

What is Noise Pollution?

Noise is essentially unwanted information or sharp changes in tones. Noise pollution is the act of creating noise. Noise is measured in decibels: 0 decibels is silent, 0 to 70 decibels is moderate, 70 to 80 decibels is the volume where noise can start becoming problematic. 80 to 120 decibels is considered loud noise and exposure at these levels for extended periods can cause permanent hearing loss. Therefore it is important to reduce noise pollution and your exposure to loud noise as much as possible.



Prolonged exposure to excessive noise can cause serious health and safety impacts:

NOISE POLLUTION EFFECTS:

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



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>.

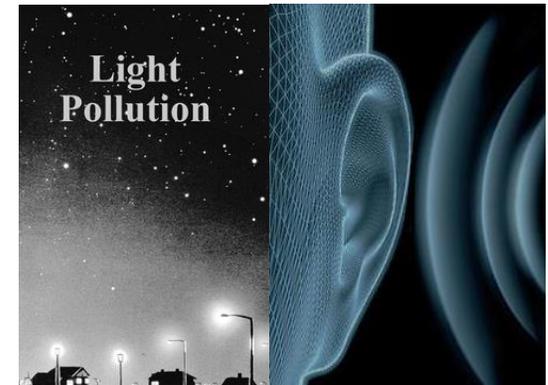
Noise regulations can be found at:

<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 (our natural clock) that interacts with our body systems, changes our hormone levels and even modifies our genetic code. Natural light helps keep our clock in tune. Increased exposure to artificial light can disrupt our circadian rhythm which can lead to greater risk of cancer, and other health factors including depression, weight gain, diabetes, and stress. The temperature of artificial light is also important:

Not All Artificial Light Is Created Equally

Warm White	Natural White	Day White	Cool White
2700K-3500k	4000 K-4500 K	5000 K-5500 K	6000 K-7000 K



Exposure to blue light at night is especially harmful because it is particularly disruptive to circadian rhythms and melatonin production. Unfortunately, most LEDs used for outdoor lighting — as well as computer screens, TVs and other electronic displays — create abundant blue light. We recommend using light bulbs that emit warm white light with a color temperature of 3000K or lower.

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.



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 lights can decrease visibility and safety by creating shadows that make it more difficult to see.



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;
- Use light bulbs that emit warm white light with a color temperature of 3000K or lower.
- If you must use devices at night, install a color temperature app that automatically limits blue light at night based on your time zone (for android phones: <https://tinyurl.com/bluelightred>. For i-phones: go to :Settings/Display & Brightness – and select “Night Shift”);
- 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>