Caliginous Campaign

External Lighting Solutions on WPI

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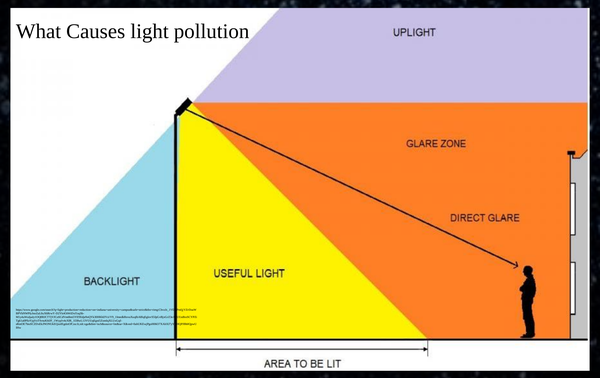
Light Pollution

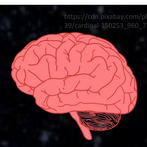
Sleep is the human body's only method of replenishing nutrients to the brain and recharging. However, without sufficient production of the hormone melatonin it is unable to do this effectively. Excess light at night is a major factor in disrupting the production of melatonin. College students especially cannot forego this period of rest. **Thus our objective is to improve the sleep of WPI students.**

The Big Problem




Sleep


Sky glow


Hormones


Obesity


Vision


Nature

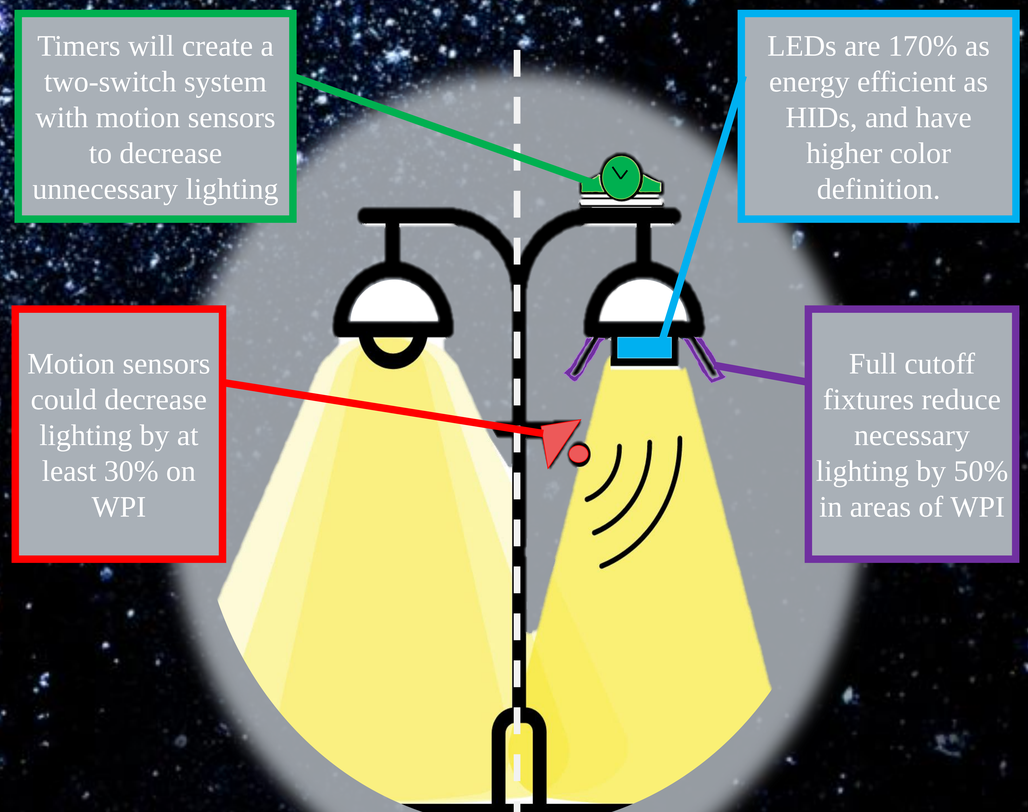

LED


Motion Sensor


Timer


Shielding

Pro:	Pro:	Pro:	Pro:
Dimmed depending on the lux needed	Lights are off when they are not in use	Lights are only on from dusk till dawn	Blocks glare and reduces wasted light
Con:	**Con:**	**Con:**	**Con:**
May produce harmful blue light	Maintenance / Complexity	Need to be changed with the seasons	Multi designs need



Implementation

We recommend that WPI use a combination of the described solutions to maximize the reduction of excess light on campus

Timers and Motion Sensors can be used in conjunction to further limit the amount of time external lighting is on when not in use

With Shielding, less energy can be used to light up the same amount of space

As a result of these aspects, in addition to improving students' sleep, WPI lighting will be much more energy efficient

Limitations

Reducing light on campus has the potential to give rise to a number of issue regarding safety

- Data on this subject is often conflicting or incomplete

While WPI Facilities already has plans to implement LEDs in all external lighting, introducing the other solutions may increase costs exponentially.

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