

What are Dark Skies?

Night Sky Environment

The cycles of light and dark, created by celestial bodies outside of the earth's atmosphere, directed cycles of activity and growth for all living things on earth until the proliferation of lighting technologies. Today a view from space of earth's surface at night reveals a matrix of lights, stretching from metropolis to metropolis illuminating those areas most influenced by humanity. Understanding your role in the Night Sky Environment can help you make choices that reduce the impact lighting is having on you and your community.

Our Impact

Many of us have experienced this scenario: a neighbor installs a new light on their property. It's an unshielded fixture that casts a bright light that spills onto your property and perhaps even inside your home. Frustrating right?

Have you considered that you might be that neighbor in someone else's scenario? Topography in Emigration Canyon can create scenarios in which light sources can directly affect homes at great distances. The four topics below; **Skyglow**, **Light Pollution**, **Light Trespass**, and **Glare**, can help you better understand the potential impacts of uncontrolled light.

SKYGLOW

Skyglow occurs when ambient manmade light floods the sky creating a glow that can be almost as bright as dawn or dusk. The accumulated light washes the night sky of its luminosity and brilliance, forcing urban and suburban dwellers who wish to enjoy a view of the Milky Way Galaxy or constellations to travel to areas where light pollution does not exist or is better controlled.

Communities and areas can be rated as to the quality of their Night Sky Environment from 9 to 1 based on the levels of Skyglow effecting their night sky environment.

Where would you rate your community on the scale below?

Why do Dark Skies Matter?

Human Health

Humans Need The Natural Day/Night Cycle

Our biological clocks help keep us healthy. When our master clock is out of sync with the day/night cycle, it's called circadian disruption. Altering or interrupting our normal circadian rhythm can put us at risk for physiological and behavioral impacts.



Light Pollution Can Put Your Health at Risk
International Dark Sky Association

Ecological Health

Artificial Light Disrupts Ecosystems

Plants and animals depend on Earth's daily cycle of light and dark to govern life-sustaining behaviors such as reproduction, nourishment, sleep and protection from predators. Scientific evidence suggests that artificial light at night has negative and detrimental affects on many living things, including amphibians, birds, mammals, invertebrates, and plants.



Light Pollution Can Harm Wildlife
International Dark Sky Association

Waste

Light Pollution Costs Money And Wastes Resources

Unnecessary and/or excessive outdoor lighting wastes energy by emitting more light than necessary or shining when and where it is not needed. Wasting energy in this way has economic and environmental consequences.



Light Pollution Costs Money and Wastes Resources
International Dark Sky Association

Safety

Brighter Does NOT Mean Safer

Research shows that consistently lighting the nighttime environment does not necessarily improve safety or security.



Outdoor Lighting, Crime, and Safety
International Dark Sky Association

Dark Sky Friendly?

Take the QUIZ

Do you know if your home lighting is community and night sky friendly? Follow the steps below to find out. Most people will find that a few simple changes can lead to lighting that is both beautiful and functional, without contributing to excessive light pollution.



Dark Sky Friendly Home Lighting Program
International Dark Sky Association

Review YOUR Ordinance

DARK SKY ORDINANCE | MUNICIPAL CODE: 19.73.110 NIGHT LIGHTING
Emigration Canyon Mesa Township
Municipal Code



Develop YOUR Plan

Follow the steps below and utilize the Emigration Canyon Dark Skies Do's and Don'ts guide to develop a Dark Sky Adapted Lighting Plan for your Property!

1. Draw a simple sketch of your property
2. Differentiate the Hardscape Areas From the Softscape Areas
3. Identify all the places you would like to light, and when you would like to light them.
4. Mark on your plan where you will place a light source.
5. Create a list of the light fixtures you will use, and identify on the plan which light fixture will be used at each light source.

LIGHT POLLUTION

Light pollution is a side effect of industrial civilization. Its sources include building exterior and interior lighting, advertising, commercial properties, offices, factories, streetlights, and illuminated sporting venues.

The fact is that much outdoor lighting used at night is inefficient, overly bright, poorly targeted, improperly shielded, and, in many cases, completely unnecessary. This light, and the electricity used to create it, is being wasted by spilling it into the sky, rather than focusing it on to the actual objects and areas that people want

Dark Sky Don'ts

Leave Lights on All Night!

If you are not using the area, please don't leave it lit! Turning off outdoor lights an hour after dusk is an easy and free way to become Dark Sky Friendly!

Dark Sky Dos

Turn Lights off!

If you are not using the area, please don't leave it lit! Turning off outdoor lights an hour after dusk is an easy and free way to become Dark Sky Friendly!

LIGHT TRESPASS

Light trespassing is when light from one house or property is improperly controlled and crosses boundaries. Trespassing light interferes with the darkness of other properties or even brightens the inside of another persons home.

Low Level

Light should be no brighter than necessary Use the lowest light level required. Be mindful of surface conditions, as some surfaces may reflect more light into the night sky than intended.

Controlled

Use light only when it is needed Use controls such as timers or motion detectors to ensure that light is available when it is needed, dimmed when possible, and turned off when not needed.

Useful

Use light only if it is needed All light should have a clear purpose. Consider how the use of light will impact the area, including wildlife and their habitats.

Targeted

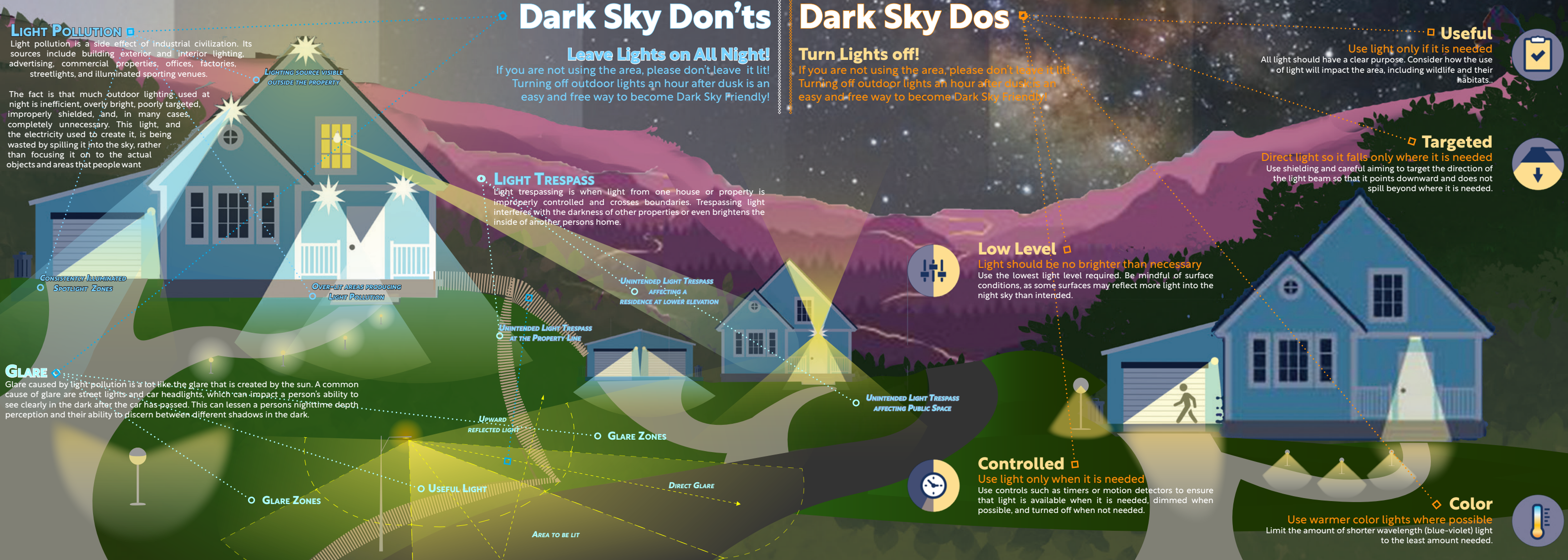
Direct light so it falls only where it is needed Use shielding and careful aiming to target the direction of the light beam so that it points downward and does not spill beyond where it is needed.

Color

Use warmer color lights where possible Limit the amount of shorter wavelength (blue-violet) light to the least amount needed.

GLARE

Glare caused by light pollution is a lot like the glare that is created by the sun. A common cause of glare are street lights and car headlights, which can impact a person's ability to see clearly in the dark after the car has passed. This can lessen a persons nighttime depth perception and their ability to discern between different shadows in the dark.



Develop your
Night Lighting Plan

in **5**
basic Steps

1. Sketch your Property's Landscape Plan



Measure distances and areas in Google Earth



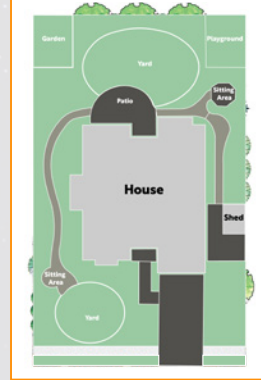
Use what you have!

Do you already have a landscape plan? What you are looking for is a calculation of the square footage (sq. ft.) of the areas you would like to light.

If not, a pen and paper will do. Go analog. Pace off your areas for a rough estimate, draw them on a piece of paper to use as a reference.

Use Google Earth
There are a number of applications online that can help you measure the square footage of an area. You may find the tools available in Google Earth quite useful for this. Use the scan code above for useful tips on using the tools available.

2. Differentiate the Hardscape Areas From the Softscape Areas



Why differentiate?

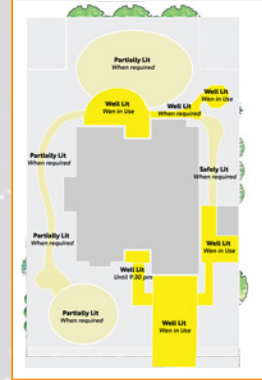
We typically have very different expectations about how we light hardscape and softscape areas.

By prioritizing lighting hardscape first, you will ensure you are being purposeful and useful with your lighting choices.

Hardscape is any non-living horizontal site element, including but not limited to patios, decks, walkways, sidewalks, driveways, and steps. Any surface that you intentionally installed to move around on or park a car.

Softscape is any area within the site plan where hardscape is not present. These areas are your turf grass, your planter beds, your garden, and your natural landscape.

3. Identify areas you would like to light, and when you might need them lit



Think Safety. Think Fun.

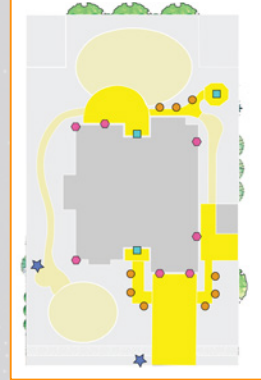
Remember the 5 guiding principles: **Useful, Targeted, Low Levels, Controlled, & Color**

Prioritize areas that will be most heavily traveled. Plan for activities that you would like to take place on your property.

Calculate the sq. ft. of each individual hardscape area you wish to light. This will help you calculate how much lighting you will need to light each individual area.

Combine the total sq. ft. of all the hardscape areas you wish to light. By calculating the total of all the hardscape areas, you can obtain a general sense of how much lighting you may need install on your property.

4. Mark on your plan where you will place each light source type



Lighting Choice

Footcandles Allowed / Sq. Ft. Hardscape = Total Lumen

This is not a perfect formula, but is a good "rule of thumb" that can help you estimate a total light allowed for the property.

Use only **Full Shielded Fixtures!**
Do not shine or reflect light upwards! Choose light fixtures and fixtures that emit no light above the horizontal plane. Need help? Use the QR Code above for advice.

Use bulbs with **color temperature** of less than three thousand degrees kelvin (3000°K). Don't use lights that are blue or white in color temperature.

Take advantage of exemptions. Using motion sensors and certain types of pathway lighting may allow you to install lighting that is excluded from your total lumen count.

5. Create a list of the products used for each light source. Demonstrate compliant lighting. Identify exceptions. Follow your lighting plan. The easiest and most cost effective way to be **Dark Sky Friendly** is to turn off lights when they are not in use!

Quick Tip Dark Sky Don'ts

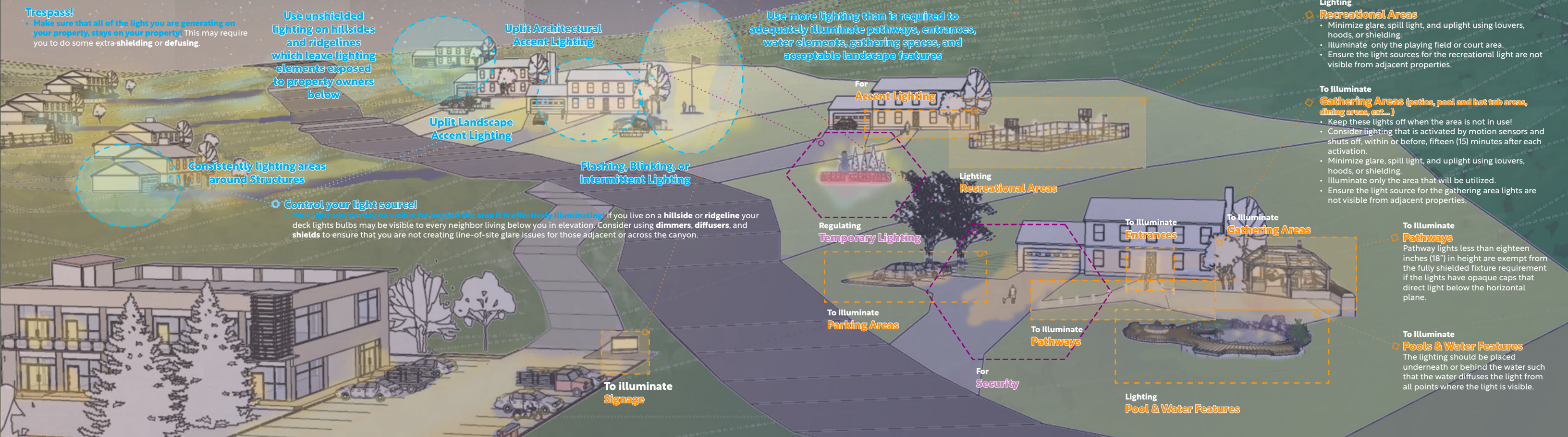
- Do Not! Leave lights on!**
- Only use the light you need, where you need it, when you need it! Constantly lit lights waste time, money, are less secure, and interrupt human and ecological health!
- Uplight!**
- Do not shine lights upwards! Not for Architectural Lighting, Landscape Lighting, Signage, Floodlights, Security Lighting, Holidays and Special Events. Keep all lights shining only below the horizontal plane.
- Trespass!**
- Make sure that all of the light you are generating on your property, stays on your property! This may require you to do some extra shielding or defusing.

Quick Tip Temporary Dark Sky Friendly

- Regulating**
- Temporary (Exterior or Decorative) Lighting**
 - Turn off lighting used for holidays, or special events after 10:00 pm.
 - Do not to exceed the allowed footcandle limit for the property.
 - Limit Display Periods to reduce Potential Disturbance.
- For Security**
- Don't leave lights on all night!**
 - Use **motion sensors** that don't activate unnecessarily.
 - Direct light so it does not fall outside of your property Boundary.

Quick Tip Dark Sky Dos

- To Illuminate Signage**
- Signs can be unlighted, lighted externally, lighted internally, or backlit, as long as the source light is not visible.
 - Lighting for signs should be directed so that only the sign's face is illuminated.
 - Lighting for signs must utilize stationary and constant lighting.
 - All sign elements must be stationary.
- For Accent Lighting**
- Accent lighting should never be directed upward.
 - Accent lighting for structures should illuminating only building facades visible from an adjacent public right of way such as a street or sidewalk.
 - The accent lighting light source should not be visible beyond the property boundaries.
 - The accent lighting should not be used to illuminate landscapes, landscape elements, statues, or other similar features.
- To Illuminate Parking Areas**
- Any light post used to illuminate parking lots in commercial zones shall not exceed fourteen feet (14').
 - The overall height of any light post used to illuminate residential parking zones shall not exceed six feet (6').
 - All post-mounted parking lot lights should set back from property lines a distance equal to two and one-half (2.5) times the height of the pole.



DO NOT USE BLUE COLOR TEMPERATURE LIGHTING ON YOUR PLAN!

Use lighting within the natural light color temperature.

> 3,000 Kelvin