Appendix 2D – Life Cycle Management Plan – Street Lighting

Introduction

The primary purpose of street lighting is to improve safety for highway users and to assist personal and commercial security. Street lighting is not universally provided throughout the county. Of the 290 Town and Parish Councils in the county, less than 180 have street lighting in their area. The street lighting assets include illuminated signs and bollards.

Lighting maintenance and improvements are administered through a dedicated Lighting Team led by a Senior Officer (Reward Band) under the direction of the Highways Operations Manager. Maintenance and new works are procured through a long-term NEC contract with the appointed supplier.

Since 2015 the Council has been undertaking a huge LED street lighting replacement programme and, in March 2025, 99.7% of our street lighting has been upgraded to LED. This has huge benefits to the Council in terms of reliability, cost and monitorability. There are also a small number of solar powered streetlights being trialled within the County.

In Gloucestershire there are more than 63,000 streetlights, with a further 7,600 other assets.

Condition

The overall condition of street lighting assets is defined as ‘steady’. Our approach to maintaining street lighting assets is aligned to Section D of the Well Managed Highway Infrastructure Code of Practice and inspections of all primary traffic routes for signs and bollards issues take place monthly in line with our Highway Safety Inspection Manual.

A Central Management System (CMS) intelligent network is deployed across the entire LED street lighting network. This provides an automated alert to any outages.

Every streetlight is visited every 3 years where it is cleaned, and a visual inspection is carried out. Every 6 years (every other visit) each streetlight is electrically tested as well as cleaned and visually inspected.

The Life Cycle

Creation/Acquisition: Acquisition of street lighting assets is normally associated with the taking up of maintenance responsibilities following new developments through the adoption process. The development control team using Section 38 or 106 legal agreements normally manage this process.
Operations/Maintenance – Operate and maintain the street lighting assets on a routine basis.
Upgrade or Renew: - This is an ongoing function. As new technologies are rolled out, they are incorporated into the life cycle to reduce costs and our carbon footprint, improve lifespans and improve operations and monitorability.
Disposal/Decommission: Street lighting assets very rarely become redundant except when there is upgrading works. This is normally considered in association with renewal and replacement. Existing assets are seldom removed and are either utilised as part of the new design or disconnected. As part of responsible lighting management, it is essential to handle the end-of-life (EOL) of lighting components in an environmentally friendly and manner compliant with relevant regulatory standards.

Deterioration
Deterioration of street light assets structures is highly dependent on component materials, age, condition, weather exposure and function. The following summarises some of the potential deterioration considerations:

- Age
- Corrosion/rusting
- Metal fatigue/cracking
- Vandalism
- Canine urine
- Vehicular strikes
- Ground conditions
- Gritting/Salting of the highway
- Grass cutting
- Specific design problems

Standstill and Backlog Costs
Various models exist to determine the Standstill and Backlog costs. The Standstill cost is how much needs to be spent every year in order to maintain the asset in the condition it's in today (plus inflation). The Backlog cost is how much you would need to spend to return the whole asset to very good condition. The following figures represent the latest data for street lighting:

- Standstill - £0.8M Capital
- Backlog - £39M Capital.

Funding from the revenue budget for Power Costs and Reactive/Cyclical repairs/Maintenance of the asset is around £5M per year.

Approach
Following the investment in the LED replacement programme the asset has remained stable with similar amounts of Capital expenditure over the last 15 years. Fluctuations in power costs have had an impact in the overall operation of the asset, but recent developments in the corporate contract for power costs will see a reduction of around 20-25%.

Future developments include the expansion of our pilot solar powered street lighting assets together with emerging technologies such as:

- Smart Street Lights: These are being equipped with advanced technology like IoT (Internet of Things) integration, enabling remote monitoring, adaptive brightness, and data collection for urban planning.
- Multi-Purpose Street Columns: Lamp posts and other street furniture are being transformed into hubs for public Wi-Fi, electric vehicle charging, and air quality monitoring. This is part of the UK's push for smarter urban infrastructure.
- Traffic and Safety Enhancements: Intelligent lighting systems are being integrated with AI to improve traffic flow, reduce congestion, and enhance road safety by adapting to real-time conditions.
- Support for Autonomous Vehicles: Street lights are being equipped with wireless technology to communicate with autonomous vehicles, providing updates on traffic, speed limits, and diversions.