



Understanding Light Pollution

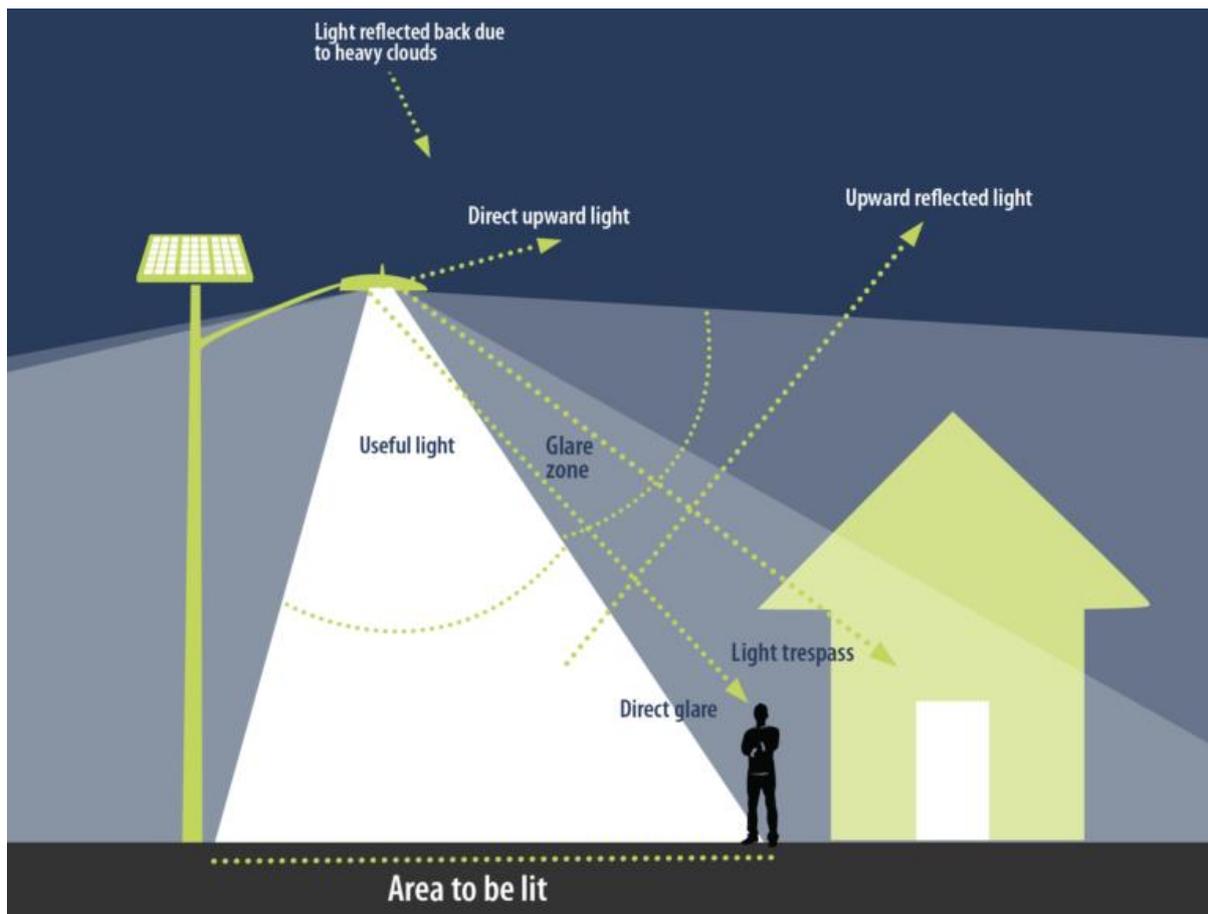


Health and Environmental Benefits

Equally important to the financial benefit are the environmental and health benefits associated with VIVIX lighting. There is a global movement to address the serious issue of Light Pollution which has been proven to have detrimental effects on human health, nocturnal wildlife and ecosystems. Public, outdoor lighting (i.e. Street lighting) is one of the primary contributors to Light Pollution and is therefore a primary target for emerging “Dark-Sky” policies. VIVIX LED outdoor lighting is fully Dark Sky Compliant and achieves a Zero Up-light rating.

Light Pollution:

Light pollution arises from careless and often misguided exterior night lighting practices. Light pollution wastes energy, causes hazardous glare, increases the production of greenhouse gases and compromises public safety. An unfortunate side effect of growth and development is increased levels of “light pollution” – light which doesn’t serve its intended purpose of providing safety and convenience. Instead, it spills outward and upward from poorly designed or inefficient light fixtures, trespassing on surrounding properties and polluting the skies.



“Light pollution” includes:

Urban sky glow: the single greatest threat to mankind’s view of the universe

Glare: blinds us and affects our ability to see into shadowed areas, often defeating the original intent of “security” lighting

Light trespass: when someone’s outdoor lighting affects us in an unwanted way, “trespassing” on our property

Clutter: confusing, conflicting lighting, particularly affecting automobile drivers

Energy waste: over one billion dollars a year is wasted in the U.S.A. alone because of ineffective or inefficient lighting

A simple Google search will reveal new research on the effects of light pollution, which disturbs the natural cycle of night and day, increases levels of breast cancer in women, causes disoriented birds to fly into buildings and prompts baby hatchling turtles to scurry towards lighted roadways. Many studies have been done which verify that light pollution has a detrimental effect on our quality of life and health. Ineffective lighting reduces safety and security. There is also no question that light pollution is a complete waste of billions and billions of dollars per year. Unfortunately, poor lighting is a significant problem in our society today. Most of the time, the user is merely unaware of the impact poor lighting has on the surroundings. Excessive use of artificial light not only hinders the aesthetics of the night-time environment, it can compromise the very safety it was installed to promote. Additionally, the loss of the dark star-filled sky is a consequence akin to the loss of our forested landscapes and other natural treasures.



Making “Cents” of Light Pollution

In a nation where people take recycling so seriously, where you recycle glass, paper, aluminium and turn off the light in the office when you leave, the amount of money wasted on light pollution is unbelievable...

The IDA estimate for the cost of light pollution in 1998 is 1 BILLION dollars. For comparison, the FY2000 NASA budget estimate is 13.7 BILLION dollars. This is only the cost of the WASTED light. The one that went up to produce what you see in the picture below. So, if you're still wondering what light pollution is, in addition to what you see below, it's more appropriately a hole in your pocket

Solutions...

Solution #1- Save Money: Replace existing lamps with LED.

Converting existing lamps like HPS (High Pressure Sodium), MV (Mercury Vapor), MH (Metal Halide), etc. to lower wattage, longer life LED lamps that give superior levels of illumination, would cut the electricity bills in half.

Solution #2: Secondary Optics for every outdoor light.

Choosing the right light source is very important but not everything. You can get the same illumination level with less money because the lamp is more efficient, but you will still waste light. The solution? The solution is of course to direct the light energy to the appropriate coverage areas (and nowhere else). If energy is being used to direct light to an area that doesn't require it, it's a waste of energy and harmful. One effective way to ensure light reaches the intended task surface and nowhere else is through efficient secondary optics in the LED system.

Myth 1: The brighter the better. WRONG!

FACT:

The human eye responds differently to low levels of illumination than to high levels of illumination. When levels of illumination are low, the human eye adapts and becomes much more sensitive to the available light.

Ever wonder why your bedroom seems so dark when you first turn off the lights and then, after about 20 minutes or so, the room seems much brighter? This is called “dark adaptation” or “night vision”.

Constant and uniform levels of night-time lighting at a moderately low level provide the best all-round visibility of your surroundings.

Light which can be seen coming directly from exposed lamps destroys night vision, causes “blinding” glare, and wastes energy, allowing light to reach the sky instead of the ground.

Myth 2: Bright lights enhance public safety. WRONG!

FACT:

Unshielded bright lights create extreme levels of contrast by producing areas of dark shadows adjacent to areas of intense glare.

Studies have shown that brightly illuminated areas having a dark perimeter (the area you see with your back to the light) are less safe than the same area having no artificial light source whatsoever!

Both glare and deep shadow obscure your vision – a very unsafe situation.

Myth 3: All lights are the same. WRONG!

FACT:

Outdoor lamps which allow light to shine above the horizon are wasteful of energy, and since they use electricity, they indirectly contribute to the production of greenhouse gases, notably carbon dioxide.

Unshielded lights produce glare that contributes to “light-trespass” (the shining of unwanted light onto neighbouring properties) and cause poor visual adaptation.

Properly shielded lights can use less wattage to attain the same ground level illumination, thereby saving energy costs. Using less energy also means producing lower levels of greenhouse gases from fossil fuelled electrical power generation stations.

Myth 4: Cheap lights save money. WRONG!

FACT:

Well shielded lights, which reflect all light to the ground and cut-off horizontal glare, require lower wattage bulbs to achieve the same level of ground illumination as lights which allow extraneous light to escape into the sky.

In the long run, the extra money invested in well-designed lighting fixtures more than pays back the investment, because of much lower long-term energy costs. This combined with ultra-efficient lamps (i.e. HEF) allows the Return on Investment to be very rapid and worth the expenditure.

Myth 5: Nobody really cares about the night sky. WRONG!

FACT:

Highly illuminated urban areas are known to confuse transient migrating birds and to upset the natural survival rhythms of many nocturnal animals.

Light pollution also causes stars to be “lost” in the bright background, effectively destroying our ability to see the natural beauty of the night sky.



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A Final Word

BrightVest Africa's full line of street lighting utilizes the most efficient and longest lasting technologies available. Our proactive approach to lighting and fixture design is helping communities across the world address the serious and growing concerns associated with "Light Pollution/Trespass". Helping you understand these challenges so that collectively we can solve them is our mandate...and just one of the ways we're making the world a safer and healthier place.