

What is Noise Pollution?

Noise is considered any type of obtrusive sound that is unwanted by the receiver. Noise pollution is the act of creating these sounds. Noise Pollution is typically measured in decibels and can be referenced to real life examples of machines and objects that operate at those frequencies in the diagram below. Anything above 80 decibels can cause permanent hearing loss. Therefore it is important to minimize the impact of noise exposure whenever possible, to avoid health and safety issues.



Source: Gabion Noise Barrier Walls & Fences, 2017

NOISE POLLUTION EFFECTS:

- Permanent hearing loss
- High blood pressure
- Insomnia
- Labored breathing
- Stress
- Altered brain chemistry
- Increase in crime
- Permanent damage to the voice

Source: Health Wire, 2017



How to Prevent Noise Pollution:

There are many steps you can take reduce your exposure to damaging levels of noise:

- Restrict noisy activities during nighttime hours;
- Use carpets on floors to help dampen sound;
- Install noise reducing glass and insulation in your home (will save you money too!!);
- Use earplugs or noise cancelling headphones in noisy environments;
- Turn off all your electronics when not in use;

- Plant trees to help screen your property from sound.

For additional ideas, go to:

<https://tinyurl.com/devensnoise>

What is Devens Doing to Prevent Excess Light and Noise Pollution?

The Devens Enterprise Commission (DEC) is the local regulatory authority overseeing the redevelopment of Devens. The DEC enforces light and noise impacts through the following methods:

- Education and awareness programs;

- Proactive planning and regulations that seek to minimize excessive lighting, light trespass and noise and maximize control and operations for new and existing facilities;
- Complaint and enforcement processes to expeditiously resolve any potential nuisance conditions.

Full details on the DEC's regulatory process concerning lighting can be found at:

<http://www.devensec.com/rules-regs/decregs404.html>.

Noise regulations can be found at:

<http://www.devensec.com/rules-regs/decregs405.html>. If

you have any lighting or noise concerns/complaints, please be sure to complete the following form and return it to the DEC: <https://tinyurl.com/DECcomplaint>.

This brochure was produced by the Devens Enterprise Commission as an informational piece. Any questions may be directed to peterlowitt@devensec.com or 978.772.8831.

Light and Noise Pollution



What is it?
How can it affect you?
What is Devens doing to address it?



Light and noise are a part of everyday life however too much of either can create potential problems environmentally, socially and economically. This brochure is intended to educate and raise awareness of light and noise pollution issues and how the redevelopment efforts of Devens are addressing these important conditions.

What is light pollution?

Excessive use of light can contribute to a condition called light pollution. Light Pollution obstructs the view of the night sky, wastes energy, and similar to other types of pollution, is harmful for your health.

Why is light pollution harmful?

Exposure to excess artificial light can have significant impacts to our health, safety and environment. Here are a few examples of how:

Health risks

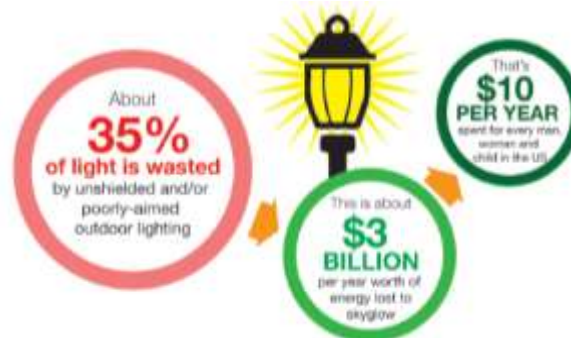
Our bodies follow a circadian rhythm that tells us when to wake up and when to sleep by releasing melatonin into our system. Changes to this vital part of our body can adversely impact our mind manipulating our physiological health and create hormonal imbalances. The bodies resulting lack of melatonin can lead to sleep deprivation and the problems that come with it such as diabetes, heart disease and high blood pressure. Light temperatures less than 3500K can help minimize health impacts:



Source: International Dark Sky Association, 2017

Energy Efficiency

Excess lighting wastes energy, increases carbon emissions and increases costs to consumers. In the U.S. alone, the International Dark Sky Association estimates that over \$3 billion dollars a year is lost to improper/excessive lighting. Outdoor lighting in the US is responsible for an estimated 15 million tons of CO2 emissions, which is equivalent to the emissions of 3 million cars.



Source: International Dark Sky Association, 2017

To offset these emissions, we would have to plant 600 million trees every year. But by focusing lighting to specific tasks (like parking lots and street lights where necessary), controlling the light temperature, intensity and direction, we can significantly reduce the energy demand and subsequent carbon emissions and costs to consumers.

Safety and Light Trespass

Light trespass is the spillover of excess light from one property to another and it can cause significant nuisance conditions. Glare from bright, unshielded



Unshielded (left) and shielded (right) light producing glare that reduces visibility. Source: International Dark Sky Association, 2017

The glare from unshielded lights can also shine into your eyes and constrict your pupils - diminishing your eyes' ability to adapt to low-light conditions. Using the right amount of properly directed/shielded light is important to reduce glare, improve visibility at night and reduce light trespass. This can also help reduce crime and traffic accidents by improving all nighttime visibility.

Natural Environment

Light pollution is harmful for wildlife, disrupting their circadian rhythm and internal clock, causing potential negative ecosystem impacts. Large amounts of artificial light can cause declines in insect populations, as their attraction to artificial light can kill them. This effect causes issues on a larger scale as it can disrupt the food chain as well as reduce pollination of plants. Ambient light can affect other species directly as well, including: amphibians, birds, turtles and water life such as coral which uses the moon as a biological clock.

How can I avoid light pollution?

- Turn lights off when not in use;
- Use Light timers and/or sensors to control when lighting is needed (can save \$\$ too!);
- Install dark-sky compliant fixtures and proper shielding on outdoor lighting to properly direct lighting downward – not out or up. This will also help reduce glare and improve visibility;
- Using devices at night can be problematic; by changing the color temperature the effects of light pollution can be minimized. This can be done by using an app for android phones called F.lux : (<https://tinyurl.com/bluelightred>) and for iphones color temperature can be configured in settings
- Use light blocking curtains in bedrooms;

For more information on the impacts of excessive lighting and what you can do to reduce impacts, go to: <http://www.darksky.org/resources/public-outreach-materials/#brochures>