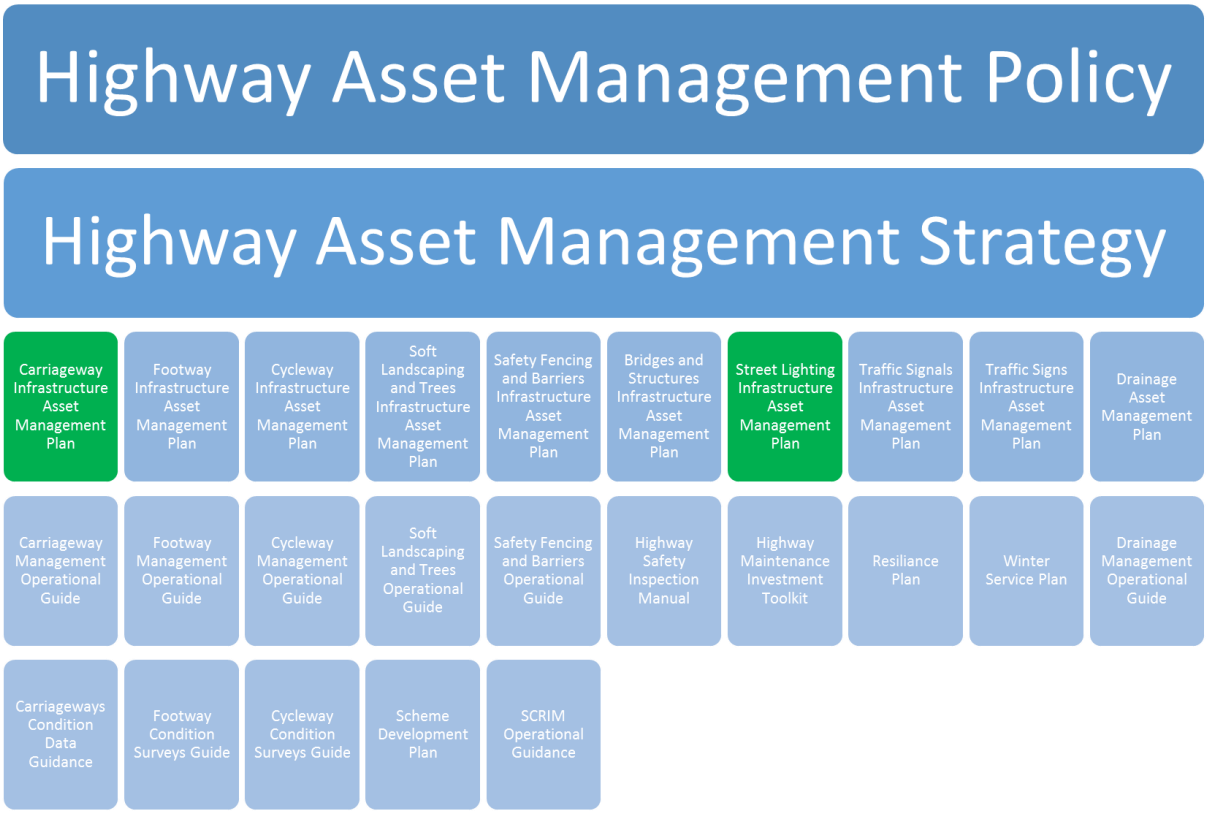
Background Documents: none

Glossary of Terms

Asset Life Cycle	The life of an asset, from when a need for it is first established, through its acquisition, operation and any maintenance or upgrading, to its disposal.
Backlog	The cost required to bring the highway from its present condition to the target condition.
Carriageway	The section of the highway designed for vehicles, and consists of both sides of a single or dual carriageway or a motorway. Includes: road surface and structure, kerbs, lining, road studs and cycle lanes in the carriageway Excludes: Footways, gullies, ironworks and any dedicated cycleways
Cat 1a Footway	The highest category of the local footway network. (Cat 1a, 1, 2, 3, 4, & 5) in line with Well-managed Highway Infrastructure the Code of Practice: Part of the North Yorkshire County Council functional hierarchy of footways.
Cat 2 Road	The highest category of the local road network. (Cat 2, 3a, 3b, 4a, 4b, 5 & 6) in line with Well-managed Highway Infrastructure the Code of Practice: Part of the North Yorkshire County Council functional hierarchy of roads (Cat 1 = Trunk Roads and Motorways).
CI	Condition Index: The 'score' of section of road following a condition survey: In accordance with UKPMS.
CVI	Coarse Visual Inspection; A manual survey carried out from a slow moving vehicle to measure the condition of the Local roads in North Yorkshire County Council.
Deterioration	The rate at which specific hierarchies of roads and treatments of roads will deteriorate into certain conditions
HMEP	Highway Maintenance Efficiency Program: A collaborative and transformative working initiative endorsed by Department for Transport.
HMEP Toolkit	Developed by Atkins Consultants on behalf of DfT. This is a Lifecycle Planning and Deterioration Modelling spreadsheet.
HMIT	The North Yorkshire County Council Highway Maintenance Investment Tool: Identifies financial allocation across hierarchies based on a target condition.
Rates	Cost per m2 of each treatment. These are actual costs for the present year. These are costs per square metre by treatment type and road hierarchy. Where ever possible these are based on actual data.
Resurfacing	Removal of the top layer (or two layers) of bituminous material and replacement: An expensive corrective maintenance treatment.
Reconstruction	Removal of all the bituminous layers (and sometimes granular material) and replacement: The most expensive corrective maintenance treatment.
SCANNER	Surface Condition Assessment for the National Network of Roads and is a machine based survey system which uses a laser to measure the condition of the Strategic roads in North Yorkshire County Council.
Steady State	The cost required to maintain the highway in its present condition (ie regardless of current condition the cost required to mitigate one year of predicted deterioration).
Surface Dressing	A layer of bituminous emulsion with chippings applied: A cost effective preventative maintenance treatment.
Target Condition	The average CI score of a road network which is considered to no longer require a maintenance treatment (in North Yorkshire).
Treatment Effect	Assumptions used in the HMEP toolkit; the effect of a treatment on the condition of the highway.

Treatment Strategy	Made up of Resurface & Reconstruct, Patch and Surface Dress; the most efficient split of treatments using the HMEP toolkit to achieve the best condition forecast.
UKPMS	United Kingdom Pavement Management System: The national standard for management systems and assessment of the local road network.

Appendix B


Highway Asset Management Policy
Highway Asset Management Strategy
Carriageway Infrastructure Asset Management Plan
Footway Infrastructure Asset Management Plan
Cycleway Infrastructure Asset Management Plan
Soft Landscaping and Trees Infrastructure Asset Management Plan
Safety Fencing and Barriers Infrastructure Asset Management Plan
Bridges and Structures Infrastructure Asset Management Plan
Street Lighting Infrastructure Asset Management Plan
Traffic Signals Infrastructure Asset Management Plan
Traffic Signs Infrastructure Asset Management Plan
Drainage Asset Management Plan
Carriageway Management Operational Guide
Footway Management Operational Guide
Cycleway Management Operational Guide
Soft Landscaping and Trees Operational Guide
Safety Fencing and Barriers Operational Guide
Highway Safety Inspection Manual
Highway Maintenance Investment Toolkit
Resiliance Plan
Winter Service Plan
Drainage Management Operational Guide
Carriageways Condition Data Guidance
Footway Condition Surveys Guide
Cycleway Condition Surveys Guide
Scheme Development Plan
SCRIM Operational Guidance

Appendix C

North Yorkshire County Council

Carriageway Infrastructure Asset Management Plan

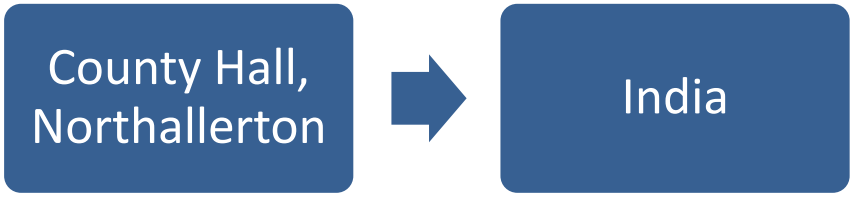
October 2018

1.0 Introduction

North Yorkshire contains over 8,500km of carriageway which is vital to the county's economy and supporting the movement of goods and people. It also contributes to the County Council's vision:

'We want North Yorkshire to be a thriving county which adapts to a changing world and remains a special place for everyone to live, work and visit'

The total length is the equivalent of the distance from County Hall in Northallerton, to India.



The carriageway infrastructure asset management plan gives an overview of the carriageway asset in its current state and its current rate of investment. It forms part of the Highway Asset Management Framework and is superseded by the Highway Asset Management Strategy.

For reference in regards to this document Appendix A contains a Glossary of Terms and Appendix B shows a map of the North Yorkshire County Council area broken into operational areas.

1.1 Carriageway Maintenance

The County Council has a duty to maintain the highway as outlined in Section 41 of the Highways Act 1980 and for the purposes of Section 58, which provides for special defence, North Yorkshire County Council undertakes inspections of the highway incorporating the carriageway, footway, grass verge and pathways upon which the public have a right of access and which are maintained at public expense.

Section 130 of the Highways Act 1980 places a general duty on the Highway Authority to 'assert and protect the rights of the public' in their lawful use of the highway.

North Yorkshire County Council's carriageways are designed with Design Manual for Roads and Bridges (DMRB) Standards in mind as well as our own standards, which are the Residential Highway Design Guide and Specification for Housing and Industrial Estate Roads and Private Streetworks.

1.2 Risk Management

Highway Authorities need to manage risk in order to make decisions relating to the asset management planning process. A risk can be defined as an uncertain event, which if came to fruition will affect our assets. Assessing the severity of a risk combines the likelihood of a perceived threat or opportunity happening verses its impact.

North Yorkshire County Council takes a risk-based approach to managing its carriageways both through its inspection regime, defect identification and response times. This approach has been set in accordance with local needs including safety, affordability and local priorities.

Details relating to inspection frequencies, procedures and condition assessments can be found in our Highway Safety Inspection Manual.

1.3 Carriageway Level of Service

The service levels are as follows:

- Maintain the Strategic Road Network at its current condition (category 2, 3a and 3b roads)
- Improve overall condition of the Local Road Network (category 4a, 4b and 5 roads)

Current funding levels are enabling the above targets to be achieved.

1.4 Carriageway Hierarchies

A carriageway hierarchy is a means of classification whereby the maintenance network is categorised on the basis of the volume, composition and purpose of traffic using it, whilst recognising the difference in traffic levels between urban and rural roads. The Council manages the highway network in relation to the specific network categories which have been derived in accordance with the Well-Managed Highway Infrastructure: A Code of Practice.

This functional hierarchy is the foundation of a coherent, consistent and auditable maintenance strategy and is fundamental in determining policy priorities. It is the link between maintenance policy and implementation and will assist in determining standards for design and new construction.

It is important that hierarchies are regularly reviewed to reflect changes in network characteristics and use so that maintenance policies, practices and standards reflect the actual current use of the network. Accordingly, the County Council will regularly review the hierarchies.

In addition, management of the network through the use of a road hierarchy will allow:

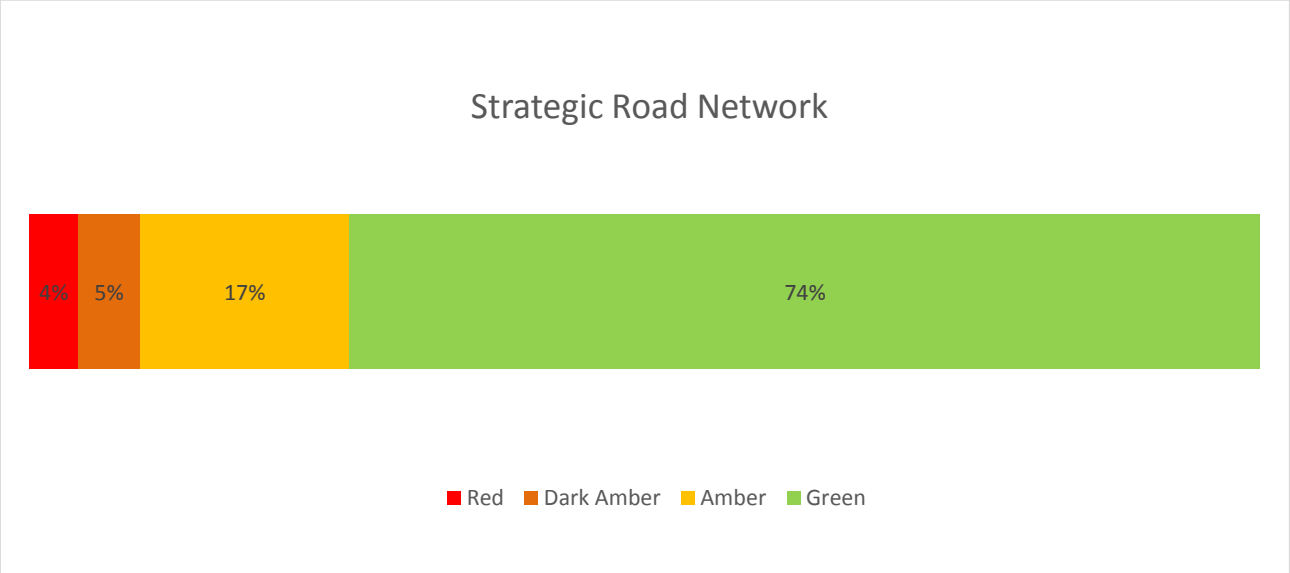
- programmes of inspections to be set to enable statutory duties to be fulfilled; and,
- allocation of resources according to the importance of the road within the network.

Category	Hierarchy Description	Type of Road General Description	Description
2	Strategic Route	Trunk and some Principal 'A' class roads between Primary Destinations	Routes for fast moving long distance traffic with little frontage access or pedestrian traffic. Speed limits are usually in excess of 40mph and there are few junctions. Pedestrian crossings are either segregated or controlled and parked vehicles are generally prohibited.
3a	Main Distributer	Major Urban Network and Inter-Primary Links. Short – medium distance traffic	Routes between Strategic routes and linking urban centres to the strategic network with limited frontage access. In urban areas speed limits are usually 40mph or less, parking is restricted at peak times and there are positive measures for pedestrian safety.
3b	Secondary Distributer	B and C class roads and some unclassified urban routes carrying bus, HGV and local traffic with frontage access and frequent junctions	In residential and other built up areas these roads have 20 or 30 mph speed limits and very high levels of pedestrian activity with some crossing facilities including zebra crossings. On-street parking is generally unrestricted except for safety reasons. In rural areas these roads like the larger villages, bus routes and HGV generators to the Strategic and Main Distributor Network.
4a	Link Road	Roads linking between the Main and Secondary Distributer Network with frontage access and frequent junctions	In urban areas these are residential or industrial interconnecting roads with 20 or 30 mph speed limits, random pedestrian movements and uncontrolled parking. In rural areas these roads link the smaller villages to the distributor roads. They are of varying width and not always capable of carrying two-way traffic.
4b	Local Access Road	Roads serving limited numbers of properties carrying only access traffic	In rural areas these roads serve small settlements and provide access to individual properties and land. They are often only single lane width and unsuitable for HGVs. In urban areas

			they are often residential loop roads or cul-de-sacs.
5	Back Street	Roads serving limited numbers of properties	Only applicable to urban areas, will typically be the rear access road to terraced properties

1.5 Asset Condition

Total Strategic and Local Road defect percentages from all surveyed roads (National and Local Indicators 2016/18).



Total Strategic Road Length Surveyed	Red	Dark Amber	Amber	Green
2177.2 KM	90.3KM	116.8KM	349.8KM	1590.3KM

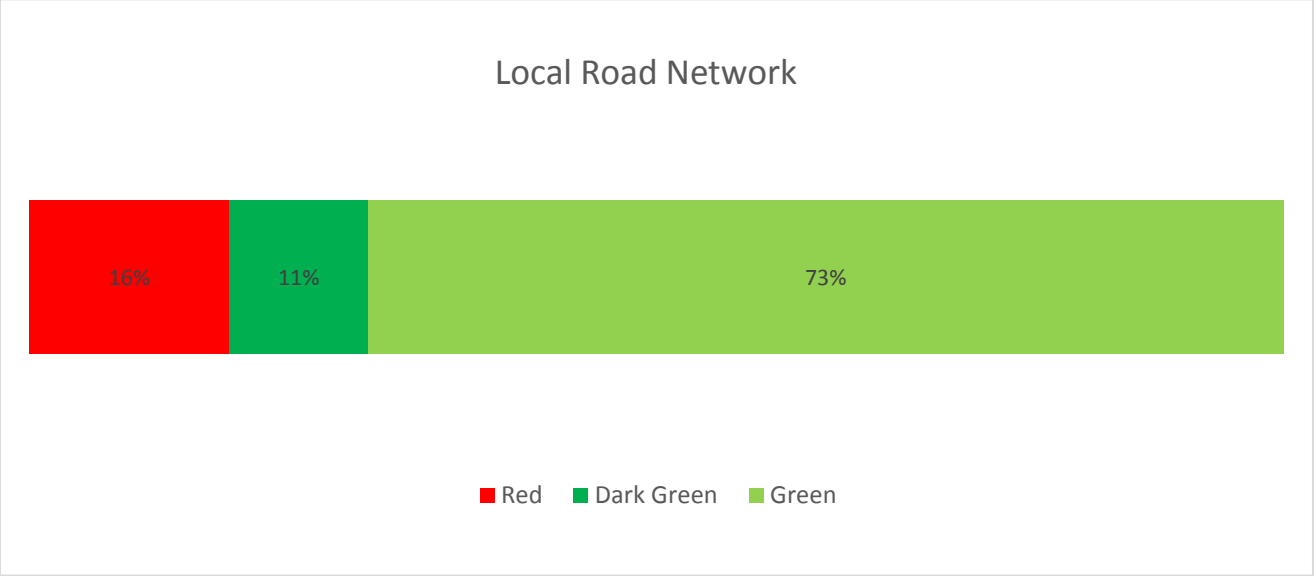
Strategic Condition Rating Indices Explained

GREEN - lengths where the carriageway is generally in a good state of repair (low RCI values). Green lengths have an RCI score below 40.

AMBER - lengths where some deterioration is apparent which should be investigated to determine the optimum time for planned maintenance treatment (mid-range RCI values). Amber lengths have an RCI score over 40 and below 70.

DARK AMBER - lengths where deterioration is apparent which should be investigated to determine the optimum time for planned maintenance treatment (high-range RCI values). Dark Amber lengths have an RCI score over 70 and below 100.

RED - lengths in poor overall condition which are likely to require planned maintenance soon (i.e. within a year or so) on a "worst first" basis (high RCI values). Red lengths have an RCI score of 100 or over.



Total Strategic Road Length Surveyed	Red	Dark Green	Green
6374.7 KM	989.5 KM	690.1 KM	4695.1 KM

Local Condition Rating Indices Explained

GREEN – lengths where the carriageway is generally in a good state of repair. Green lengths have a Structural score below 20, an Edge score below 20 and a Wearing Course score below 20.

DARK GREEN – lengths where some deterioration is apparent which should be investigated to determine the optimum time for planned maintenance treatment. Dark green lengths have a Structural score of between 20 and 85, an Edge score of between 20 and 50 and a Wearing Course score of between 20 and 60.

RED – lengths in poor overall condition which are likely to require planned maintenance soon (i.e. within a year or so) on a "worst first" basis. Red lengths have a Structural score of over 85, an Edge score of over 50 and a Wearing Course score of over 60.

Detailed asset conditions for both Strategic and Local Roads can be found on Appendix C

1.6 Data Requirement

Data collection is required for the carriageway in order to assess its current condition and to be able to identify a programme of works and identify future investment requirements.

The way in which the carriageway is surveyed to collect this data is illustrated in the table below:

Network Condition Data Requirement			
Hierarchy	**Survey Type**	**Frequency**	**Coverage**
2	SCANNER	Annual	100% in one direction (one side of the carriageway)
3a			
3b			
4a	CVI		50%
4b			
5			

1.7 Building a Scheme

This is the current process for establishing resurfacing/reconstruction schemes using the criteria below. This is split into the strategic and local road networks.

Full information on how this process works can be found on the Scheme Development Plan.

BUILDING A SCHEME							
		Resurface		**Surface Dress**		**Patch**	
Urban		Min scheme length:80m		Min scheme length: 50% of section length		Scheme length: 1m to 79.99	
Rural		Min scheme length: 80m		Min scheme length: 50% section length		Scheme length: 1m to 79.99	
Hierarchy		**Trigger**	**Extent**	**Trigger**	**Extent**	**Trigger**	**Extent**
Strategic Network	2	CI>70 Overall Defects within 30m joined	Lengths greater 80m	CI>70 Texture only, defects within 200m joined	50% of section length defective	CI>70 Overall Defects within 30m joined	Lengths less than 80m
	3a	CI>70 Overall Defects within 30m joined	Lengths greater 80m	CI>70 Texture only, defects within 200m joined	50% of section length defective	CI>70 Overall Defects within 30m joined	Lengths less than 80m

	3b	CI>70 Overall Defects within 30m joined	Lengths greater 80m	CI>70 Texture only, defects within 200m joined	50% of section length defective	CI>70 Overall Defects within 30m joined	Lengths less than 80m
Local Network	4a	CI>70 Overall, Defects within 30m joined	Lengths greater 80m	CI 40 to 70, Overall, defects within 200m joined	50% of section length defective	CI>70 Overall, Defects within 30m joined	Lengths less than 80m
	4b	CI>70 Overall, Defects within 30m joined	Lengths greater 80m	CI 40 to 70, Overall, defects within 200m joined	50% of section length defective	CI>70 Overall, Defects within 30m joined	Lengths less than 80m

1.8 Performance

The table below shows the National and local performance indicators (national indicators are reported to the Department for Transport (DfT), local indicators are for our own forward planning). Performance data is gathered from network condition surveys (SCANNER and CVI).

Performance Indicators		
Description	**Performance**	
	2016/17	**2017/18**
% Principal A roads where maintenance should be considered (NI 130-1)	2%	3%
% Non-principal B and C roads where maintenance should be considered (NI 130-2)	5%	5%
% of Unclassified roads requiring maintenance treatment (BVPI 224b)	20%	18%
% of 'Other' Heavily Used Roads (Cat 2, 3a and 3b - A roads) in poor condition and where maintenance should be considered soon National Parameters (LTP KPI 16)	4%	4%
% of Less well used Roads (Cat 4a, 4b and 5) in poor condition and where maintenance should be considered soon. (LTP KPI 17)	18%	16%
%age of Category 2 Roads where maintenance should be considered	1%	1%
%age of Category 3a Roads where maintenance should be considered	4%	4%
%age of Category 3b Roads where maintenance should be considered	4%	4%

%age of Category 4a Roads where maintenance should be considered	16%	13%
%age of Category 4b Roads where maintenance should be considered	19%	17%
%age of Category 5 Roads where maintenance should be considered	17%	22%

Results from the National Highways and Transport Network (NHT) survey reports for 2016 and 2017 relating to the KBI and BI analysis for North Yorkshire County Council are shown on the table below. This survey compares results with other Local Authorities in our chosen comparison group, taking part in each year's survey.

Performance Indicators			
Description	**Performance**		
	2017		
	Rank of 112	**Average Score**	**NYCC Score**
KBI 23 - Condition of highways	62	37	37
KBI 24 - Highway maintenance	56	53	53
HMBI 01 – Condition of road surfaces	62	39	39
HMBI 07-Speed of repair to damaged roads/pavements	65	32	31
HMBI 08-Quality of repair to damaged roads/Pavement	75	38	36
HMBI 20-Deals with mud on the road	104	51	46

Appendix A

Glossary

Asset Life Cycle	The life of an asset, from when a need for it is first established, through its acquisition, operation and any maintenance or upgrading, to its disposal.
Backlog	The cost required to bring the highway from its present condition to the target condition.
Carriageway	The section of the highway designed for vehicles, and consists of both sides of a single or dual carriageway or a motorway. Includes: road surface and structure, kerbs, lining, road studs and cycle lanes in the carriageway Excludes: Footways, gullies, ironworks and any dedicated cycleways
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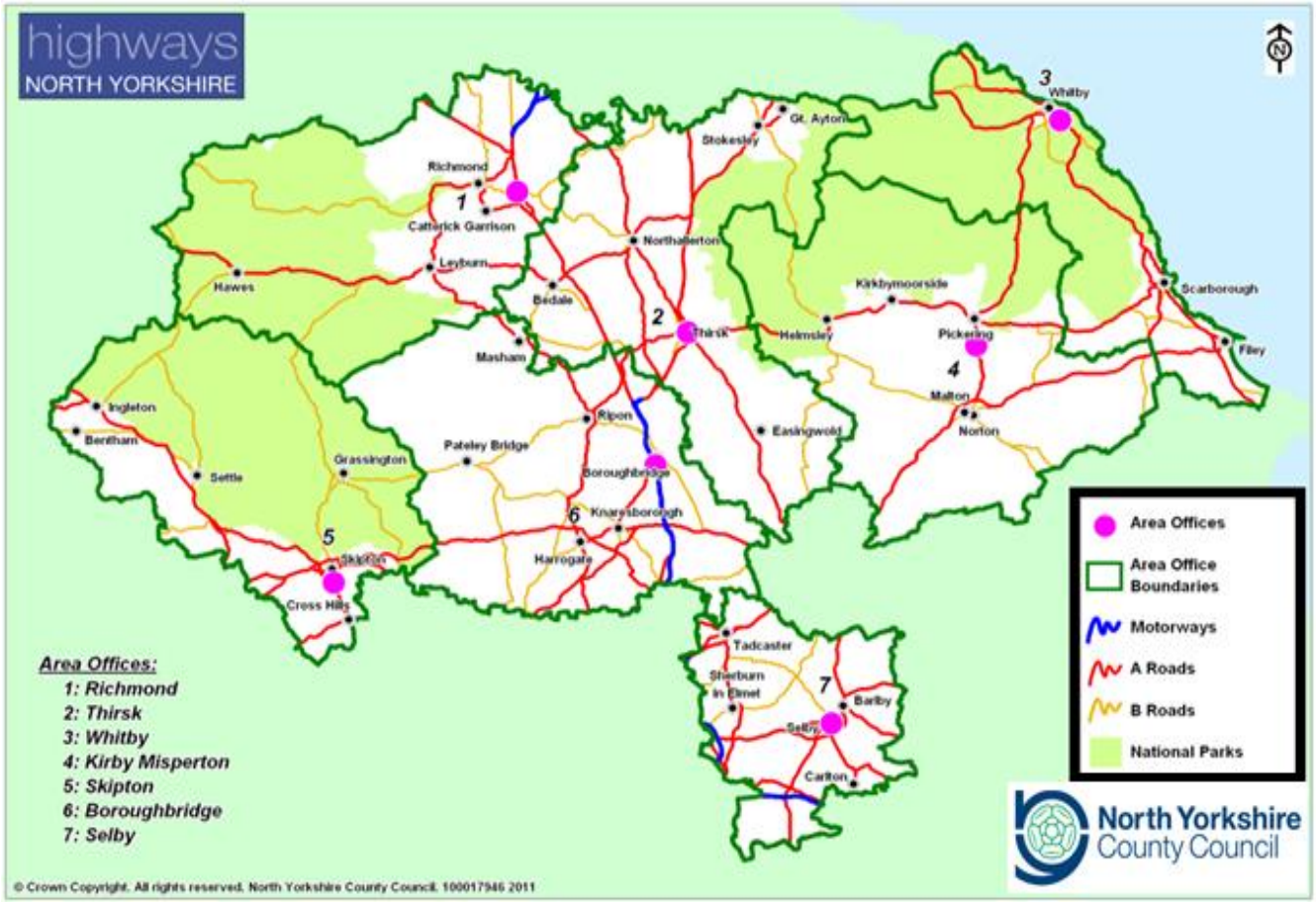
Treatment Strategy	Made up of Resurface & Reconstruct, Patch and Surface Dress; the most efficient split of treatments using the HMEP toolkit to achieve the best condition forecast.
UKPMS	United Kingdom Pavement Management System: The national standard for management ems and assessment of the local road network.

Appendix B

Plan of North Yorkshire showing the locations covered by each Area Office.



Appendix C

The condition of the carriageway asset is split into the strategic and local road networks defined as the Local Transport Plan's 'heavily used' and 'lesser used' networks i.e. Strategic - categories 2, 3a and 3b and Local Roads - categories 4a, 4b and 5. Locations covered by each of the area offices can be found on the plan on Appendix B.

Strategic Network

Objective		Performance Indicator	Current Condition (2017/18)		
			RED	DARK AMBER	AMBER
HIAM Policy 2015	Support flourishing local economies by delivering reliable and efficient transport networks and services	Hierarchy 2 Total Length = 358km	1% 3.58km	7% 25.06km	10% 35.8km
		Hierarchy 3a Total Length = 662km	4% 26.48km	7% 46.34km	15% 99.3km
		Hierarchy 3b Total Length = 1020km	4% 40.8km	5% 51km	16% 163.2km

Local Roads

Objective			Current (2017/18)	
			RED	DARK GREEN
HIAM Policy 2015	Support flourishing local economies by delivering reliable and efficient transport networks and services	Hierarchy 4a 1842km	13% 239.46km	8% 147.36km
		Hierarchy 4b 4491km	17% 763.47km	12% 538.92km

Appendix D

North Yorkshire County Council

North Yorkshire County Council

Street Lighting Asset Management Plan

Guidance for all stakeholders on the design, installation, adoption and maintenance of street lighting in North Yorkshire

Document Control	Date	Version	Comment
Draft Document	24/10/18	1.1	

Appendix D

Title	Street Lighting Practice for North Yorkshire
Document Type	Protocol
Author	Paul Gilmore, amended by P Gilmore
Approved By (including date)	BES Director and BES Executive
Approval Date	
Issue Date	
Review Date	
Reviewing Officer	Electrical Engineering Manager
Links to other NYCC documents	▪ Management of Existing Trees in the Highway ▪ Trees within New Developments in the Highway ▪ Passive Safe Protocol

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1.0 Introduction

The purpose of this document is to outline North Yorkshire County Council's requirements for the installation and maintenance of roadway lighting. The document is administered by the County Council's Electrical Engineering Team, referred to hereafter as The County's Electrical Team.

This a dynamic document subject to periodic review. At present the document specifically relates to North Yorkshire County Council's street lighting columns however, it will be amended later this year to incorporate illuminated traffic signs following the latest revision to the Traffic Sign Regulations and General Directions (TSRGD).

All information in this current version is relevant to 24 October 2018.

2.0 Overview

North Yorkshire is England's largest County by area. It is overwhelmingly rural and its population of over half a million people is widely scattered over 3,200 square miles. Larger centres of population include Harrogate, Northallerton, Ripon, Richmond, Skipton, Selby, and Scarborough and there are many historic market towns and attractive villages that are served by over 5,600 miles of public highway in 730 Parish Council areas. The County contains some of the finest landscape in the country including two stretches of Heritage Coast, the Yorkshire Dales National Park and the North York Moors National Park.

As part of North Yorkshire's Highway Maintenance Service, the County Council is responsible for the maintenance of over 50,400 street lighting columns and 7,850 illuminated traffic signs.

In addition to maintaining its own roadway lighting, the County Council manages a footway lighting maintenance service on behalf of 60 Parish, Town and District Councils.

3.0 Definitions

Street lighting consists of roadway and footway lighting. Roadway lighting is provided by the County Council whilst footway lighting is most often provided by the District, Town or Parish Council. In order to reduce public confusion, the County Council coordinates all communications (such as enquiries, comments, faults etc) on street lighting.

Section 270 of the Highways Act (1980) describes footway lighting as a system of lighting in which either no lamp is mounted more than 13 feet above ground level or no lamp is mounted more than 20 feet above ground level and there is at least one interval of more than 50 yards between adjacent lamps in the system.

Roadway lighting is any system of lighting that is not a footway lighting system.

North Yorkshire County Council's Roadway Lighting is generally provided to improve road safety and personal security for highway users. There are around 50,400 street lights operated by the County Council in North Yorkshire and it costs approximately £1.85million per year to power them.

4.0 Street Lighting Service Provision

There is no legal or statutory obligation for North Yorkshire County Council to provide or maintain roadway lighting except where there are road humps present and the speed limit exceeds 20mph.

The Highway Act 1980 empowers a Highway Authority to provide lighting for any highway for which they are the Highway Authority however, it does not impose a duty to do so.

All roadway lighting within North Yorkshire is installed and maintained at the County Council's discretion.

It is the Council's practice to install new street lighting in the following circumstances:

- All roundabouts
- Adjacent to road humps (where the speed limit exceeds 20mph)
- Traffic signal junctions that have a pedestrian phase
- Pedestrian crossings
- All new housing developments (unless the local Parish Council request a reduced standard scheme that they will maintain or where the rest of the village is unlit).
- As an accident reduction measure (subject to available finance)
- To prevent/minimise crime and antisocial behaviour (subject to available finance)

The street lighting service allows residents and visitors to access commercial, leisure and tourism activities outside of daylight hours, supporting the County Council's Social Inclusion Strategy.

Street lighting installation and any electrical work associated with the installation of illuminated traffic signs, bollards, beacon poles or feeder pillars, will be carried out in accordance with the requirements of BS7671: Requirements for Electrical Installations, by an approved Street Lighting or Electrical Contractor who is a current Member of the Highway Electrical Association (HEA). A list of HEA Members can be obtained from The County's Electrical Team

All North Yorkshire County Council Roadway Lighting and associated cable works shall be installed within land which is Highway Maintainable at Public Expense or in land that is proposed will be adopted as highway.

5.0 Maintenance

5.1 The County Council endeavours to keep all street lighting fully operational by undertaking proactive maintenance of all equipment on a fixed maintenance cycle. Depending on the lantern type the maintenance cycle will be one visit every two, four or six years.

Equipment Type	Lamp Type	Maintenance Interval	Lamp Change
Illuminated Traffic Sign	Compact Fluorescent	2 years	2 years
	LED	2 years	Not required
Street Light	Low Pressure Sodium (yellow)	4 years	4 years
	High Pressure Sodium (soft yellow)	6 years	6 years
	High Pressure Mercury (white)	2 years	2 years
	Ceramic Metal Halide (white)	2 years	2 years
	Compact Fluorescent (white)	2 years	2 years
	LED	6 years	Not required

During the maintenance visit, a visual inspection of all components is undertaken, all equipment is cleaned, a new lamp is installed (except for LED equipment), any defective components are replaced and the street light/sign light is tested for correct operation. Once every 6 years each street lighting column and illuminated traffic sign/bollard will also receive the full range of electrical tests prescribed by BS7671: Requirements for Electrical Installations. This will take place concurrent with a routine cyclical maintenance visit.

During any maintenance visit the operative may recommend that the interval between future inspections be increased or decreased as a result of the findings of their inspection.

Failure to carry out an inspection must be recorded along with the reason together with any suggestions that may facilitate any future inspection. This could include traffic management requirements, access issues, damaged or missing columns/signs

5.2 This proactive maintenance has helped reduce the number of annual defects from 12,500 in 2005/6 to 4,500 in 2017/18.

The Council prioritises street lighting defects into Emergencies, Category 1 and Category 2 defects. Full details of defects and categories can be found in appendix B.

5.2.1 Emergencies – 3 hour response

A 3hr response is necessary in order to react to any defect that poses an immediate risk to public safety. This can include lighting columns or signs that have been damaged during road traffic accidents, any installation where live wires may be exposed such as a lighting column with a door missing, lighting columns loose in the ground which may carry a risk of collapse, or loose brackets/lanterns which may fall off. Full details can be found in appendix B.

5.2.2 Category 1 Defect – 24 hour response

This constitutes a defect, other than an emergency, where it is deemed that a rapid response is required. This can include street lighting in critical locations such as pedestrian crossings, roundabouts or main road junctions, lighting adjacent to schools (in the Winter months) or where a section of consecutive street lights are defective. Full details can be found in appendix B.

5.2.3 Category 2 Defect – 7 day response

This constitutes any defect that is not an emergency or a Category 1 defect. The defect will be attended within 7 working days however a repair might not be possible during the first visit if, for example, bespoke equipment is required, non-standard traffic management is required or there are access issues which may require a second visit using scaffolding.

5.2.4 Electricity Company Supply Failures.

This is a failure of the electricity supply. North Yorkshire County Council is not permitted to work on the Electricity Company underground cable network therefore all faults of this nature must be passed to the electricity company for repair.

The electricity company may take up to 25 working days to repair service to a street lighting column. Quite rightly, restoration of domestic and commercial properties take priority however, street lighting restoration is normally completed well within the electricity company maximum time scales.

5.3 Since 1st April 2012, more than 95% of all street lighting defects have been attended within the prescribed timescales.

The County Council has a new on-line service that includes a map of almost all street lights in North Yorkshire. This allows customers to accurately select a specific street light and generate a fault report that will be automatically passed to the County's Electrical Team. In the event that the street light does not belong to the County Council the customer will be directed to its correct owner. The Council's on-line fault reporting system can be accessed using the following link:

http://www.northyorks.gov.uk/article/25604/Report-a-street-light-fault

5.4 **Well Lit Highways (Design Manual for Roads and Bridges –DMRB))**

Maintenance policies and strategies should provide a cost effective solution to keeping the street lighting network in safe working order. The guidance given in the Code of Practice for Highway Lighting Management "Well Lit Highways" produced by the UK lighting Board in 2004 should be adhered to.

The following recommendations are included in the latest version of Well Lit Highways; the comments in **bold** represent North Yorkshire County Council's Policies and Procedures in response to those recommendations:

5.4.1 The authority's policy in relation to the provision of its public lighting service should be clearly stated and should cover all the organisation and services involved in delivering the service. (3.2)

Currently, street lighting practice is covered in two documents. Design requirements and specifications for new schemes are outlined in the street lighting asset management plan whilst maintenance policy and timescales are covered within the Council's Highway Maintenance Contract.

5.4.2 All personnel engaged in public lighting operations should be trained in accordance with national guidelines such as those produced by the Institution of Lighting Engineers and issued with the appropriate certification.

The County Council's street lighting officers are either fully qualified electrical engineers, and Members of the Institution of Lighting Professionals, or fully qualified time served electricians. All of our contractor's staff are fully approved and part of the HEA sector scheme for competency.

5.4.3 No operatives should be placed at risk due to lack of skills on the part of themselves or others dealing with electrical equipment.

All operations in relation to electrical equipment are governed by the Electricity at Work Regulations and the IEE Wiring Regulations. All contractors' personnel are qualified for the duties that they are being asked to perform and are evaluated and trained as required. Full risk assessments and method statements are in place for every aspect of the street lighting service.

5.4.4 Each authority should establish and maintain up to date and accurate inventory of all highway electrical equipment (including authority cable networks) as part of its asset management system.

North Yorkshire County Council is responsible for the maintenance of approximately 50,400 street lighting columns and 7,850 illuminated traffic signs. Details of all assets are recorded in an inventory which includes a full service history for each asset. The inventory is continually amended to incorporate changes and additions to the Council's lighting and signing stock following improvements to the network and adoption of new lighting from housing developers.

5.4.5 Authority cable networks should be recorded on Ordnance Survey based plans or alternatively on a Geographic Information System.

This information is held on "as built" drawings and could only be added to a Geographic Information System (GIS) if additional resources and finance is made available.

5.4.6 An asset management system should be used to control and record all cyclical and reactive maintenance activities.

All street lighting activities including routine and non-routine maintenance, new works and installations are logged on Symology, the County Council's asset management system.

5.4.7 Cyclical maintenance intervals for lighting installations should be determined to ensure the installation's correct operation and light output, minimize failures and maximize life.

Advances in lamp technology and improved street lighting and signing apparatus have allowed the County Council to increase maintenance intervals. (See item 5.1)

5.4.8 Lamp replacement policies should be carefully evaluated taking account of local technical and geographic considerations, to maintain light output whilst limiting the number of lamp failures to an acceptable level. (4.5)

All lamp replacement, with the exception of LED technology, is concurrent with a routine cyclical maintenance visit. All LED lanterns are guaranteed for a minimum of 20 years and most new equipment carries an extended warranty making lamp change unnecessary.

5.4.9 Each authority should establish and operate a system for monitoring the operational status of its equipment.

It is impractical for the County Council to engage in routine night time scouting to monitor the operational status of its equipment. The size of the County makes such an option extremely expensive. A limited number of night time inspections *are* undertaken in areas where concerns are raised about high numbers of defects.

5.4.10 Each authority should establish and operate a system for the reporting of faults by the public. The system should allow for the reporting of emergencies 24 hours per day each day. (5.2)

We currently rely on members of the public and the numerous Parish and Town Councils within North Yorkshire to report lighting defects. These can be reported via telephone, e-mail or post. The County Council has introduced an online GIS based fault reporting system which will provide a more user friendly, customer focused approach to fault reporting. Approximately 70% of all street lighting faults are now reported via this system.

A link to the On-line fault reporting system is included in item 5.3 of this document.

5.4.11 Each authority should establish and enforce specific response times for each maintenance task.

There is a hierarchy of response times for all street lighting and illuminated sign defects:

Emergency: 3hr response
Category 1: 1 day response
Category 2: 7 day response

All other defects will be deemed Category 2 with a maximum 7 day response time. (See item 5.2)

5.4.12 Each authority should determine the frequency of electrical inspection and testing and carry out such works at a frequency of not less than once every 6 years.

Full electrical inspection and testing is undertaken on all street lighting and illuminated sign equipment once every 6 years. This procedure is carried out concurrently with the routine cyclical maintenance visit outlined above.

5.4.13 The condition of all enclosures, including the general structural condition of lighting columns, illuminated traffic sign posts, feeder pillars, etc. should be recorded on the operative report at each maintenance visit.

Condition data is collected during routine cyclical maintenance visits and during any defect repair visit undertaken during the intervening period.

5.4.14 New steel lighting columns should, as a minimum, be hot dipped galvanised and consideration should be given to the application of further protective coating by the lighting column manufacturer at the time of manufacture.

Since 1996 all new street lighting columns installed by North Yorkshire County Council were hot dip galvanised during the construction process.

Since 2008 all new street lighting columns and sign posts are fully galvanised and have an additional thermo-plastic coating giving a minimum 40yr protection.

5.4.15 A programme for the maintenance and reapplication of protective coatings for *in situ* lighting column or illuminated traffic sign post should be determined and implemented taking account of the location, existing protective system and any other environmental factors including atmospheric conditions.

Columns and posts installed prior to 2008 still benefitted from the galvanising process. Where additional paint treatment was provided an assessment is undertaken during each maintenance visit to determine whether a reapplication of the treatment is required. It is expected that any treatment would last a minimum of 10 years.

5.4.16 A risk assessment strategy for the management of the structural safety of lighting columns and illuminated traffic sign posts should be developed and implemented and where necessary structural testing of lighting columns and illuminated traffic sign posts should be carried out. The asset management systems should include sufficient data as to the location, type and age of the equipment to allow the risk assessment to be carried out.

A risk based assessment is undertaken on all lighting columns and traffic sign posts. The assessment includes age, construction material, known design issues and asset condition data collected during routine cyclical maintenance. Additional non-destructive testing is also undertaken where appropriate. The Council's structural inspection regime is outlined in Appendix C.

5.4.17 Each authority should negotiate a formal service level agreement with the Distribution Network Operator (DNO). (6)

The Council has an existing Service Level Agreement (SLA) with Northern Powergrid (Northern) and Northern Powergrid (Yorkshire). The DNO would seek to undertake any necessary repair to a street lighting service within 25 working days. (See section 17)

5.4.18 Each authority should ensure that their procedures, and those of any contractor, do not prevent the DNO from meeting agreed performance standards.

The Council's street lighting contractor has recently achieved Independent Connection Provider (ICP) status which allows it to undertake service connections, transfers and disconnections. This covers all services with the exception of electricity supply failures which must still be undertaken by the local Electricity Company, Northern Powergrid.

5.4.19 Each authority should consider the use of competitive tendering for highway electrical maintenance as part of its Best Value policy.

All street lighting and illuminated signing installation and maintenance has been subject to competitive tendering since 1990. The Council's current 10 year (2012-2022) street lighting maintenance contract is with Ringway Infrastructure Services.

5.4.20 Each authority should seek competitively tendered supplies of electricity for its highway electrical equipment.

The Council procures electricity through the Yorkshire Purchasing Organisation. YPO manages the utilities' contracts for a consortium of over 90 authorities through a dedicated team of officers focused entirely upon the management of the consortium's combined gas and electricity needs.

5.4.21 To meet set national targets to reduce carbon emissions introduced by the CRC Energy Efficiency Scheme, Authorities should consider a number of options. These options include switching off lighting as well as investigating other ways of energy reduction that may be achieved through the use of remote monitoring and dimming using a Central Management System (CMS).

The Council has completed 4 year street lighting energy reduction programme that now sees approximately 53% (26,500) of our street lights switch off between midnight and 5am when traffic and pedestrian movement is at a minimum.

All new street lighting will be subject to a risk based assessment that will identify which lights need to remain operational throughout the night. All others will be switched off between the target hours. (see item 8.0)

The Council has also commenced the replacement of our existing street lighting with new energy efficient LED units. It is anticipated that the average energy saving per street light will be between 50 and 60%. See section 9 for more information on LEDs

5.4.22 In an effort to reduce carbon emission, non-illuminated retro-reflective signs and bollards are being used more frequently. The Traffic Signs Regulations and General Directions (TSRGD) - Schedule 17 - specifies the format of traffic signs and when they should be lit. Special authorisation is required from the DfT for the use of retro-reflective signs and bollards but although authorisation may be granted to use a certain product, the decision to use it at each location should be made by an assessment of accident data also taking into account other relevant variables such as, road alignment, pedestrian and vehicular activity etc.

Where possible the Council is replacing illuminated signs with retro-reflective or solar powered equipment. This process is currently undertaken when the units are damaged, have reached the end of their usable life or where the existing lamp type no longer meets European Legislation in terms of efficiency.

5.4.23 Authorities should be aware that the DfT considers there to be too many traffic signs and other extraneous street furniture.

Where practical the Council attaches new road traffic signs to street lighting columns. All columns are manufactured to a standard that permits the attachment of at least one average sized traffic sign. Street lighting columns are also used to support a variety of other attachments including bus stop signs, flower baskets, Christmas lighting, banners, CCTV cameras, speed matrix and small Vehicle Activated Signs.

5.4.24. N/A

5.4.25 European Directive 2005/32/EC for Energy using Products

The Council has complied with the requirements of the European Directive by initiating a replacement programme for the inefficient lamp types. It is also assisting North Yorkshire's various Town and Parish Councils in addressing this issue on their footway lighting.

5.4.26 Authorities should be aware that guidance has been issued by the ILP regarding the use of passively safe lighting columns and sign posts, (TR30 Passive Safety: *Guidance on the implementation of Passively Safe Lighting Columns and Signposts*)

In 2014 the Council produced a Passive Safety Risk Assessment that evaluated any new street lighting or signing installation to determine when and if Passively Safe equipment should be utilised. This equipment minimises the severity of injury to occupants of a vehicle that collides with it. It generally includes an automatic disconnection system that removes the power supply in the event of an impact. This assessment is undertaken on any new street lighting project. (See section 16)

5.4.27 Authorities should seek to minimise the impact of obtrusive light.

All new and replacement lighting schemes are designed to minimise light spillage and light pollution in compliance with the Institute of Lighting Professional's (ILP's) Guidance Notes for the Reduction of Obtrusive Light.

5.4.28 When introducing or replacing road lighting schemes, consideration should be given to eliminating or minimising the amount of obtrusive light. Obtrusive light for purpose of this Complementary Guidance is defined as: 'artificial light that, due to quantitative, directional or spectral attributes, significantly increases outdoor light levels or shines (spills) where it is not needed, impairing activities, causing annoyance to people, compromising an existing dark landscape, and/or impacting natural systems (e.g. plants, animals, insects).

Actions aimed at eliminating or minimising obtrusive light include:

- **Designing to the minimum standard permissible in BS5489**
- **Using lighting fitting with a maximum upward light output ration of 5%**
- **Any necessary lighting located adjacent to sites of special interest, National Parks or Areas of Outstanding Natural Beauty will use lighting with a colour temperature no greater than 3000K.**
- **Consideration will be given to switching street lighting off between midnight and 5am in areas with minimal road usage**

- **The Council has trimmed street lighting burning hours by moving from standard 70/35lux PECs to 20/20lux PECs**
- **Light screens can be provided where appropriate.**

5.5 All works shall be carried out in a safe and proper manner in accordance with the requirements of the Construction (Design and Management) Regulations 2007 which can be accessed at:
http://www.legislation.gov.uk/uksi/2007/320/contents/made

Guidance information on the current regulations can be down loaded at: http://www.hse.gov.uk/construction/cdm.htm

5.6 In England and Wales the Clean Neighbourhoods and Environment Act 2005 applies and Section 102 of the legislation now makes artificial light a potential statutory nuisance. The Act may be downloaded from:
http://www.legislation.gov.uk/ukpga/2005/16/contents

5.7 **Well Managed Highway – Additional Requirements**

5.7.1 The New Roads and Street Works Act 1991 sets out the duties of Street Authorities to coordinate and regulate works carried out in the highway. All underground cables should be recorded in accordance with the Electricity Safety, Quality and Continuity Regulations 2002. Where the positions of underground cables are known a record is currently kept as a pdf plan held by the County Council's Electrical Engineering Team.

There are many locations where the locations of underground cables are assumed, particularly within Harrogate, Knaresborough and Scarborough together with supplies to traffic islands, splitter islands and roundabouts. There are also numerous traffic signs within North Yorkshire that are supplied by private cabling for which there are no plans. Any excavation in and around these signs/islands should be carried out in accordance with NRSWA, the County Council's Electrical Engineering Team will mark out any cabling on request.

The County Council's street lighting maintenance contractor is in the process of collecting the data necessary to identify and locate all privately owned underground cables. This is a long term project which aims to collect all cable details and locations in accordance with the Code of Practice for recording of Underground Apparatus in Streets.

5.8 Crime and Disorder Act 1998
Section 17 of the above act states the duty to consider crime and disorder implications. Within North Yorkshire this is evidenced in the Part-Night lighting exemption for crime and antisocial behaviour.

North Yorkshire County Council will also take incidents of Crime into account when considering an application for new street lighting. The process for requesting additional street lighting is set out in Section 20 of this document.

5.9 Central Management System (CMS)
CMS provides remote dynamic street lighting control which can enable the operator to choose when to switch lighting on or off and/or by how much to reduce the lamp power, ie. Dimming.

All current CMS systems require the use of individual "nodes" at each street lighting column together with control units that can manage the data from a specific number of columns. Unfortunately, within North Yorkshire, the large geographical area coupled with the relatively sparse population of street lighting columns has prevented the Council from introducing such a system due to the very high relative cost.

It is possible that such systems may be introduced in the more urban areas of the County such as Harrogate and Scarborough, as and when Smart Cities Initiatives are implemented.

6.0 Obtrusive Lighting

6.1 Obtrusive light is light that falls outside the area to be illuminated which can cause discomfort, annoyance and distraction. This is referred to as light pollution and can be divided into three main categories:

6.1.1 **Sky Glow**: an increase in the brightness of the night sky caused by light, emitted directly upward or reflected from the ground, which is scattered by dust and gas molecules in the atmosphere. This reduces the ability to see stars.

6.1.2 **Glare** falls in to 2 categories, Disability Glare and Discomfort Glare.

Disability glare can be particularly dangerous to motorists causing the eyes to be dazzled often resulting in an inability to perceive objects or hazards on the road. The effects are prolonged because the eye takes time to re-adapt to the ambient light level.

Discomfort glare is a more subjective feeling of annoyance caused by a high level of luminance in the field of view.

Both types of glare are considered to be a statutory nuisance under Section 102 of the Cleaner Neighbourhoods and Environment Act (2005).

6.1.3 **Light Trespass**: This is the poor control of outdoor lighting that crosses property boundaries. It can detract from property values and can also have a significant impact on quality of life.

6.2 For road lighting installations, light emitted near to and above the horizontal should be minimised. The use of full cut off luminaires installed at 0°uplift will minimise visual intrusion

as well as upward light which is a cause of sky glow. More information on light pollution, light trespass and obtrusive light can be found in the ILP Guidance Notes for the Reduction of Obtrusive Lighting: https://www.theilp.org.uk/documents/obtrusive-light/

6.3 In England street lighting is not specifically exempt from the Clean Neighbourhoods and Environment Act 2005 but it is unlikely to qualify as a statutory nuisance as generally speaking a street light is not considered to be within the definition of "premises".

6.4 Light screens or shields can be affixed to lanterns and columns to prevent light spillage on to private property. Locations will be assessed on an individual basis and screens/shields will only be installed where they do not compromise the lighting performance.

7.0 Heritage Style Street Lighting

7.1 *"The declaration of a conservation area does not establish a pre-requisite for period style lighting. Modern equipment of good functional design is often suitable".* BS5489-1(2003):27

7.2 The lighting class should be determined from BS 5489-1(2003):39 using Environment Zone E1 or E2 together with the appropriate local Crime Rate indicator and traffic flow rates.

7.3 The daytime appearance of any lighting installation should relate to the surroundings. Appearance, location and scale should therefore be taken into account in the design.

7.4 Period style equipment is very noticeable during daytime conditions and in some circumstances may overwhelm the area covered by the Conservation Order. In such circumstances a modern design in a sympathetic colour should be considered. Flat Glass lanterns designed to minimise light pollution and light spillage should also be used where possible.

7.5 Where it is deemed appropriate to use period style equipment, a full specification shall be provided to the County's Electrical Team for approval. Equipment shall match, in appearance, that which is indicated in Standard Detail HE 17 (Period Equipment 5m/6m mounting Height) for columns of 5m or 6m in height, or Standard Detail HE 18 (Period Equipment 8m /10m mounting Height) for columns of 8m or 10m in height.

7.6 North Yorkshire County Council will only install new Heritage Style street lighting where the difference in cost between a standard lighting scheme and the Heritage style scheme is met by a third party.

7.7 Where period style equipment has been agreed, and the column is to be installed in an area inaccessible for a mobile access platform, a base hinged tubular section raising and lowering column should be used. A two piece embellishment is permitted which includes the ladder bar and mid shaft embellishment. The lantern shall have a cast frog. The column shall only be lowered by using the column manufacturer's recommended mechanical winch system.

7.8 Where period style equipment is used on a new housing development, the developer shall pay a commuted sum appropriate for the increase in future maintenance costs. The amount shall be agreed with the County's Electrical Team on a scheme by scheme basis.

7.9 Where period style lighting equipment has reached the end of its useable life, a scheme of an equivalent specification may be considered however, the difference in cost between a standard lighting installation and the decorative scheme must be met by a third party. This applies to all heritage or decorative lighting except where the existing installation is "listed". Where the street lighting is included within the "listed" status it will be replaced on a like for like basis with all costs borne by the County Council.

7.10 **All new Heritage style lighting should use LEDs with a colour temperature no higher than 3000K.**

8.0 Energy Conservation

8.1 There are increasing pressures on local authorities to make savings in energy consumption and service costs.

The current budget position has forced us to look closely at how we make best use of our resources to maintain those services that the public values most. Street lighting provision is one service area in which many local authorities have made significant energy and cost savings. Our current energy costs for street lighting provision in North Yorkshire are around £2.1million per year and we produce over 10,500 tonnes of carbon emissions (C02). The Council's energy reduction programme has already reduced street lighting energy consumption by approximately £0.4million per year with an associated reduction in carbon emissions of over 3,000 tonnes.

All street lights in North Yorkshire used to switch on between dusk and dawn. Since the implementation of the energy reduction programme approximately 53% of the street lights

now switch off between midnight and 5am (+/- 20min). This time period was selected following the assessment of traffic counts which identified when road usage is at a minimum.

8.2 The potential for switching off each individual lighting column is assessed using the following risk based criteria:

- Main traffic routes and road junctions (dimming may be introduced if appropriate)
- Locations with a significant night-time road traffic accident record,
- Potential hazards in the highway such as traffic calming, speed humps and road crossings,
- Parts of town centres that have concentrated night-time activity or economy,
- Areas covered by Council or Police CCTV operations,
- Areas with 24hr operational emergency services, including hospitals,
- Lights outside sheltered housing and other residences accommodating vulnerable people,
- Areas with a significant record of relevant night-time crime or anti-social behaviour in keeping with the requirements of Section 17 of the Crime and Disorder Act 1998,
- Lights adjacent to flights of steps or stairs

Any street light that does not meet one or more of the above criteria will be switched off between midnight and 5am.

8.3 Details of the Council's energy reduction programme together with maps indicating which lights have been converted to part night can be found at:

http://www.northyorks.gov.uk/article/25645/Street-lighting---energy-reduction-programme

8.4 North Yorkshire County Council is committed to reducing crime and antisocial behaviour and will retain full night operation of any street lighting where requested by North Yorkshire Police.

The County Council will continue to review other methods for reducing energy costs and carbon emissions. These include switching lights ON later and OFF earlier, solar powered signing and using low energy technology such as LED lamps which can provide an equivalent level of illumination at a much lower wattage. The County Council may also remove street lighting that is now considered superfluous. This only applies to a very limited number of street lighting columns.

8.5 Highway Authorities have a duty of care to the road user. Any loss to an individual as a consequence of the inappropriate use of the powers granted by the Highway Act (1980) may result in action being taken to recover the loss.

The Duty does not imply any duty on the Highway Authority to keep the public lighting lit which has allowed us to switch some lighting off between midnight and 5am. However, as an authority responsible for the maintenance of public lighting we must still be able to

demonstrate that we have systems in place to maintain any public lighting in a safe condition. This includes the detection of dangerous equipment.

9.0 LED Lighting

9.1 As part of the County Council's on-going commitment to reduce energy consumption and to minimise our carbon footprint, its street lighting equipment specification has been updated to stipulate the use of light emitting diodes (LEDs) on all new and replacement lighting projects.

The use of LED technology on North Yorkshire County Council's street lighting and illuminated traffic signs brings a number of benefits:

- Reduced energy consumption therefore reduced energy costs. LEDs can provide an equivalent level of illumination whilst saving up to 50%-60% energy compared to a standard street light,
- Reduced carbon emissions,
- Longer life with low maintenance requirements. New LED units have up to 20 year guarantees with maintenance only required once every 6 years,
- Instant lighting: LEDs brighten up immediately when switched on whereas older lanterns can take up to 10 minutes to reach full brilliance,
- LED lights are free from toxic materials and are 100% recyclable.

9.2 The Council has commenced a replacement programme designed to remove the older most inefficient lighting and replace it with new energy efficient LED lighting.

The ongoing programme is targeting inefficient low pressure sodium lighting which is expensive to buy and must be maintained on a more frequent basis. We are also targeting high wattage lanterns used extensively in town centres such as Harrogate and Scarborough, and rural roundabouts that have high maintenance costs due to additional traffic management requirements.

9.3 Colour Temperature

Standard LED lanterns shall operate at a colour temperature of 4000K. All heritage style street lighting, or lighting within the two National Parks, shall operate at a colour temperature not exceeding 3000K.

10.0 Attachments to Street Lighting Columns

Attachments to concrete, plastic, composite or aluminium lighting columns are not permitted under any circumstances nor are attachments to steel columns identified as passively safe (See section 16).

With the exception of litter bins and dog waste bins the following attachments may be made to steel street lighting columns subject to prior permission sought from the County's Electrical Team:

In addition to seeking prior approval from the County's Electrical Team, any work undertaken on the highway may only be done by operators who are suitably qualified for the signing, guarding and maintenance of the site in accordance with Chapter 8 of the Traffic Signs Manual and the Code of Practice for Safety at Street Works and Road Works. No works may commence until proof of Public Liability Insurance for the sum of £5million in any one claim is provided.

In certain circumstances a full structural test may be required in order to prove that the column is capable of supporting any additional load. The cost of such a test will be borne by the applicant.

10.1 Signs

10.1.1 Official signs prescribed by the Traffic Sign Regulations and General Directions may be attached to NYCC street lighting columns subject to the following conditions:

- Permission to site the sign on the highway is supplied by the relevant Area Highway Office.
- The County's Electrical Team assesses the structural capacity of the lighting column on which the sign is to be attached.
- The sign is mounted a minimum of 2.1m above a footway or 2.5m above a cycleway
- No part of the column identification number is obscured.
- The sign is no more than 0.3sq.m unless otherwise agreed by the County's Electrical Team

10.1.2 Temporary Direction signs to new housing developments may be attached to NYCC street lighting columns subject to the following conditions:

- Permission to site the temporary sign on the highway is supplied by the relevant Area Highway Office following an evaluation of the proposal using the County Council's Temporary Development Signing Protocol for North Yorkshire.
- No sign is bigger than 0.3sq.m and no more than 1 sign per column.
- The County's Electrical Team assesses the structural capacity of the lighting column on which the sign is to be attached.
- The sign is mounted a minimum of 2.1m above a footway or 2.5m above a cycleway
- No part of the column identification number is obscured.
- NYCC is indemnified against any accident, damage or injury deemed to have occurred due to the sign or its attachment to the lighting column.
- NYCC reserves the right to remove the sign or lighting column without notice should either be deemed a danger to the public.

10.1.3 Permanent Information Signs such as Neighbourhood Watch, No Cold Calling Zone or Fire Hydrant signs etc. may be attached to NYCC street lighting columns subject to the following conditions:

- Permission to site the sign on the highway is supplied by the relevant Area Highway Office
- The County's Electrical Team assesses the structural capacity of the lighting column on which the sign is to be attached.
- The sign is mounted a minimum of 2.1m above a footway or 2.5m above a cycleway
- No part of the column identification number is obscured.
- NYCC reserves the right to remove the sign or lighting column without notice should either be deemed a danger to the public.

10.2 Speed Matrix

Speed Matrix Signs may be attached to NYCC street lighting columns subject to the following conditions:

- Permission to site the matrix on the highway is supplied by the relevant Area Highway Office following an evaluation using the County Council's Mobile Speed Matrix Protocol
- The County's Electrical Team assesses the structural capacity of the lighting column on which the sign is to be attached.
- The sign is mounted a minimum of 2.1m above a footway or 2.5m above a cycleway
- No part of the column identification number is obscured.
- Any installation is made using an appropriate mobile elevated working platform (Cherry picker). Ladders must NOT be used.
- Where required, any electrical connection is made by a fully qualified, approved, electrical contractor, preferably a Member of HEA.
- Any hole drilled in the lighting column must be no greater than 15mm in diameter with any exposed metal protected with zinc based paint. No more than one hole may be drilled.
- If an electrical connection is required a suitable double pole/double fused isolator is fitted in the street lighting column.
- NYCC is indemnified against any accident, damage or injury deemed to have occurred due to the matrix sign or its attachment to the lighting column.
- NYCC reserves the right to remove the matrix sign or lighting column, without notice, should either be deemed a danger to the public.

10.3 Vehicle Activated Signs - VAS

Vehicle Activated Signs may be attached to NYCC street lighting columns subject to the following conditions:

- Permission to site the sign on the highway is supplied by the relevant Area Highway Office following an evaluation using the County Council's Permanent VAS Protocol.
- The County's Electrical Team assesses the structural capacity of the lighting column on which the sign is to be attached.
- The sign is mounted a minimum of 2.1m above a footway or 2.5m above a cycleway
- No part of the VAS can overhang the carriageway
- No part of the column identification number is obscured.
- Any installation is made using an appropriate mobile elevated working platform (Cherry picker). Ladders must NOT be used.
- Any permanent electrical connection is made by a fully qualified, approved, electrical contractor, preferably a Member of HEA.
- Any hole drilled in the lighting column must be no greater than 15mm in diameter with any exposed metal protected with zinc based paint. No more than one hole may be drilled.
- A suitable double pole/double fused isolator is fitted in the street lighting column

10.4 Litter Bins

Litter bins may not be attached to any North Yorkshire County Council street lighting column without specific approval from the County's Electrical Team. When permission is given, the bin must not obstruct the column door.

Any litter bin attached to a NYCC street lighting column without permission will be immediately removed at the cost of the relevant Parish, Town or District Council.

10.5 Dog Waste Bins

Dog waste bins may NOT be attached to any North Yorkshire County Council street lighting column under any circumstances.

Any dog waste bin attached to a NYCC street lighting column will be immediately removed and the cost invoiced to the relevant Parish, Town or District Council.

10.6 Christmas Displays

Christmas Displays may be attached to NYCC street Lighting columns subject to the following conditions:

- The County's Electrical Team assesses the structural capacity of the lighting column on which the display is to be attached.
- Weight and windage area of the displays must be approved by NYCC prior to installation.
- Only 8m columns or higher may be used.
- A suitable double pole/double fused isolator incorporating an RCBO and electronic time clock shall be installed within the street lighting column base compartment at the expense of the relevant Parish, Town or District Council.
- No installation may take place unless the relevant Parish, Town or District Council has provided confirmation that an appropriate tariff has been agreed with their energy supplier
- All displays are to be extra low voltage (e.g. 24v)
- The displays are to be mounted high enough as to be considered out of reach to the public.
- No part of the display can overhang the carriageway
- Any permanent electrical connection is made by a fully qualified, approved, electrical contractor, preferably a Member of HEA.
- Any hole drilled in the lighting column must be no greater than 15mm in diameter with any exposed metal protected with zinc based paint. No more than one hole may be drilled.
- Any installation is made using an appropriate mobile elevated working platform (Cherry picker). Ladders must NOT be used.
- NYCC is indemnified against any accident, damage or injury deemed to have occurred due to the display or its attachment to the lighting column.
- NYCC reserves the right to remove the display or lighting column, without notice, should either be deemed a danger to the public.

10.7 Bunting

Where lighting columns are located on one side of the road only and where they are 8m or higher, permission may be given for the attachment of bunting subject to the following conditions:

- Permission to site the bunting on the highway is supplied by the relevant Area Highway Office.
- The County's Electrical Team assesses the structural capacity of the lighting column on which the bunting is to be attached.
- Bunting may not be attached to wall or pole mounted street lighting brackets.
- Bunting may NEVER be installed across a live carriageway using street lighting columns as a support.
- Any installation is made using an appropriate mobile elevated working platform (Cherry picker). Ladders must NOT be used
- NYCC is indemnified against any accident, damage or injury deemed to have occurred due to the bunting or its attachment to the lighting column.
- NYCC reserves the right to remove the bunting or lighting column, without notice, should either be deemed a danger to the public.

10.8 Catenary Lighting

Permission would not normally be given for catenary lighting to be attached to NYCC street lighting columns. A very limited number of exceptions exist where heavy duty lighting columns have been installed which are specifically designed for that purpose.

Where approved, the following conditions apply:

- The County's Electrical Team assesses the structural capacity of the lighting column on which the catenary lighting is to be attached.
- Catenary lighting may NEVER be installed across the carriageway using street lighting columns as a support.
- Weight and potential sag factor of the catenary must be approved by NYCC prior to installation.
- Only 8m columns or higher may be used to ensure that any sag will not place any part of the catenary within arm's reach even under heavy wind, rain, or icy conditions.
- A suitable double pole/double fused isolator incorporating an RCBO and electronic time clock shall be installed within the street lighting column base compartment at the expense of the relevant Parish, Town or District Council.
- No installation may take place unless the relevant Parish, Town or District Council has provided confirmation that an appropriate tariff has been agreed with their energy supplier.
- Any permanent electrical connection is made by a fully qualified, approved, electrical contractor, preferably a Member of HEA.
- Any hole drilled in the lighting column must be no greater than 15mm in diameter with any exposed metal protected with zinc based paint. No more than one hole may be drilled.
- Any installation is made using an appropriate mobile elevated working platform (Cherry picker). Ladders must NOT be used.
- NYCC is indemnified against any accident, damage or injury deemed to have occurred due to the catenary or its attachment to the lighting column.
- NYCC reserves the right to remove the catenary or lighting column, without notice, should either be deemed a danger to the public.

10.9 Flower Baskets

Hanging flower baskets or wrap around flower baskets may be attached to NYCC street lighting columns subject to the following conditions:

- Estimated weight and windage of the flower baskets, and their fixing arrangement are provided to NYCC prior to an assessment of the lighting column's structural capacity.
- The baskets are mounted such that the whole of the arrangement is a minimum of 2.1m above a footway or 2.5m above a cycleway.
- No part of the hanging basket can overhang the carriageway
- No part of the column identification number is obscured
- Any installation is made using an appropriate mobile elevated working platform (Cherry picker). Ladders must NOT be used.
- NYCC is indemnified against any accident, damage or injury deemed to have occurred due to the flower baskets or their attachment to the lighting column.
- NYCC reserves the right to remove the flower baskets or lighting column, without notice, should either be deemed a danger to the public.

10.10 Banners

Banners may be attached to NYCC street lighting columns subject to the following conditions:

- Permission to site the banner on the highway is supplied by the relevant Area Highway Office.
- The County's Electrical Team assesses the structural capacity of the lighting column on which the banner is to be attached.
- The banner cannot contain commercial advertising.

- Weight and windage area of the displays must be approved by The County's Electrical Team prior to installation.
- Only 8m columns or higher may be used.
- No part of the banner can overhang the carriageway
- Any banner is to be mounted a minimum of 2.1m above a footway or 2.5m above a cycleway
- All banner brackets shall be spring loaded to minimise wind loading
- Any installation is made using an appropriate mobile elevated working platform (Cherry picker). Ladders must NOT be used.
- NYCC is indemnified against any accident, damage or injury deemed to have occurred due to the banner or its attachment to the lighting column.
- NYCC reserves the right to remove the banner or lighting column, without notice, should either be deemed a danger to the public.

10.11 Post Boxes

Post boxes may not be attached to North Yorkshire County Council street lighting columns without specific approval from The County's Electrical Team.

Where approval is given the post box must not obstruct the column door.

10.12 CCTV Cameras

CCTV Cameras may be attached to NYCC street lighting columns, at the request of North Yorkshire Police or a District/Borough Council, subject to the following conditions:

- The County's Electrical Team assesses the structural capacity of the lighting column on which the camera is to be attached.
- A suitable double pole/double fused isolator is fitted in the street lighting column at the expense of NY Police or the District Council.
- No installation may take place unless the relevant Parish, Town or District Council has provided confirmation that an appropriate tariff has been agreed with their energy supplier.
- The camera is to be mounted high enough as to be considered out of reach to the public.
- Any permanent electrical connection is made by a fully qualified, approved, electrical contractor, preferably a Member of HEA.
- Any hole drilled in the lighting column must be no greater than 15mm in diameter with any exposed metal protected with zinc based paint. No more than one hole may be drilled.
- Any installation is made using an appropriate mobile elevated working platform (Cherry picker). Ladders must NOT be used.
- NYCC is indemnified against any accident, damage or injury deemed to have occurred due to the camera or its attachment to the lighting column.
- NYCC reserves the right to remove the camera or lighting column, without notice, should either be deemed a danger to the public.

10.13 Temporary Traffic Counters

Camera/counters, including mast type cameras, may only be attached to columns for security or stability purposes, and shall be subject to the following conditions:

- Permission to site the Traffic Camera on the highway is supplied by the relevant Area Highway Office.
- North Yorkshire County Council's Street Lighting Team assesses the structural capacity of the lighting column on which the camera is to be attached.

- NYCC is indemnified against any accident, damage or injury deemed to have occurred due to the camera or its attachment to the lighting column.
- NYCC reserves the right to remove the counter/camera or lighting column, without notice, should either be deemed a danger to the public.
- Only 8m columns or higher may be used.

11.0 Adoption of New Street Lighting Systems

11.1 Every lighting unit and underground cable, on completion and before being energised, shall be inspected and tested to verify that the requirements of BS 7671 (IEE Wiring Regulations) have been met. The inspection and the test results shall be submitted to the County's Electrical Team at the time of requesting an adoption inspection of the lighting system. Upon completion of the installation 'as constructed' drawings shall be forwarded to the Electrical Engineering Manager showing column positions, cable routes, sizes, depths and the location of any DNO or IDNO service position.

11.2 On completion, and at the request of the developer, the lighting installation will be inspected by North Yorkshire County Council and, providing it is satisfactory, the street lighting can be included in the maintenance period for the site.

11.3 Adoption of the lighting will take place following the maintenance period (usually 12 months) when the street, as a whole, is being considered for adoption.

11.4 It is the developer's responsibility to obtain an MPAN number when requesting underground services for the lighting installation from the electricity company. The developer will then be charged for the energy consumed by the street lighting installation from the date of connection until the date that the Section 38 Agreement – Final Certificate is issued. Following the issue of the Final Certificate the developer should inform the Electricity Company's Unmetered Supply Office that they are no longer responsible for the energy consumed by the street lighting.

12.0 Adoption of Footway Lighting from Parish or Town Councils

12.1 Under Section 270 of the Highways Act (1980), where a Parish Council inserts new lighting columns into an existing lighting system so that they cease to be footway lighting and become roadway lighting, they have the right to request that ownership of the new roadway lighting network be transferred to the County Council except where Section 301 applies.

12.2 Under Section 301 of the Highways Act, North Yorkshire County Council may give consent to a District or Borough Council to install roadway lighting and retain responsibility for all on-going maintenance and energy costs. This would primarily relate to roadway lighting in industrial estates or decorative/heritage lighting on the highway.

12.3 North Yorkshire County Council will not adopt street lighting columns of concrete, laminate or GRP construction, nor lanterns attached to wooden poles. Any such columns and lanterns shall be removed and replaced with suitable steel or aluminium columns prior to adoption.

The County Council insists that any footway lighting networks improved to roadway lighting standard be subjected to an appropriate condition survey, structural test and electrical test

equivalent to those carried out by the County Council on its own columns. Any defective columns identified by the structural test and any equipment that fails the electrical test, must be repaired or replaced prior to adoption.

The County Council can undertake the structural survey and any subsequent column replacements however all costs must be met by the relevant Parish, Town or District Council. In accordance with Section 270 (4) of the Highways Act (1980) liability for any costs incurred in the replacement do not transfer to the County Council.

13.0 Adoption of Roadway Lighting on Private Land

13.1 North Yorkshire County Council would only consider adopting "roadway" standard lighting on private land if a commuted sum, equivalent to 25 years maintenance and energy, is provided to the Council prior to the adoption.

13.2 On-going inspections of the County Council's street lighting stock have identified a number of street lighting columns, pole mounted brackets and wall mounted brackets and lanterns that are located on private land. These are historic arrangements and the County Council will continue to maintain the lighting until such time as the equipment reaches the end of its useable life.

When the equipment reaches the point where it can no longer be maintained the County Council will remove it. New street lighting will not be installed unless a third party agrees to fully finance the installation costs.

14.0 Design Requirements

14.1 The County's Electrical Team can undertake any street lighting design and any electrical design associated with the installation of illuminated traffic signs, bollards, beacon poles or feeder pillars. A quotation for Design, or Design and Build, can be obtained from the Team on request.

Alternatively, an ILP approved Consultant may be used. A list of approved consultants may also be obtained from the Team.

14.2 Any street lighting design undertaken within North Yorkshire will constitute "Road Lighting" as defined by section 270 of The Highways Act 1980. The design will also fully comply with the requirements of BS5489 "Code of Practice for the Design of Road Lighting" and BS EN 13201-2 "Road Lighting – Part 2: Performance Requirements".

14.3 Where design is provided by an ILP Approved Consultant the proposals for street lighting must be submitted for the approval of North Yorkshire County Council's Electrical Engineering Manager prior to works commencing. The proposals shall include the positions of lighting columns, type of columns, lanterns, cables and cable routes and Electrical Company services. An electronic copy of the proposals should be submitted for approval together with a copy of

the design data showing proposed illumination levels and cable design calculations where appropriate. The approved drawings will be used on any subsequent adoption inspections therefore any changes made to the road or to the lighting layout should be resubmitted for approval.

14.4 For all new street lighting installations, the designer should refer to North Yorkshire County Council's Passive Safety Protocol to determine whether it is necessary for the street lighting equipment to be Passively Safe.

The level and type of new roadway lighting shall be designed based on the following criteria:

- The nature and use of the carriage way to be illuminated
- The speed and volume of traffic flow
- Reflectance coefficient of the road surface
- Road alignment, for example: bends, junctions, or roundabouts
- Location of other relevant street furniture such as traffic signals or zebra crossings

Roadway lighting in residential areas must also take account of local crime levels and the Environmental Zone in which the new road lighting is to be located:

- The crime level is a local indicator that may be obtained from the North Yorkshire Police Architectural Liaison Officer. Details of the relevant officer may be obtained at www.northyorkshire.police.uk
- Environmental Zones are specified by North Yorkshire County Council and fall into four categories

E1 National Parks or Areas of Outstanding Natural Beauty with intrinsically dark landscapes.

E2 Rural or small villages with low district brightness

E3 Small town centres of urban locations with medium district brightness

E4 Town/City Centres with high levels of night-time activity and with high district brightness

Design Guidance regarding Environmental Zones may be found in the Institution of Lighting Professionals: Guidance Notes for the Reduction of Obtrusive Light. This may be viewed at https://www.theilp.org.uk/home

14.5 Lighting columns should be sited with regard to property boundaries, overhead lines, buried services, drive and field accesses, or main windows wherever possible. Columns adjacent to drive accesses shall be sited a minimum of 1.0m from the access to allow easy access and egress to and from the property.

Particular consideration should be given when positioning new street lighting columns adjacent to existing trees or proposed landscaping requirements. Many trees are protected by Tree Preservation Orders (TPOs) and columns should not be sited in positions where there

may be a possibility that major pruning will be required in future years. A list of trees covered by TPO may be obtained from the local District Council.

15.0 Street Lighting Specification

15.1 Columns

All lighting columns shall be designed in accordance with BSEN 40 with particular reference to the maximum windage area for terrain categories as defined in BS EN-40-3-1.

All lighting columns shall have a standard mounting height of 5m, 6m, 8m, 10m or 12m above the finished ground level.

Where rooted columns are specified they shall be erected in accordance with Standard Detail Drawing HE1 (Lighting Column Foundation) and in compliance with manufacturer's specifications. The cable entry slot shall be at least 450mm below finished ground level.

Where flange mounted columns are specified, they shall be installed in accordance with Standard Detail Drawing HE 2 (Lighting Column / Sign Pole Flange Plate)

Lighting Columns shall have lockable, tamper proof access doors fitted to the column base compartment. Door locking mechanisms shall be opened by a Standard tri-head key. For raise and lower columns an additional vandal resistant lock, with Allen key operation, shall be used in conjunction with the standard tri-head lock.

The column door shall be flush or surface mounted and shall be located such that adjacent walls, fences, or trees do not impede access. The bottom of the base compartment door shall be located at least 300mm above finished ground level. Consideration shall be given to small trees, bushes and shrubs that will grow larger.

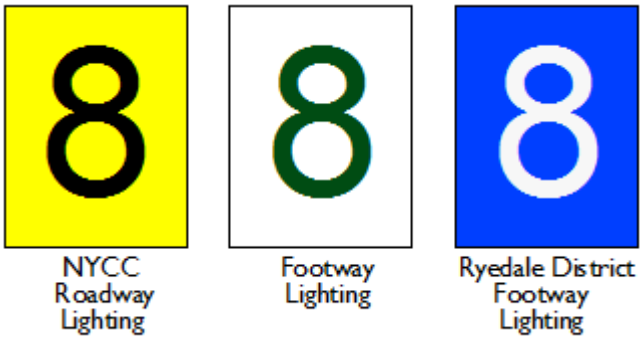
In areas where access by mobile platforms is prevented, columns shall be hinged to facilitate future maintenance. Such columns should be sited with consideration to adjacent walls, trees or fences to ensure that they can be correctly lowered using the manufacturer's lowering mechanism.

Columns shall not have bracket arms unless specified or agreed by the County's Electrical Engineering Team. Columns shall be complete with spigots to accept post mounted lanterns.

Columns shall be hot dip galvanised to BS1461 and shall have a factory applied thermoplastic finish on both upper and root sections. The thermoplastic finish shall be free from blistering, cracking, or flaking for at least the term of the guarantee period which shall be 40 years.

All street lighting columns shall have a designated number. For NYCC road lighting columns the number shall be 75mm high, black with a yellow rectangular background on a high visibility, waterproof, anti-peel, self-adhesive sticker applied to the lighting column as indicated in Standard Detail Drawings HE 4 (Lighting Column / Sign Pole Numbering).

Parish Council footway lighting shall have an identification number of equivalent size with a self-adhesive label in the colours indicated below:



Columns installed in the vicinity of Low Voltage overhead electricity lines shall be fitted with warning notices.

Columns adjacent to High Voltage overhead electricity cables should carry a supplementary warning notice indicating that such columns should be lowered to the ground for maintenance purposes and that it is forbidden to ascend them by any means whatsoever.

Column base compartments shall have an earth bonding stud of reasonable mechanical size complete with appropriate brass washers and nuts.

A non-hygroscopic back board shall be fitted in the base compartment. The backboard shall be of adequate size to receive the service terminations and control equipment specified in Standard Detail Drawings HE 5, HE6, HE7, HE8, HE9 showing termination types 1 to 5.

15.2 Lanterns

The lantern housing shall be constructed from LM6 marine grade die-cast aluminium alloy, supplemented with stainless steel, extruded aluminium alloy. It shall have an Ingress Protection rating to IP66 and Impact resistant to minimum IK10. Its body shall have a minimum 50 µm powder coating in black (RAL 9005) or Grey (RAL 7016) as standard, or

any other RAL colour to suit North Yorkshire County Council's scheme specific colour requirements.

It shall be of modular construction to enable it to be upgraded as required, capable of being mounted post top (60-76mm) or side entry (32-60mm) and a tilting mechanism shall be incorporated in the mounting bracket to adjust tilt angles from -5 to + 10 degrees.

The LEDs shall be mounted and soldered onto a metal core printed circuit board. The printed circuit board shall be installed in the optical module and sealed with clear UV stabilized polycarbonate lenses to a degree of protection of IP66.

LEDs shall have the following properties:-

- Colour temperature: 4000K standard, 2700K-3000K for National Parks and Heritage lighting.
- Colour rendering index: >70.
- 140 Lumen/Watt (min) LEDs.
- Full cut off.
- LEDs shall provide photometric footprint based on overlay methodology and should provide a glare index of at least G1 for the subsidiary routes (P class) and G2 for traffic routes (M class).
- Provide a light output ratio in excess of 90% with an upward light output ratio of no more than 0.5%.
- Lenses shall be manufactured from optical grade UV stabilized Polycarbonate only.
- shall be mounted within a self-contained IP66 rated module (LED module) that can be removed and/or replaced using simple tools
- Shall be independently tested in accordance with EN60598-1:2008 and EN 60598-2-3:2003 by an independent approval body recognised by the European Community.
- Luminaires comply with the exempt classification for photo-biological safety at the maximum lumen output possible from the luminaire. LEDs shall be tested in accordance with NEN- EN-IEC62471 (2006-07) for Photo-biological Safety and shall comply with Group 2 classification;

The power compartment shall be easily accessible from above with a positive open locking mechanism without disturbing the luminaire mountings. The cable entry to the driver compartment will be fitted with electrical gland for up to 2.5mm 3 core cable to maintain IP rating.

Extruded aluminium heat sinks, shall be employed in the driver. The luminaires shall operate at between 350mA and 700mA driving current. An L90 Lumen depreciation for at least 100,000 hours shall be achieved. In addition an air ventilation valve shall be included

within power compartment to enable sufficient air flow to keep the drivers cool. The driver unit shall be individually sealed to a protection of IP65.
All electrical components shall be appropriately de-rated with regard to applicable duty cycles to give a minimum 84,000 hours life expectancy.

Lanterns shall be rated for operation at voltages of 200-240V rms 50Hz- 60Hz and will operate within the ranges of 110–277V rms and 47 – 63 Hz. The luminaire's power factor shall be not less than 0.92. Internal surge protection to 10kV shall be included.

7 Pin NEMA photocells shall be fitted as standard however the luminaires shall be capable of being fitted with a miniature photocell if required and be compatible with all major CMS systems. Dimming options shall also be available.

Lanterns shall comply with EN 60598-2-3 Road Lighting and be RoHS, WEEE compliant.

They shall be guaranteed for 20 years from the date of purchase. This shall cover the replacement of the entire unit in event of a failure.

Light shields shall be available to be fixed at front, back and side of lantern.

15.3 Feeder Pillars

15.3.1 Feeder pillars shall be of stainless steel or sheet steel galvanised after fabrication. They shall be of weatherproof construction and shall be large enough to afford easy access to the control equipment. All fixings, hinges and locks shall be of non-ferrous metal. Pillars shall be provided with a concrete foundation, be free standing with necessary ducts for incoming and outgoing cables and sealed with a bitumen compound. Doors shall be secured by standard triangular headed bolt type locks, but shall also have provision for a padlock to be fitted for added security.

15.3.2 Paving slabs shall be laid to provide a hard standing in front of the pillar. They shall extend for the full pillar width and 600mm from the face of the pillar. Feeder pillars shall not be sited in indentations in landscaping features where water is likely to collect, or in positions vulnerable to impact from vehicles.

15.3.3 Switchgear shall be fully enclosed. Isolators and, where practicable, each outgoing circuit protective device shall be lockable by means of a padlock. At least two spare ways shall be provided on the distribution board.

15.3.4 Earth electrodes shall be installed at every feeder pillar supplying more than two street lighting units. The size of the feeder pillar shall be determined by the developer or designer, but it shall be of the minimum size capable of housing the necessary equipment and DNO terminations, including a meter if the total load exceeds 0.5kW. Earth electrodes shall be installed as per Standard Detail HE 15 (Earth Electrode and Inspection chamber).

An earth electrode shall also be installed in the final or penultimate lighting column on any length of private cable.

15.3.5 Feeder pillar / distribution equipment shall be installed as per Standard Details HE10 (Feeder Pillar Installation / Distribution Equipment), HE11 (Feeder Pillar, Supply Point used for Wall Mounted Equipment)

15.3.6 Feeder pillars shall be suitably marked to identify ownership, reference number, and presence of live electricity. Self-adhesive, anti-peel labels shall be used as indicated in Standard Detail Drawing HE 12 (Feeder Pillar Label Details.)

15.4 Photo Electric Cells

15.4.1 Street lighting shall be switched by means of a BS5072 compliant one-part photo electric cell calibrated to switch ON at 20 LUX with a 1:1 switching differential. This includes part-night photo-cells installed as part of the Council's street lighting energy reduction programme outlined in Section 8.

15.4.2 All photo electric cells shall have the following properties:

- be capable of switching a 10amp inductive load.
- Shall have zero sensor drift over 6 years.
- Shall be capable of operating at a temperature range of -20 to +85°C
- Have a power consumption ≤ 0.25 watts
- Minimum 12 year guarantee.

15.4.2 The unit shall incorporate a time delay circuit to ensure lamps are not switched on by transient changes of illuminance, such as shadow or cloud; the delay shall be between 15 and 30 seconds.

All photo cells shall be designed to fail in the ON position, such that in the event of a fault within the cell, any controlled lights will switch ON.

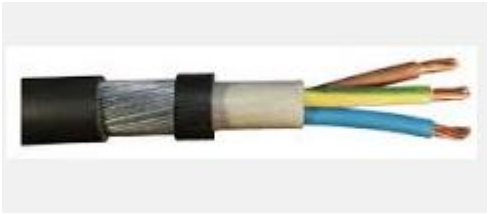
Switching shall be by means of a relay assisted triac or a synchronous switch.

Photo electric cells shall be fitted to lanterns by means of a NEMA socket except where decorative or heritage style lanterns are used in which case a miniature one-part photo cell may be used.

The photo cell shall be sealed against the ingress of moisture and contained within a strong impact resistant enclosure with an ingress protection factor of not less than IP67. Such enclosure shall be UV stabilised, non-oxidising and impervious to discolouration by dirt or soot.

15.5 **Cabling**

In the event that the local DNO is unable to provide a direct service connection to all street lighting and illuminated traffic signs, an alternative private, single phase cable may be used.



3 core SWA cable with standard Brown, Blue and Green/Yellow conductors

All underground cables shall be BASEC approved, 3 core, with stranded copper conductors, XLPE insulated, steel wire armoured with PVC sheathing. All cores shall be correctly colour coded with equal cross sectional area of 6sq.mm minimum and of such a size that the requirements of the current IEE Wiring Regulations (BS7671) are met to allow for a disconnection time not exceeding 5 seconds.

16.0 Passive Safety

A large number of fatal and serious injury collisions occur each year when vehicles strike rigid, unforgiving street furniture. National analysis of STATS19 road traffic collision reports show that approximately one in five of all fatal or serious injuries are associated with an unforgiving roadside environment.

North Yorkshire County Council has a duty of care to aid the safe passage of traffic on the highway and must consider carefully the use of any street furniture that may pose a hazard to highway users. Reasonably practicable steps must be taken to avoid placing structures that pose a materially greater hazard next to the carriageway, in order to prevent foreseeable injury to road users.

Passively safe street furniture is specifically designed, and proven through testing, to provide less resistance during impact and avoid sudden decelerations which might result in injury to vehicle occupants. This can include shearing off at the base, or deflecting and rebounding. Use of such items where appropriate, coupled with a considered approach to the layout of roadside infrastructure, is a useful tool in helping to reduce the number of people killed and seriously injured on North Yorkshire's roads.

North Yorkshire County Council's Passive Safety Protocol is designed to provide guidance when assessing at which sites passively safe equipment such as signposts and lighting columns should be considered for use, and aims to ensure other features such as trees and stone village gateways are taken into account when designing as safe a roadside environment as possible.

All designers, inspectors and maintenance personnel should be aware of the protocol and work to its guidelines. Any external works, for example developer-led contracts, also need to be aware of the protocol and follow its requirements.

17.0 Electricity Company Service Connections and Fault Repairs

17.1 North Yorkshire is serviced by three Distribution Network Operators (DNO), these are Northern Powergrid (Northern), Northern Powergrid (Yorkshire) and Electricity North West. Where possible, all street lighting columns shall have a direct supply from the DNO's underground low voltage cable network. Where this is not possible a private cable network can be installed although approval must be sought from the County's Electrical Team prior to the work commencing.

17.2 Each DNO has its own Service Level Agreement with local authorities although in general terms, each operator strives to undertake new service connections within 35 days and defect repairs within 24 days.

17.3 Approximately 5% of all street lighting defects relate to power supply failures that can only be repaired by the local DNO. North Yorkshire County Council is **not** permitted to work on the DNO's cable network.

18.0 Private Off-Highway Lighting

18.1 Private exterior lighting, such as floodlighting, situated off the highway can cause disability or discomfort glare when not correctly aligned.

18.2 The Highways Act (1980) grants North Yorkshire County Council the power to act in cases where motorists are subjected to disability glare. This may involve instructing property owners to remove, realign or reposition floodlights that are causing concern to motorists.

19.0 Trees

19.1 **New Housing Developments**: Developers should be aware that the presence of trees can affect the performance of any Street Lighting installation in the highway. The root system of trees can also potentially have a damaging effect on underground cabling networks. Therefore, great care should be taken when siting trees in lit highways.

In general terms, a housing developer will need to address the number of trees relative to the lighting units and the potential adverse effects on the performance of the lighting system. For example, large trees can reduce the effectiveness of a lighting system. Trees should be planted as far away as possible from street lighting locations and in all cases no closer than 10 metres from any lighting unit. It is important to ensure the lighting system is designed alongside selecting the location for any trees (including trees outside the highway where canopy or roots may also affect the street lighting) to ensure no conflicts arise.

The planting of trees can cast areas of shadow across the highway and as a consequence may result in an increase in the number of lighting units required to mitigate against these areas of shadow. Developers should note that a commuted sum will be payable for any additional

lighting units required as a consequence of trees, this will also apply for trees which may be planted outside the highway but where the canopy affects the lighting design.

19.2 **Existing Trees affecting Lighting on the Highway**: Pruning of trees may be required in order to maintain the effective operation of street lighting.

Trees obscuring a street light

Where trees are located on private land, the land owner will be afforded the opportunity to carry out the necessary work. Alternatively with the owner's permission, the County Council will carry out the work and any costs will be recharged. Where the owner's consent cannot be obtained the Council will invoke regulatory procedures to deal with the issue.

If the offending tree is on the Highway, North Yorkshire County Council will arrange for the tree to be pruned.

Some trees may be protected by a Preservation Order. Whilst the Highways Act (1980) empowers the County Council to prune any tree on the highway, the Authority responsible for Tree Preservation Orders shall be consulted before any such action is taken.

Highways staff will normally undertake pruning and limbing of branches up to 50mm diameter. Where more extensive pruning is required the work will be undertaken by qualified operatives under the supervision of an arboriculturalist.

When works are being carried out to install or remove lighting columns and sign posts, or to excavate trenches for laying cables, there is the potential to damage tree roots. In these circumstances the Guidance outlined in "NJUG 10 Guidelines for Planning, Installation and Maintenance of Utility Services in Proximity to Trees" will be followed to minimise the risk of damage to trees.

20.0 Street Lighting and the Local Ecology

Local Authorities should be aware that under the Conservation (Natural Habitats &c) Regulations 1994 and as amended in 2007 European Protected Species of plants and animals receive protection. The Act may be downloaded from:

http://www.legislation.gov.uk/uksi/1994/2716/contents/made

20.1 **Legal Protection of bats**

All species of British bats are protected by the Wildlife & Countryside Act (1981) and the Conservation (Natural Habitats) Regulations 1994. This makes it illegal to kill, injure, capture or disturb bats, obstruct access to bat roosts or damage/destroy bat roosts.
Lighting in the vicinity of a bat roost causing disturbance could constitute an offence, so it is important that Natural England is consulted and allowed time to provide advice on lighting proposals in the vicinity of bats and roosts.

20.2 **Impact on Bat Roosts**

Illuminating a bat roost creates disturbance and may cause the bats to desert the roost. Light falling on a roost access point will at least delay bats from emerging and this shortens the amount of time available to them for foraging. As the main peak of nocturnal insect abundance occurs at and soon after dusk, a delay in emergence means this vital time for feeding is missed.

20.3 **Insects and foraging**

In addition to causing disturbance to bats at the roost, artificial lighting can also affect the feeding behaviour of bats. There are two aspects to this. One is the attraction that light from certain types of lamps has to a range of insects; the other is the presence of lit conditions.

20.4 **Insects**

Artificial light has the potential to significantly disrupt ecosystems and it has long been of concern to conservationists. It is widely observed that some invertebrates, such as moths, are attracted to artificial lights at night. In addition the polarisation of light by shiny surfaces is a significant problem as it attracts aquatic insects, particularly egg laying females, away from water, and reflected light has the potential to attract pollinators and impact on their populations, predators and pollination rates.

20.5 **Artificial light can significantly disrupt the natural light/dark patterns.**

Many invertebrates depend on the natural rhythms of day-night and seasonal and lunar changes to light levels. As a result artificial lighting has a detrimental effect on a wide range of invertebrates including disrupting their feeding, breeding and movement which may reduce and fragment populations.

20.6 **Invertebrates make up the majority of biodiversity on earth and are vital to ecosystems.**

Many invertebrates are also listed as national priority species for conservation under the UK Biodiversity Action Plan (BAP). It is therefore important to minimise the impacts of artificial light on invertebrate populations.

20.7 Some locations, particularly near rivers, lakes and old structures such as bridges are particularly sensitive to light pollution. Lighting schemes in these areas should be carefully planned to avoid negative impact on bats and invertebrates.

20.8 Guidance from the Bat Conservation Trust in conjunction with the Institute of Lighting Professionals may be found at the following link:

https://www.theilp.org.uk/documents/bats-and-lighting-in-the-uk/bats-and-lighting-in-the-uk.pdf

21.0 Requests for New Street Lighting

Parish Councils and members of the public can request additional street lighting by accessing the County Council's web site using the following link:
http://www.northyorks.gov.uk/article/25612/Request-new-street-lighting

All requests will be assessed against a number of criteria including:

- Proximity to a school
- Proximity to sheltered accommodation
- Incidents of crime and/or antisocial behaviour
- Proximity to a pedestrian crossing
- Incidents of night time road traffic accidents
- Proximity to emergency services premises
- Proximity to Doctor's Surgery
- Proximity to Telephone Kiosk or Bus Shelter
- Proximity to housing

The above criteria are weighted and priority is given to requests with the greatest cost benefit in the assessment. Appendix A includes two examples of the assessment.

Unfortunately, in the current financial climate there are limited resources available for the installation of new street lighting. All requests *will* be retained and reassessed should more finance become available.

More street lighting information can be found on the County Council's web site:
http://www.northyorks.gov.uk/article/24234?q=street%20lighting

22.0 Request for a street lighting column to be repositioned

22.1 Reposition a street light on Private Land or attached to properties

If a resident requires a street light removing from their Private land or off their building, the County Council will do so in all circumstances with no payment required from the resident.

22.2 Reposition a street lighting on the Highway

Where possible North Yorkshire County Council will reposition street lighting at the request of a resident however the costs for all work must be borne by the applicant.

If the lighting column is older than 10 years, a new lighting column will be provided at the County Council's expense however, the cost to remove the old column, install the new column and transfer the electricity service will be borne by the applicant.

If the existing lantern is anything other than LED, a new LED lantern will be provided at the County Council's expense.

Appendix A: Example Street Lighting Assessments

Request number: **0001**

Location: Example 1 **Date** 09/03/2016

Provision of New Street Lighting - Assessment

	Weighting	Number	Score
Is the location on an approved Safe Route to School or in proximity to a school (Y/N)	15	1	15
Is the location in proximity to Sheltered accommodation	15	0	0
Proximity to Pedestrian Crossing	15	1	15
Proximity to Community Centre/Village Hall	5	0	0
Proximity to telephone kiosk	5	0	0
Proximity to bus stop/taxi rank	5	0	0
Proximity to Doctor's Surgery or Hospital	10	0	0
Access: How many homes will be assisted by the installation of this street lighting	1	10	10
What is the crime rate in this location			
High	15	no	0
Medium	5	yes	5
Low	1	no	0
Has the location suffered night time injury accidents			
Fatal	25	0	0
Serious	10	0	0
Slight	1	1	1
		Total Score	**46**

Cost of proposed installation £ 1100

Benefit/Cost factor 41.82

Request number: 0002

Location: Example 2 **Date** 09/03/2016

Provision of New Street Lighting - Assessment

	Weighting	Number	Score
Is the location on an approved Safe Route to School or in proximity to a school (Y/N)	15	0	0
Is the location in proximity to Sheltered accommodation	15	0	0
Proximity to Pedestrian Crossing	15	1	15
Proximity to Community Centre/Village Hall	5	1	5
Proximity to telephone kiosk	5	1	5
Proximity to bus stop/taxi rank	5	1	5
Proximity to Doctor's Surgery or Hospital	10	0	0
Access: How many homes will be assisted by the installation of this street lighting	1	30	30
What is the crime rate in this location			
High	15	yes	15
Medium	5	no	0
Low	1	no	0
Has the location suffered night time injury accidents			
Fatal	25	0	0
Serious	10	2	20
Slight	1	2	2
Total Score			**97**

Cost of proposed installation £ 2200

Benefit/Cost factor 44.09

Appendix B: Street Lighting Defect – Response Times

Emergency Call Out - 3hr Response	Cat 1 Defect - 24hr Response
Section Fault involving 4 or more consecutive columns out	Columns or signs buzzing or causing TV/Radio interference
Any section fault adjacent to a roundabout, or other important junction	Faults outside schools (October – March only)
Bollard Missing on high speed "A" Classified road	Faults outside OAP or sheltered accommodation
Lantern or Bowl Hanging	Faults adjacent to pedestrian crossings
Column or sign post leaning	Faults on important road junctions
Door Off or Wires Exposed	Any illuminated traffic sign mandated by TSRGD
Column or Sign loose in ground	Bollards missing or not working
ALL Knock downs	Tunnel, subway or underpass lighting defects
3rd Party damage to underground cables	
Arcing or smoke present	
Cracked/corroded or badly spalling column or sign post	

All other defects will be classed as Category 2 with a 7 calendar day response time.

These include:

- Light out
- Day Burner
- Street light permanently on
- Intermittent/flickering fault
- Dim lamp
- Request for Light shield
- Part night light operating outside expected hours. 00:00-05:00 (+/-20min)

Appendix C: Structural Inspection and Testing

Following many years of structural inspection and testing the County Council has identified a number of street lighting column and sign post manufacturers that can be prioritised for inspection as follows:

1: Urgent inspection for removal
2. Routine inspection every 3 years – Deflection Test when possible
3. Routine inspection every 3 years or paint and inspect every
4. Routine inspection every 4 years
5. Routine inspection every 6 years

Manufacturer	Model	Priority	Annual* "In-house" inspection per year
Stanton Bonna Stanton & Staveley	All concrete types	1	50%
CU Phosco	All concrete types	1	50%
Eleco	All concrete types	1	50%
Cohen of Manchester	All	1	50%
Revo	All	1	50%
Stewart and Lloyd	Swept bracket	1	50%
Stewart and Lloyd	Fluted or tubular – plain bracket	2	25%
Eleco	Aluminium	2	25%
All sign post manufacturers	Plastic Coated	2	25%
GEC	Folded Sheet Steel (ungalvanised)	2	25%
Thorn	Square Aluminium	2	25%
British Steel	Tubular - Galvanised	3	10%
Petitejean	Folded Sheet Steel Galvanised	3	10%
Fabrikat	Galvanised	3	10%
All sign post manufacturers	Galvanised	3	10%
Chorus	Galvanised	3	10%
Stainton Metal	Galvanised	3	10%
Mallatite	Galvanised	3	10%
All sign post manufacturers	Galvanised and painted	4	5%
Corus	Galvanised and painted	4	5%
Stainton Metal	Galvanised and painted	4	5%
Mallatite	Galvanised and Plascoat	5	2%
Sappa	Aluminium	5	2%

To be carried out in years between the main routine cyclical maintenance visit

Initial equality impact assessment screening form
(As of October 2015 this form replaces 'Record of decision not to carry out an EIA[1])

This form records an equality screening process to determine the relevance of equality to a proposal, and a decision whether or not a full EIA would be appropriate or proportionate.

Directorate	Business and Environmental Services
Service area	Highways & Transportation
Proposal being screened	Carriageway Infrastructure Asset Management Plan (CIAMP) and Street Lighting Asset Management Plan (SLAMP)
Officer(s) carrying out screening	**Andrew Davies**
What are you proposing to do?	Adopt the above documents as part of North Yorkshire County Council's Asset Management Framework
Why are you proposing this? What are the desired outcomes?	The CIAMP is an important document which sets out how NYCC manages its carriageway assets. This documents feeds into several other key strategic documents (already existing). The SLAMP is an updated revision of an existing document bringing it into line with current codes of practice within the industry.
Does the proposal involve a significant commitment or removal of resources? Please give details.	No

Impact on people with any of the following protected characteristics as defined by the Equality Act 2010, or North Yorkshire County Council's additional agreed characteristic

As part of this assessment, please consider the following questions:

- To what extent is this service used by particular groups of people with protected characteristics?
- Does the proposal relate to functions that previous consultation has identified as important?
- Do different groups have different needs or experiences in the area the proposal relates to?

If for any characteristic it is considered that there is likely to be a significant adverse impact or you have ticked 'Don't know/no info available', then a full EIA should be carried out where this is proportionate. You are advised to speak to your Equality rep for advice if you are in any doubt.

Protected characteristic	**Yes**	**No**	**Don't know/No info available**
Age		✓	
Disability		✓	
Sex (Gender)		✓	
Race		✓	
Sexual orientation		✓	
Gender reassignment		✓	
Religion or belief		✓	
Pregnancy or maternity		✓	
Marriage or civil partnership		✓	

North Yorkshire County Council additional characteristic				
People in rural areas		✓		
People on a low income		✓		
Carer (unpaid family or friend)		✓		
Does the proposal relate to an area where there are known inequalities/probable impacts (e.g. disabled people's access to public transport)? Please give details.	No, the proposals do not negatively affect any groups of people.			
Will the proposal have a significant effect on how other organisations operate? (e.g. partners, funding criteria, etc.). Do any of these organisations support people with protected characteristics? Please explain why you have reached this conclusion.	No, the proposals have no effect on how other organisations work.			
Decision (Please tick one option)	EIA not relevant or proportionate:	✓	Continue to full EIA:	
Reason for decision	The proposals will ensure North Yorkshire County Council maintains a consistent and auditable approach to strategic asset management in line with current Codes of Practice.			
Signed (Assistant Director or equivalent)	Barrie Mason			
Date	01/11/18			