

## **Appendix B**

### **Types of street lighting**

#### **Types of light**

##### **What is a Low-Pressure Sodium Light?**

1. Low pressure sodium vapor (LPS) lights are a specific type of gas-discharge light (also known as a high intensity discharge, HID or arc light). The bulb principally contains solid sodium metal inside a borosilicate glass tube that vaporizes once the lamp is turned on. During start (while the sodium is still in solid form) the lamp emits a dim reddish/pink glow. Once the metal is vaporized the emissions become the characteristic bright yellow associated with sodium vapor lamps. The spectrum of visible emissions from an LPS light is actually very close together (589 and 589.6 nm, virtually monochromatic) resulting in the colours of illuminated objects being nearly indistinguishable.

##### **What is a High-Pressure Sodium Light?**

2. High pressure sodium vapor (HPS) lights, similar to LPS lights, are a specific type of gas- discharge light (also known as a high intensity discharge, HID or arc light). The principal difference between low and high pressure sodium lights is the operating pressure inside the lamp. As indicated by the name, "high" pressure sodium vapor lights operate at a higher internal pressure. The arc tube is made of aluminium oxide and the sodium metal is combined with several other elements like mercury which counterbalances the yellow glow with some white to light blue emissions.
3. It is also worth noting that a number of lamp types, including high- and low-pressure sodium, are no longer manufactured in accordance with EU Directives. These lights can no longer be maintained and promote the need to convert to LED. Suffolk County Council have mentioned this in their annual letters sent to asset owners whose lights SCC maintain.

##### **What is a Light Emitting Diode (LED)?**

4. LED stands for light emitting diode. A diode is an electrical device or component with two electrodes (an anode and a cathode) through which electricity flows - characteristically in only one direction (in through the anode and out through the cathode). Diodes are generally made from semi-conductive materials such as silicon or selenium - solid state substances that conduct electricity in some circumstances and not in others (for example, at certain voltages, current levels, or light intensities). When current passes through the semiconductor material the device emits visible light.

##### **The Benefits of LED Street Lighting**

5. LEDs have extremely long lifespans and have filaments that will not quickly burn out. As such, they represent a cost-effective street lighting investment. An LED lamp can last up to 100,000 hours, which also means these street lights have

much reduced maintenance costs. This is a distinct advantage for more remote areas, where fitting LEDs can then mean replacing light bulbs is not an issue.

6. LED street lights give off less heat than other bulbs, making them far more energy efficient (requiring up to 40% less power). Then there is the quality of light that LEDs emit. They produce directional light, rather than a diffused glow. This means LEDs can direct light in specific areas and can also be dimmed where required (often unnoticeable to the human eye).
7. For areas where light pollution is a concern, these lights allow for a more sensitive, controlled approach to street lighting, helping to maintain the essential character of an environment.
8. In a time where budgets are squeezed, but where building and maintaining a sense of community and safety are more important than ever before, LED street lighting could be the perfect solution for district and parish council owned lighting (SCC has already committed to upgrade all of its lighting to LED by 2023).