



Over the years that electricity has been used to light our streets, several types of lighting have been installed. In the beginning, one lonely incandescent light bulb was hung on a corner post to light the area. Later came blue-green mercury vapour lights, followed by orange high and low-pressure sodium varieties. Today we are experiencing the introduction of an efficient, effective new technology - LED's (Light-Emitting Diodes), an electronic method of producing light.

### **Advantages:**

Like their siblings in common use, LED streetlights are very energy-efficient, requiring only forty to sixty percent of the energy of the low pressure sodium bulbs commonly in use. [Energy conservation is vitally important. Remember, for each watt used, it is estimated that one hundred watts are lost in production and transmission. Every watt is important because of the tremendous multiplying effect of power use or saving.]

LED streetlights in north Edmonton effectively and efficiently illuminate streets and sidewalks while reducing light pollution and trespass. Saving approximately 60% of the electricity formerly used, LED's are providing more environmentally-friendly lighting while addressing human concerns.

---

Light from the LED's can be directed very accurately, thus saving more energy than other bulb types. The LED light can be directed only on the roads and sidewalks while avoiding light trespass through the yards and houses of the neighborhood.

LED's last much longer than streetlights in use today. A high or low-pressure sodium bulb must be replaced almost every five years. Depending on the manufacturer and how it is controlled, the LED fixture may have to be replaced after 20 to 30 years. This means tremendous savings in maintenance and quickly pays for the LED light, its installation and power use.

To replace one of the current bulbs requires a crew of three men, a cherry-picker truck and the new bulb. It can cost upwards of four hundred dollars or more to replace one bulb! Over a period of twenty years this would mean four replacements and a cost of approximately sixteen hundred dollars! LED streetlights currently cost about five hundred dollars and these costs are expected to drop as the technology matures. Once installed, the savings and better lighting begins.

Most new, high quality LED streetlights are designed to be environmentally-appropriate, containing no mercury or lead and designed to be easily recycled.

As well, high quality LED streetlights are designed for Canadian conditions and longevity.

## LED Streetlights – 2/2.

---

LED's may be manufactured to produce a variety of 'colour temperatures.' This means that the colour of the light created can vary from a brilliant blue-white to a warm (more reddish) white colour depending on the specifications used.

LED streetlights can be immediately turned on or off (as opposed to other types). They can be individually controlled or controlled en-mass. They can also be dimmed to save energy, something not possible with current street lighting.

### **Disadvantages:**

Until recently, most LED's produced were of an intense blue-white variety. Blue light is dispersed through the atmosphere more easily than red (the reason why the sky is blue). To change to blue-white or blue lights would mean increased light pollution and a waste of energy. Thus, the use of blue-biased LED's is discouraged.

The eye is most sensitive to blue frequencies and this can cause problems such as increased glare, a problem experienced by our aging population. (Example: This effect is particularly noticeable when meeting vehicles equipped with high intensity blue-white LED headlights.)

Sensitivity to blue-white lighting can be expressed in a variety of ways by animals and humans. Artificial night lighting has been linked to increased levels of breast and prostate cancer as light at night, even at low levels, drives down the production of cancer-fighting melatonin in the body. Sleep-related problems can also be caused even by low levels of light, ultimately leading to a number of related disorders.

Blue-white LED's are also noted for causing problems for wildlife. Turtles respond to this light, distracting them from going to the ocean after hatching. Insects are attracted by blue-white light more than warm-white.

Blue-white streetlights not only attract them, but keep them circling until they drop and/or die of exhaustion. This also alters the way in which their predators, such as bats, operate at night.

### **Conclusion:**

LED streetlights can save a tremendous amount of energy and money when used to replace high and low pressure sodium or other bulbs. The focusing of the light also prevents glare, light pollution and trespass. Long LED life means that major monetary savings can be realized by not having to change out the bulbs every five years. Many LED streetlights are now designed with the environment and people in mind. They are warmer in colour, create a more natural light feeling, produce far less light pollution, and are recyclable and heavy metal free. Controllable by timers and/or sensors, they may be lit, shut off or dimmed on command or as required, another major money-saver.



Pedestrians can see more clearly and feel safer with the reduced glare and near-white light produced by LED lights in a full cut-off luminaire.