



EMIGRATION CANYON
METRO TOWNSHIP

Planning and Development Services

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GREATER SALT LAKE
Municipal Services
District

DARK SKY ORDINANCE | PROGRESS REPORT

Part of the UPDATE OF MUNICIPAL CODE:

19.73.110 NIGHT LIGHTING

Public Body: Emigration Canyon Planning Commission

MSD Planner: Matthew Starley, Long Range Planner

MSD Planning Staff Recommendation: Review and Comment

PROJECT DESCRIPTION

Emigration Canyon Metro Township has identified in the Community Values section of the General Plan that environmental sustainability & protection of the natural environment is important to community members, and the identity of the Metro Township. The expressed aim of the General Plan is to “*maintain or enhance environmental sustainability and stewardship now and for future generations; this includes but is not limited to features such as water quality, open space, noise management, dark skies, air quality, biodiversity, and climate resilience.*” pg. 30-31

Utah Department of Workforce Services (UDWS) has distributed a “Guidance & Best Practices: Dark Sky Planning” manual intended to introduce Elected Officials and their communities to dark sky planning and concepts. In this document, DWS established the importance of night sky planning by describing some of the issues associated with light pollution.

Light pollution is a threat because of the negative effects on humans and the environment as well as long-term consequences, such as biodiversity, economic, and cultural loss, that cannot easily be reversed. However, in contrast to other types of pollution, the negative effects of light pollution can be mitigated easily and cost-effectively.

UDWS, Guidance & Best Practices: Dark Sky Planning, pg. 6

To mitigate these potential negative effects, Emigration Canyon planning staff have engaged to develop and more robust Night Sky Ordinance that is intended to update the existing municipal code 19.73.110 Night Lighting. Regular progress reports have been made to the Planning Commission and feedback has been integrated. The draft shared in coordination with this report, Emigration Canyon MT Dark Sky Ordinance Draft Round 7, will constitute the sixth draft to be shared with the commission.

For this **Draft 7**, MSD staff have integrated the thoughtful comments made by PC members. Quick highlights to look for in this draft:

Open Comments: Items that we should discuss in the next working session.

Resolved Comments: Items that have been addressed, left identified for your scrutiny.

Language suggested being removed.

Language that should be addressed

Language that has been modified for your consideration

- **Temporary Exterior or Decorative Lighting**
 - Temporary exterior or decorative lighting, provided that individual lamps do not exceed 70 lumens, the total output of temporary lighting does not cause the property to exceed total allowable footcandle levels detailed in this Chapter, and the lighting does not cause light intrusion nor interfere with the reasonable use and enjoyment of surrounding properties.
 - *This had been reworded to improve clarity.*
- **Signs.**
 - Where other municipal ordinances are in conflict with the provisions of this Chapter, this Chapter shall apply and take precedence.
 - *This had been reworded to improve clarity.*
 - Lighting for signs must utilize stationary and constant lighting.
 - All signage elements must be stationary.
 - **Definitions for Stationary and Constant have been added to the Definitions Section.**
- **Prohibited Lighting**
 - **Floodlights or Spotlights affixed to buildings for the purpose of lighting parking lots.**
 - *Is this language that we want to include?*
- **Hillsides, ridgelines, and special cases.**
 - Any light source that is directly visible from outside the property boundaries on which the light source is located, the property owner shall be required to demonstrate a good faith effort to redirect, shield, and/or diffuse the light source to address any unintended effect on the quality of night sky conditions within the municipality. This provision does not apply to existing lighting during which time it is subject to the amortization period identified in this Chapter.
 - *This had been reworded to improve clarity.*
- **Definitions Section**
 - *Definitions section has been improved. Some superfluous definitions have been removed. Others have been improved for clarity.*
- **Poster Graphics**
 - Poster Graphics have advanced considerably. Examples for your comment have been made available with this round of updates. Included pdfs:
 - Poster Working 48x60
 - Poster Working 48x30
 - Slide Show Working
 - Please make any comments you may have on these pdfs.

GENERAL PLAN CONSIDERATIONS

Language about protecting and promoting the health and long-term sustainability of the natural environment in the canyon is a consistent theme throughout the General Plan document. There are also many instances in which the connection between the quality of the night sky environment and ecological and community health are identified. Updates to the dark sky ordinance existing are supported by the General Plan Work Program. The following is an excerpt from the General Plan Work Program, which outlines the creation and enactment of a Dark Sky Ordinance as an *Immediate and Ongoing* action item.

Chapter 5: Environment Work Program (*Emigration Canyon General Plan 2022 pg. 144-145*)

- **Goal 5.3:** Preserve and enhance natural areas and ensure that landscapes are functional and diverse.

- **Objective 5.3.3:** Preserve and enhance views of the night sky and protection for nocturnal wildlife.
 - **Actions** - a. Support the adoption of a Dark Sky-compliant light-pollution control ordinance.
 - **Lead(s)** - PDS, PC, EC Metro
 - **Timeline** - Immediate and ongoing
 - **Cost** - Staff time
 - **Metric** - Ordinance enacted
 - **Resources** - See also objective 2.3.2a

LAND USE CONSIDERATIONS

Suggested updates to the zoning ordinance would apply to all land use zones within the Metro Township. However, the ordinance is being presented at this time for discussion purposes only. Staff has not initiated the process for adopting the drafted language. The intent is to control the use of night lighting between the hours of 1 hour after dusk, until 6:00 am the following morning general, with some exceptions for commercial properties and special conditions that require lighting for safety. It is the opinion of planning staff that controlling nighttime lighting use through the update of the existing Night Sky Ordinance will support the current land use expressed within the canyon by reinforcing the naturalistic and rural character of the community.

Unique standards exist for properties containing:

- Residential | Single-Family Detached Housing Units
- Residential | Multi-Family Housing Units
- Commercial Uses & Religious Institutions

ISSUES OF CONCERN/PROPOSED MITIGATION

Planning Staff is hoping the Council and Planning Commission will consider the merits of proposed updates to the Night Sky Ordinance. Issues of particular interest that the Commission might consider for topics of discussion are:

- This draft has been shared with partners internal and external. There may be some suggestions that are made before our next meeting.
- Graphics are being developed and coming along well.
- Are we ready for public feedback on the Ordinance Update before suggesting adoption?

NEIGHBORHOOD RESPONSE

At this point, staff has not received any feedback from the public regarding the Night Sky Ordinance update.

REVIEWING AGENCIES RESPONSE

A review by Emigration Canyon's attorney and the MSD's land use attorneys will be completed prior to the adoption of the comprehensive code updates.

Heidi Hoven of the Audubon Society as well as Lisa Stoner of Utah State University Extension services have been shared a copy of this draft. We are awaiting any comment.

Other agencies will review the code as needed based on the content.

PLANNING STAFF ANALYSIS

Previous draft plans have relied heavily on the similar ordinances drafted and adopted in: Moab, Torrey, Eagle Mountain, and Helper City, Utah, as well as several guidelines produced by the International Dark Sky Org. Staff also received guidance and advice from Dark Sky experts with the planning community here in Northern Utah. The current version of the Ordinance has been adjusted to reflect an approach to total allowable light use calculations more like that utilized Fort Collins and Boulder, Colorado municipal code. These cities were recommended by the Reviewing Agencies experts referred to previously. These changes reflect, in the opinion of the staff, an improvement to the previous “net acre” calculation method employed in the first draft.

PLANNING STAFF RECOMMENDATION

The MSD Planning Staff recommends that the Emigration Canyon Metro Township Planning Commission review and provide feedback on proposed Amendments to the Night Sky Ordinance.

DOCUMENT COMMENT AND RESPONSE HISTORY

- Draft Document Color Legend -

Response from MSD Staff

Comment on this draft has responded to those comments made during the previous working session. Particular subjects of interest were covered in the Project Description.

Emigration Canyon Metro Township

DARK SKY ORDINANCE | MUNICIPAL CODE: 19.73.110 NIGHT LIGHTING

19.73.110 – Purpose.

A. The purposes of this chapter are to:

1. Encourage lighting practices that minimize light pollution, glare, light trespass, and sky glow to curtail the night sky's visual environment's degradation.
2. Encourage lighting practices that promote energy conservation.
3. Maintain nighttime safety, utility, and security and prevent unnecessary or inappropriate outdoor lighting and lighting nuisances on properties.
4. Prevent unnecessary or inappropriate outdoor lighting and lighting nuisances on properties.
5. Maintain the rural atmosphere and community character of the Metro Township.
6. Preserve and enhance views of the night sky and protections for nocturnal wildlife.

19.73.111 - Scope and Applicability.

A. Compliance.

1. Lighting installed and/or replaced after the effective date hereof in all zones in the Metro Township shall conform to the requirements established by this Chapter.

B. Nonconforming Uses.

1. Lighting that does not meet the requirements of this Chapter and is not exempt from the requirements of this chapter shall be considered a nonconforming use.

C. Modifications.

1. Compliance through the Building Permit Process: The Metro Township requires that lighting be brought into compliance through the building permit process;
 - i. If modifications are made to any structure which requires the removal of a nonconforming luminaire, the luminaire shall be replaced or modified to bring it into compliance with the provisions of this Chapter.
 - ii. If the proposed structural modifications represent a value of 50% or more of the property value at the time of submittal. A lighting plan for the property shall be submitted subject to the conditions outlined in Section 19.73.117 - Application and Review Procedures.
2. In the event a nonconforming luminaire is replaced, destroyed, damaged, or modified by fifty percent (50%) or more, the replacement shall comply with the provisions of this Chapter.

D. Conflicts.

1. In the event any federal, state, or county statute or regulation conflicts with any provision of this Chapter, the most restrictive statute, regulation, or provision shall govern unless otherwise required by law. In the event any provision of the Metro Township's other ordinances conflicts with the provisions of this Chapter, the provisions of this Chapter shall govern.

19.73.112 - Conditions and Standards.

A. Minimum Necessary.

1. Outdoor (exterior) lighting shall be the minimum necessary to provide for safety and functionality. The lowest-lumen light source necessary for a lighting application shall be used.
 - a. All lighting shall be purpose-driven:
 - i. Useful: All light used shall have a clear purpose.
 - ii. Targeted: Light shall be directed only to where needed.
 - iii. Low Light Levels: Light shall be no brighter than necessary.
 - iv. Controlled: Light shall be used only when it is useful.
 - v. Color: Where possible, warmer color lights shall be used.

B. Allowable Applications.

1. Outdoor lighting in compliance with the Chapter shall only be allowed in the following applications:
 - a. To illuminate the entrances to buildings (including garage entrances).
 - b. To illuminate pathways and walkways.
 - c. To illuminate parking areas and parking area access lanes.
 - d. To illuminate gathering areas, such as patios, pool and hot tub areas, dining areas, and recreation areas.
 - e. For security purposes, provided all the following conditions are met:
 - i. The lighting is activated by motion sensors and shuts off, within or before, fifteen (15) minutes after each activation or when the activity involved is completed.
 - ii. The lighting is placed and directed such that no direct illumination falls outside the property boundaries where the security lighting is placed.
 - iii. Sensors are adjusted to meet site conditions to avoid repetitive activation by wildlife, wind, and/or other disturbances.
 - f. To illuminate signage.
 - g. For Accent Lighting, provided all the following conditions are met:
 - i. All accent lighting is mounted on and illuminating only building facades visible from an adjacent public right of way.
 - ii. The accent lighting is sufficiently shielded such that the light source is not visible beyond the property boundaries.
 - iii. The accent lighting is directed such that all light shines on the building facade, not on the adjacent property or the night sky.
 - iv. The accent lighting is not used to illuminate landscape, landscape elements, statues, or other similar features.
 - h. To illuminate outdoor water features, provided all the following conditions are met:
 - i. The lighting is angled below the horizontal plane.
 - ii. The lighting is placed underneath or behind the water such that the water diffuses the light from all points where the light is visible.
 - i. Temporary exterior or decorative lighting utilized for holidays, special events, or otherwise shall be extinguished after 10:00 pm, and shall not exceed the allowed footcandle limit for the property. Temporary lighting shall be limited to the following:
 - i. The period of time between Thanksgiving Day and New Day Year's Eve each calendar year; and,

- ii. Periods of time not exceeding 14 days per calendar month for other holidays and special events.

C. Total Light Output.

1. Commercial Properties and Religious Institutions - The total amount of outdoor lighting, whether shielded or unshielded, shall not exceed 2.5 footcandles per square foot of hardscape
2. Multi-Family Residential Properties - The total amount of outdoor lighting, whether shielded or unshielded, shall not exceed 2.0 footcandles per square foot of hardscape.
3. Single-Family, Two-Family Residential, and Duplex Unit Properties - The total amount of outdoor lighting, whether shielded or unshielded, shall not exceed 1.0 footcandles per square foot of hardscape.
 - a. Single-Family, Two-Family Residential, and Duplex Unit Properties used for overnight accommodations or commercial uses shall comply with Single-Family Residential standards for total light output.
4. For all Properties – Light output from indoor and outdoor sources shall not exceed 0.1 footcandles at the property line.

D. Maximum Color Temperature of All Outdoor Lighting Fixtures.

1. The correlated color temperature of any outdoor lighting fixture shall not exceed three thousand degrees kelvin (3000°K).

E. Fully Shielded Fixture Requirements.

1. Unless specifically exempted by this Chapter, all outdoor lighting shall use fully shielded fixtures that are designed and constructed so that:
 - a. No light is emitted and/or reflected above the horizontal plane of the fixture.
 - b. Lighting is placed and/or directed at a location, angle, and/or height to prevent direct illumination outside the property boundaries where the light fixtures are located.
 - c. When a light manufacturer provides a BUG rating, the uplight rating (U) shall equal zero (0).
2. Characteristics:
 - a. To qualify as a fully shielded fixture, the top and sides of a light fixture shall be made of completely opaque material, such that light only escapes through the bottom of the fixture. Fixtures with translucent or transparent sides, or sides with perforations or slits, do not qualify as fully shielded. Any glass or diffuser on the bottom of the fixture must be flush with the fixture (no drop lenses) and must not reflect light that breaks the horizontal plane established at the top of the fixture. Merely placing a light fixture under an eave, canopy, patio cover or other similar cover does not qualify the fixture as being fully shielded.

F. Exemptions To Fully Shielded Fixture Requirements. All lighting identified in this Section shall be included in calculating the total footcandle output allowed unless otherwise noted and as set forth in Section 19.73.112. C.

1. Spotlights:
 - a. Spotlights controlled by motion sensors having a light output of less than one thousand (1000) lumens per lamp are exempt from the fully shielded requirement, provided:
 - i. The fixture is a spotlight or other type of directed light that shall be directed at a forty-five-degree (45°) angle or less, where the zero (0) angle is pointing straight down, and
 - (a) The fixture must not be placed in such a manner that results in light trespass, and

- (b) The lighting elements controlled by motion sensors shall not be triggered by movement or activity located off the property on which it is located.
 - ii. The fixture is hooded or shielded to the extent necessary to prevent glare on adjacent properties or roadways.
 - iii. The lighting is activated by motion sensors and shuts off, within or before, fifteen (15) minutes after each activation or when the activity involved is completed.
- 2. Pathway Lights:
 - a. Pathway lights less than eighteen inches (18") in height are exempt from the fully shielded fixture requirement if:
 - i. The total light emitted by all pathway light fixtures as measured along the centerline of the pathway lighted does not exceed 1.0 footcandles; and
 - ii. The lights have opaque caps that direct light below the horizontal plane.
- 3. Temporary Exterior or Decorative Lighting:
 - a. Temporary exterior or decorative lighting, provided that individual lamps do not exceed 70 lumens, the total output of temporary lighting does not cause the property to exceed total allowable footcandle levels detailed in this Chapter, and the lighting does not cause light intrusion nor interfere with the reasonable use and enjoyment of surrounding properties.
- 4. Law Enforcement Lighting Traffic Control Signals and Traffic Safety Devices:
 - a. Traffic control signals, traffic safety devices, and law enforcement lighting, used by a governing agency, is exempt from and not governed by the provisions of this Chapter
- 5. Temporary Emergency Lighting:
 - a. Temporary emergency lighting in use by law enforcement or government agencies, or at their direction, is exempt from and not governed by the provisions of this chapter.
- 6. Pool Lighting
 - a. Underwater lighting fixtures providing illumination to all underwater areas of the pool.
- G. Restrictions On Total Amount of Unshielded Lighting.
 - 1. Outdoor lighting that is exempt from the shielding requirement in this Chapter shall not contribute more than the equivalent of:
 - a. 0.25 footcandles per square foot of hardscape for commercial properties.
 - b. 0.2 footcandles per total square foot of hardscape for multi-family properties.
 - c. 0.1 footcandles per square foot of hardscape for residential properties.
 - 2. All lighting fixtures shall be fully shielded when installed within twenty-five (25) feet of adjacent residential property lines.

19.73.113 – Night Lighting Limitations.

- A. Commercial Establishments and Religious Institutions.
 - 1. Shall turn off all outdoor lighting, except those listed below, within one hour after closing.
 - a. Lighting to illuminate the entrance(s).
 - b. Parking lot and pathway lighting required for the safety of guests.
- B. Recreational Lighting (Residential and Commercial).
 - 1. Shall be turned off one hour after dusk ending the following morning at 6:00 am, except to conclude a community-approved event that is underway.
- C. Multi-Family Residential Property Lighting.

1. Shall be turned off one hour after dusk ending the following morning at 6:00 am, except those listed below:
 - a. Lighting to illuminate entrances.
 - b. Parking lot and pathway lighting required for the safety of residents or guests.
 - c. Outdoor gathering and recreational spaces, when in use.
- D. Single-Family Residential Property Lighting.
 1. Shall be turned off one hour after dusk ending the following morning at 6:00 am, except those listed below:
 - a. Lighting to illuminate entrances.
 - b. Parking lot and pathway lighting required for the safety of residents or guests.
 - c. Outdoor gathering and recreational spaces, when in use.

19.73.114 - Specialized Outdoor Lighting.

- A. Roadway/Streetlights.
 1. Roadways and streetlights are prohibited unless recommended by the County Engineer or required by the Utah Department of Transportation (UDOT). When deemed necessary, streetlights shall utilize lamp types that are fully shielded luminaires that minimize sky glow, light trespass, and other unintended impacts of artificial lighting. All street lights shall utilize the lowest light levels accepted by the County Engineer and/or UDOT.
- B. Parking Lots.
 1. Spot or flood lighting of parking lots from a building or other structure is prohibited.
 2. The overall height of any light post used to illuminate parking lots in multi-family residential or commercial zones shall not exceed fourteen feet (14'). All post-mounted parking lot lights shall be set back from property lines a distance equal to two and one-half (2.5) times the height of the pole unless an internal or external shield prevents the fixture from being visible from outside the property boundaries.
 3. The overall height of any light post used to illuminate parking lots in residential zones shall not exceed six feet (6').
 4. All parking lot lighting shall use fully shielded fixtures.
 5. Internal or external shields shall prevent the light source from being visible from outside the relevant parking lot.
- C. Recreational Lighting.
 1. The Director or designee shall review all requests for new recreational lighting fixtures for fields or courts only after finding:
 - a. The recreational lighting has provisions for minimizing glare, spill light, and uplight using louvers, hoods, or shielding.
 - b. The recreational lighting does not exceed illumination levels for class IV sports lighting set by the Illuminating Engineering Society of North America.
 - c. The recreational lighting only illuminates the playing field or court area and is shielded to prevent illumination from falling outside of those areas.
 - d. The light source for the recreational light is not visible from adjacent properties.
- D. Pole-mounted recreational lighting.

1. Pole-mounted recreational lighting shall be limited to eighteen feet (18') in height. Pole-mounted recreational lighting must be set at a distance equal to or greater than the height of the pole installed from any adjacent property line.
2. The lighting for non-playing field and non-court areas shall conform to all provisions of this Chapter.

E. Amphitheater Lighting.

1. Outdoor amphitheatres may use illumination to light the performance area of the amphitheater and provide public safety. The following standards apply to all amphitheater lighting:
 - a. Lighting used to illuminate the performance area must be either directed spotlighting or fully shielded lighting. If directed spotlighting, the light source must be located and designed such that it is not visible beyond the property boundaries.
 - b. Lighting used to illuminate the performance area may only be turned on during performances or rehearsals.
 - c. Lighting used to illuminate the seating areas, pathways, and other areas of the amphitheater must meet all standards of this Chapter.

F. Signs.

1. Where other municipal ordinances are in conflict with the provisions of this Chapter, this Chapter shall apply and take precedence.
2. Signs may be unlighted, lighted externally, lighted internally, or backlit. All sign lighting must be designed, directed, and shielded in such a manner that the light source is not visible beyond the property boundaries where the sign is located. Lighting for signs must be directed such that only the sign's face is illuminated.
3. Lighting for signs must utilize stationary and constant lighting.
4. All signage elements must be stationary.
5. Standards for Externally Illuminated Signs:
 - a. Lighting for externally illuminated signs must be aimed and shielded so that light is directed only onto the sign face and does not intrude onto adjacent streets, roads, or properties or into the night sky.
 - b. Lighting for externally illuminated signs must be mounted at the top of the sign (or within two (2) feet of the top of a building-mounted sign).
6. Standards for Internally Illuminated Signs
 - a. Lighting Is Visible on Both Sides of the Sign:
 - i. Only sign copy areas and logos may be illuminated on an internally illuminated sign.
 - ii. Internally illuminated signs shall use semi-opaque materials for sign copy such that the light emanating from the sign is diffused. Transparent or clear materials are not allowed for sign copy. Non-copy portions of the sign (e.g., background and graphics) shall be made of completely opaque material.
7. Standards for Backlit Signs
 - a. Only One Side of Sign Is Lit:
 - i. Backlit signs shall be designed such that the light source is not visible.
 - ii. Backlit signs shall be designed such that harsh, direct illumination does not emanate out of the sign. Rather, the backlighting shall only allow indirect illumination to emanate from the sign. For example, signs that create a "halo" effect around sign copy are allowed.

- iii. Backlit signs shall use low lumen light sources.
- 8. Illuminated Window Signage:
 - a. Illuminated window signs positioned to be primarily visible outside all structures are allowed only if there are no more than two (2) signs per space. Each sign shall measure less than three and one-half ($3\frac{1}{2}$) square feet in area.

19.73.115 - Prohibited Lighting.

- A. Accent Lighting that is directed upward above the horizontal plane to illuminate building structures, landscape, landscape features, statues or similar features, vegetation, or for any other use.
- B. Flashing, blinking, intermittent, or other lights that move or give the impression of movement.
- C. Floodlights or Spotlights affixed to buildings for the purpose of lighting parking lots.
- D. Searchlights, laser source lights, or any similar high intensity light.
- E. In the case of Residential Properties, no lighting fixture shall be mounted on a structure at an elevation of more than 14 ft. above the elevation identified for the lowest elevation entrance to the corresponding side of the structure, each structure having an identified front, two sides, and a rear.
 - 1. For structures having sides with no entrance present. The height limitation established by the lowest base floor entrance elevation on any side of the structure shall control.
 - a. Wall-mounted lighting may be utilized for patios and decks located above the primary entrance elevation, provided that the light source shall not be visible outside the property boundary.
- F. Light fixture accessories such as diffusers, shields, cut-outs, etc., that direct light above the horizontal plane, either directly or by glare.

19.73.116 – Towers.

- A. All monopole, antenna, tower, or support facility lighting not required by the Federal Aviation Administration (FAA), the Federal Communications Commission (FCC), Municipal Fire and Police, or radio towers is prohibited.
- B. When lighting is required by the FAA, FCC, or Municipal Fire and Police, such lighting shall not exceed the minimum requirements of those agencies. Collision markers should have a dual mode for day and night to minimize impact on the night sky and migrating birds.
- C. All other lighting used on the property not regulated by the FAA, FCC, or Municipal Fire and Police shall conform to this Chapter.

19.73.117 - Application and Review Procedures.

- A. Where appropriate, the Metro Township will provide information to homeowners on best practice application of the lighting principles set forth in this Chapter.
- B. Lighting Plan Required.
 - 1. In any application for a sign permit, building permit, conditional use permit, subdivision, design/development review, and any other development application within any zoning district, including all municipal projects, requires the applicant to, as part of the application process, submit sufficient information to enable the Director or Designee to determine whether proposed lighting complies with this Chapter. All applications may be subject to review and

action by the Planning Commission at the discretion of the Director or Designee. All applications shall include a Lighting Plan meeting the requirements set forth herein.

2. Lighting Plans shall include the following:

- a. Site Plans or drawings indicating the proposed location of outdoor lighting fixtures, both proposed and any already existing on site. Including:
 - i. height of lighting fixtures on the premises, and
 - ii. type of illumination devices, lamps, supports, shielding and reflectors used and,
 - iii. installation and electrical details,
- b. A description of each illuminating device, fixture, lamp, support, and shield, both proposed and existing. The description shall include, but is not limited to, the manufacturer's catalog cuts and illustrations (including sections where required); lamp types, wattages, initial lumen outputs, and shielding mechanisms. A B.U.G. rating must be included if supplied for each luminaire or fixture.
- c. A table showing the total number of proposed exterior lights, by fixture type, lumens, and lamp type, Including a Manufacture Cut Sheet whenever possible.
- d. The Lighting Plan must demonstrate that no more than the allotted footcandle of light shall be utilized on the property or properties, as specified in section 19.73.112 - Conditions and Standards. Article C. Total Light Output.
- e. Such other information that the Director or Designee may determine is necessary to ensure compliance with this Chapter.

C. Approval Procedure.

1. If the Director or Designee determines that any proposed lighting described in a lighting plan does not comply with this Chapter, the plan shall not be approved, and the specific permit applied for shall not be issued.

19.73.118 - Appeals, Violations, Enforcement, and Penalties.

A. Appeal for Exemption.

1. The Land Use Hearing Officer may approve lighting that does not comply with this Chapter if need is established. An applicant requesting that such lighting be approved must provide proof of requirements of property insurance or findings of competent research demonstrating a need for the requested lighting. The Land Use Hearing Officer may attach other conditions to the approval of such lighting that will make the lighting comply with the spirit of this Chapter.

B. Violations.

1. The following constitute violations of this chapter:
 - a. Failing to meet light curfew standards as outlined in section 19.73.113 of this ordinance after the effective date of this Chapter.
 - b. The installation, maintenance, or operation of any lighting fixture not in compliance with the provisions of this Chapter if such fixture is installed after the effective date of this Chapter.
 - c. The alteration of outdoor lighting fixtures after the approval of a lighting plan by the director or designee, when such alteration does not conform to the provisions of this chapter.
 - d. Failure to shield, correct or remove lighting that is installed, operated, maintained, or altered in violation of this Chapter.

- e. Amortization: All exterior lighting fixtures that do not conform to the requirements of this Chapter shall be brought into conformance no later than 5 years from the effective date of this Chapter. The Metro Township encourages property owners to voluntarily bring nonconforming lighting into compliance with this chapter.

C. Enforcement.

- 1. If, after investigation, the Director or Designee finds that any provision of this Chapter is being violated, the Director or Designee shall give notice by hand delivery or by certified mail, return receipt requested, of such violation to the owner and/or occupant of such premises, demanding that the violation be abated within 30 days of the date of hand delivery or of the date of mailing of the notice. Planning and Development Services staff shall be available to assist in working with the violator to correct said violation. If the violation is not abated within the 30-day period, the Director or Designee or designee may institute actions and proceedings, either legal or equitable, to enjoin, restrain or abate any violations of this Chapter and to collect penalties for such violations.
- 2. Hillsides, Ridgelines, and Special Cases
 - a. In certain cases (such as but not limited to, properties on or near ridgelines or hillsides), the Director or Designee may require that certain steps be implemented to mitigate the effects of light pollution, glare, light trespass, sky glow, and to curtail the degradation of the night sky visual environment.
 - i. Any light source that is directly visible from outside the property boundaries on which the light source is located, the property owner shall be required to demonstrate a good faith effort to redirect, shield, and/or diffuse the light source to address any unintended effect on the quality of night sky conditions within the municipality. This provision does not apply to existing lighting during which time it is subject to the amortization period identified in this Chapter.

D. Penalties.

- 1. Penalties. A violation of this Chapter, or any provision thereof, shall be punishable by a civil penalty of \$50.00 per day, and each day of violation after the expiration of the 30-day abatement period set forth in Section 19.73.118.C.1 shall constitute a separate offense for the purpose of calculating the civil penalty.

19.73.119 – Definitions.

For the purpose of this Chapter, certain words, phrases, and terms used herein shall have the meanings assigned to them by this section:

A-M

Accent Lighting: Lighting of building surfaces, landscape features, statues, and similar items for the purpose of decoration or ornamentation; or lighting that does not contribute to the safety or security of residents, guests, employees, or customers on a property.

Adaptive Controls: Devices such as motion sensors, timers, and dimmers used in concert with outdoor lighting equipment to vary the intensity or duration of the operation of lighting.

Ambient light: The general overall level of lighting in an area.

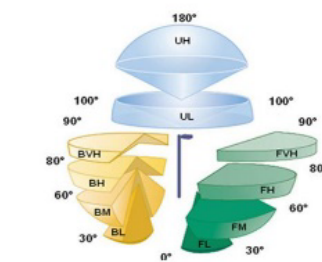
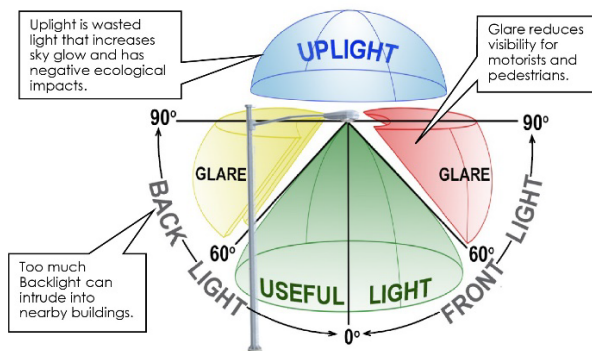
Backlight: All the light emanating behind a luminaire.

Ballast: A device used with a discharge lamp to obtain the necessary voltage, current, and/or waveform for starting and operating the lamp.

Basement: means any area of the building having its floor subgrade (below ground level) on all sides. A walkout basement that does not require a step up to grade is not considered a basement.

Brightness: Strength of the sensation that results from viewing surfaces from which the light comes to the eye.

B.U.G. Rating: A BUG Rating stands for backlight, uplight, and glare. Backlight (B) is the light directed behind the fixture, uplight (U) is any light directed upward above the horizontal plane of the luminaire, and glare (G) is the amount of light emitted from the luminaire at high angles.



Application of BUG ratings for Dark Skies

- Bx-U0-Gx – Must have a “U” rating of “0” resulting in NO uplight
- The appropriate glare rating is determined by the community.

Figure XX: Explanation of BUG Ratings

Bulb or lamp: The source of electric light. To be distinguished from the whole assembly (see luminaire). Lamp often is used to denote the bulb and its housing.

Candela (cd): Unit of luminous intensity. One candela is one lumen per steradian. Formerly called the candle.

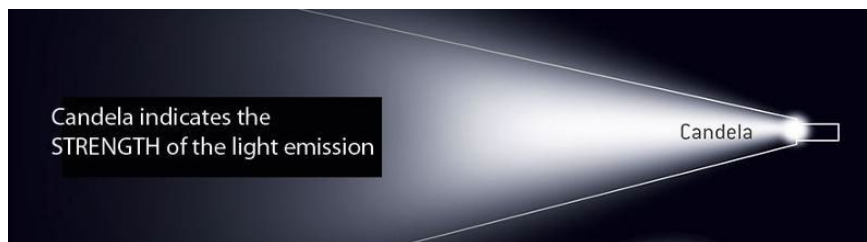


Figure XX: Candela Example

Commercial Property: Any parcel within the C-2 Zone, and/or any parcel with a building containing 10 or more residential units.

Constant Lighting. Lighting that stays on all the time, as opposed to flashing, blinking, strobes or speedlights that emit a bright burst of light when triggered.

Correlated Color Temperature (CCT): A specification of the color appearance of the light emitted by a lamp, relating its color to the color of light from a reference source when heated to a particular temperature, measured in degrees kelvin (K).

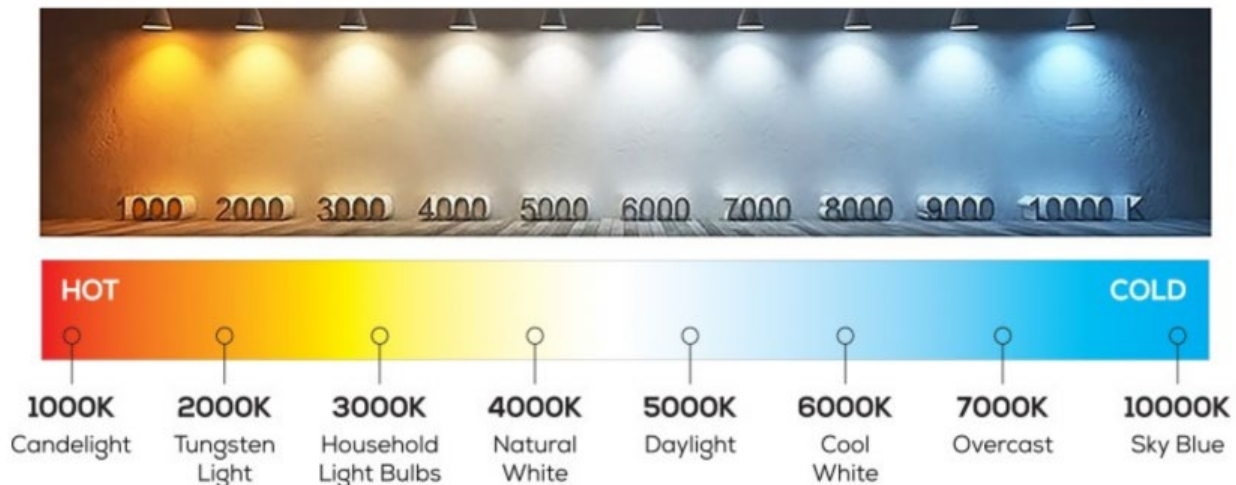


Figure XX: Correlated Color Temperature

Cut-off angle, of a luminaire: The angle, measured up from the nadir (i.e. straight down), between the vertical axis and the first line of sight at which the bulb or lamp is not visible.

Diffuser: A device used to distribute light from a source.

Dimmer: A device for varying the brightness of an electric light.

Direct Illumination: Illumination resulting from light emitted directly from a lamp, luminary, or reflector. This does not include light reflected from other surfaces, such as the ground or building faces.

Dusk: The darker part of twilight especially at night. Timetables identifying specific hours for dusk on any given day are located at: <https://www.gaisma.com/en/location/salt-lake-city-utah.html>.

Efficiency: A measure of the effective or useful output of a system compared to the input of the system.

Energy (radiant energy): Unit is erg, or joule, or kWh.

Facade lighting: The illumination of the exterior of a building. (see also Accent Lighting)

Fixture (light fixture): The assembly that holds the lamp in a lighting system. It includes the elements designed to give light output control, such as a reflector (mirror) or refractor (lens), the ballast, housing, and the attachment parts.

Fixture Lumens: A light fixture's light output after processing of emitted light by optics in that fixture.

Fixture Watts: The total power consumed by a fixture. This includes the power consumed by the lamp(s) and ballast(s).

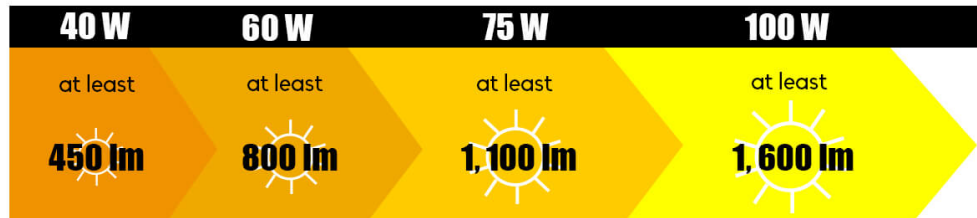


Figure XX: Watts to Lumens Relationship Example

Floodlight: A fixture designed to “flood” a well-defined area with light.

Footcandle: A footcandle is a measurement of the amount of light that hits an area on the ground or any other surface. A footcandle is a unit of measurement used to measure the intensity of light. It can be measured by a foot-candle meter, which has a calibrated aperture of one square foot.

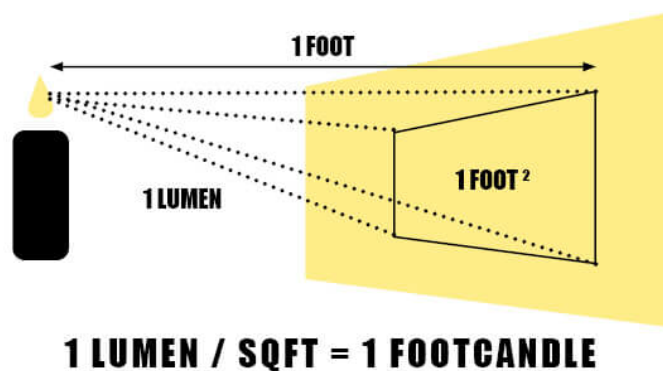


Figure XX: Footcandle Description

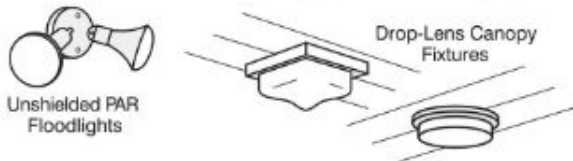
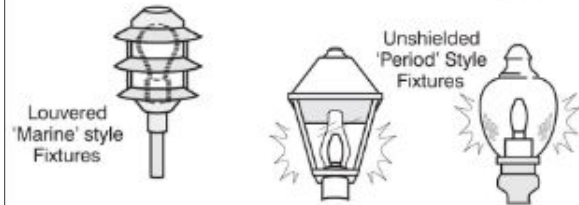
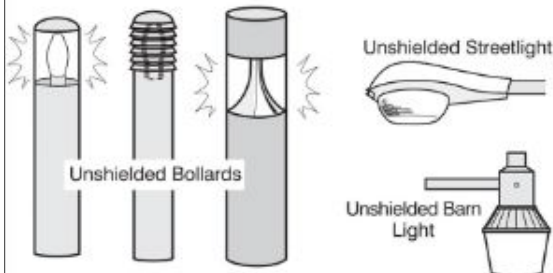
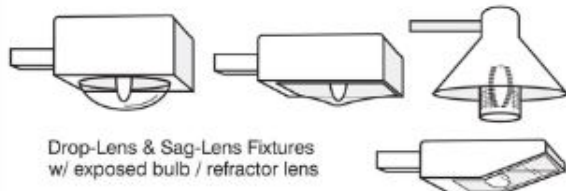
Full-cutoff fixture: An IES definition; “Zero intensity at or above horizontal (90° above nadir) and limited to a value not exceeding 10% of lamp lumens at or above 80”.

Fully Shielded Fixture: An outdoor luminaire constructed and mounted so that the installed fixture emits no light above the horizontal plane. Surrounding structures, like canopies, cannot be considered when determining if the fixture is fully shielded.

Examples of Acceptable / Unacceptable Lighting Fixtures

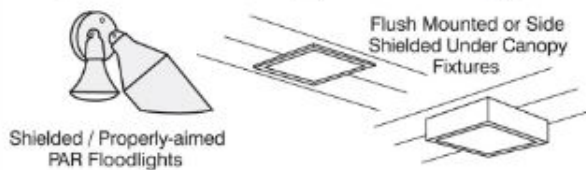
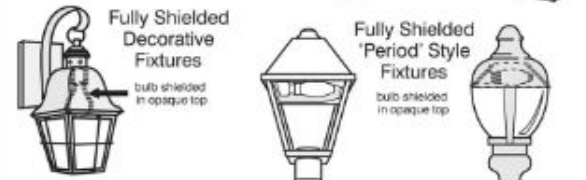
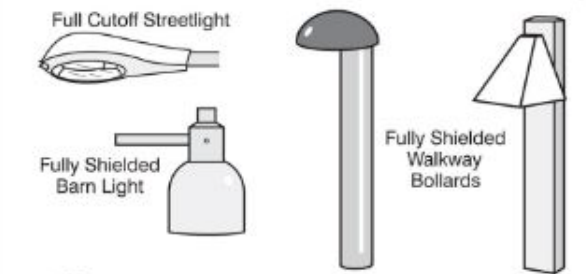
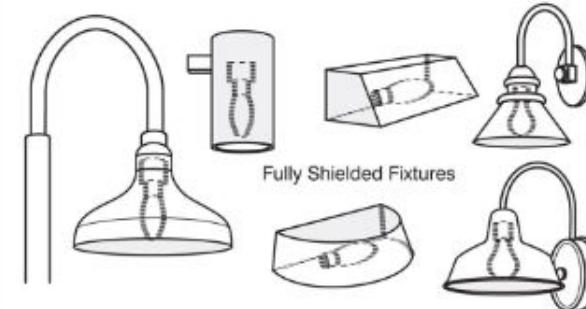
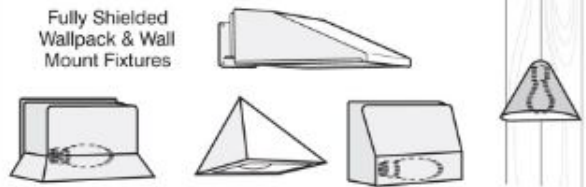
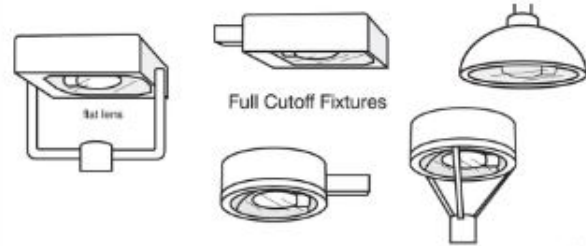
Unacceptable / Discouraged

Fixtures that produce glare and light trespass



Acceptable

Fixtures that shield the light source to minimize glare and light trespass and to facilitate better vision at night



Illustrations by Bob Crein © 2005. Rendered for the Town of Southampton, NY. Used with permission.

Figure XX: Examples of Acceptable and Unacceptable Light Fixtures

Glare: the visual sensation caused by excessive brightness, and which causes annoyance, discomfort, or a loss in visual performance or visibility.

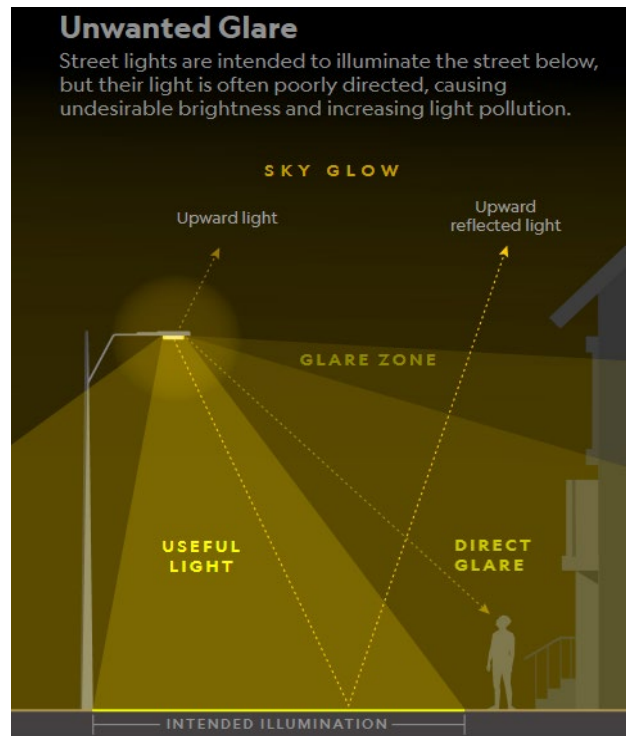


Figure XX: Unwanted Glare

Hardscape: Any non-living horizontal site element, including but not limited to patios, decks, walkways, sidewalks, driveways, and steps.

House-side Shield: Opaque material applied to a fixture to block the light from illuminating a residence or other structure being protected from light trespass.

Illuminance: Density of luminous flux incident on a surface. Illuminance can be measured using footcandle or lux.

Illuminating Engineering Society of North America (IES or IESNA): The professional society of lighting engineers, including those from manufacturing companies, and others professionally involved in lighting.

Incandescent lamp: a lamp (fixture) in which light is produced by a filament heated to a high temperature by electric current.

Indoor Lighting: Any lamp, pendant, or fixture used to illuminate the interior of any structure.

Intensity: The degree or amount of energy or light.

Internally Illuminated: As it relates to signs, any sign which has a light source entirely enclosed within the sign and not directly visible.

International Dark-Sky Association (IDA, Inc.): A non-profit organization whose goals are to build awareness of the value of dark skies, and of the need for quality outdoor lighting.

kWh: Kilowatt-hour: A unit of energy equal to the work done by one kilowatt (1000 watts) of power acting for one hour.

Lamp: A generic term for a manufactured source created to produce optical radiation, meaning ultraviolet radiation (UV), visible light (VIS), and infrared radiation (IR).

Lamp Life: The average lifespan for a specific type of lamp. Half of the lamps will perform longer than the average; the others will fail before the average.

LED: Stands for light emitting diode. LED lighting products produce light up to 90% more efficiently than incandescent light bulbs.

Light Pollution: Brightening of the night sky caused by man-made sources, which has a disruptive effect on natural cycles and inhibits the observation of stars and planets.



Figure XX: Gradient of Light Pollution in the Form of Sky Glow

Light Source: The part of a lighting fixture that produces light, e.g. the bulb, lamp, or chips on board.

Light Spill: Unwanted spillage of light onto adjacent areas including residential properties and ecological sites.

Light Trespass: Light falling where it is not wanted or needed. See also: Light Spill. Obtrusive light.



Figure XX: Light trespass Compared to Adequate Shielding

Lighting Controls: Devices used for either turning lights on and off or for dimming.

Photocells Sensors that turn lights on and off in response to natural light levels. Some advanced modes can slowly dim or increase the lighting. See also: Adaptive Controls.

Low-Pressure Sodium (LPS) lamp: A discharge lamp where the light is produced by radiation from sodium vapor at a relatively low partial pressure (about 0.001 torr). LPS is a “tube source”. It is monochromatic light.

Lumen: A unit of luminous flux equal to the light emitted by a uniform point source of one candle intensity. Lumens refers to the amount of light emitted by a bulb (a bulb with higher lumens outputs brighter light).

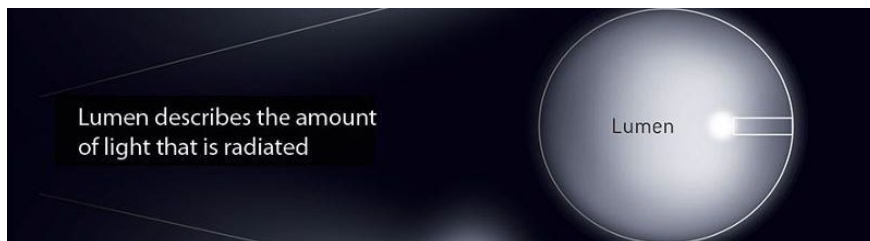


Figure XX: Lumen Example

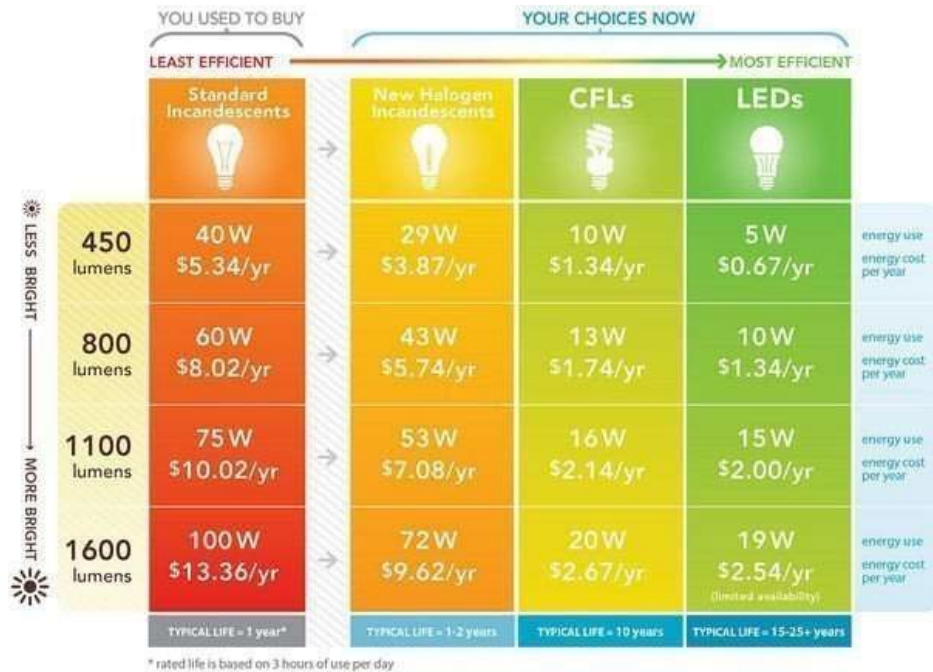


Figure XX: Comparison of Bulbs with Light Output and Cost

<https://georgebrazilplumbingelectrical.com/how-to-choose-the-best-light-bulb-for-your-home/>

Luminaire: A complete lighting unit that typically includes components such as a fixture housing, ballasts, reflector, translucent shield or diffuser, and a lamp or lamps.

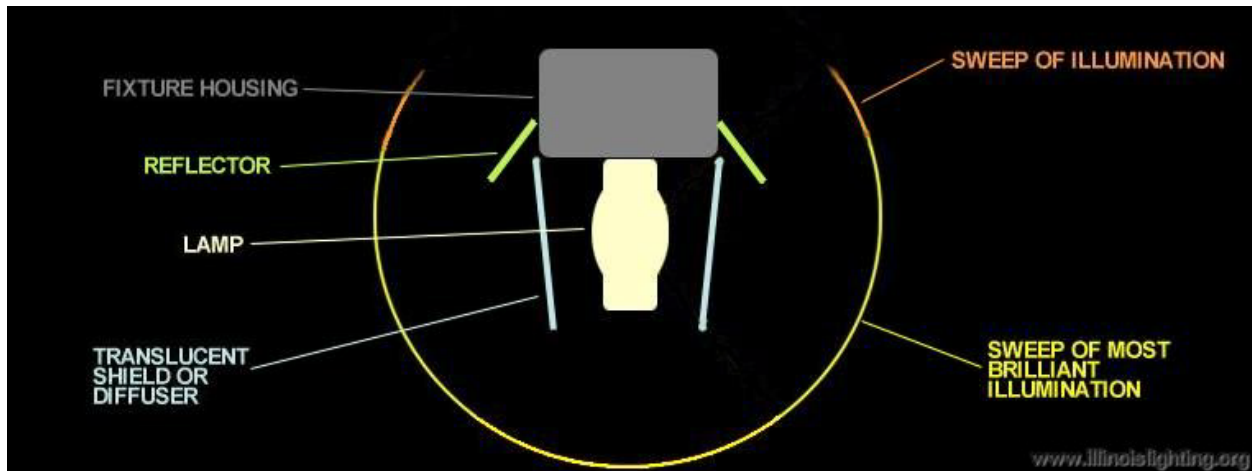


Figure XX: Comparison of Bulbs with Light Output and Cost

Luminance: the intensity of light emitted from a surface per unit area in a given direction. Units: candelas per unit area.

Lux: (symbol: lx) is the unit of illuminance or luminous flux per unit area.

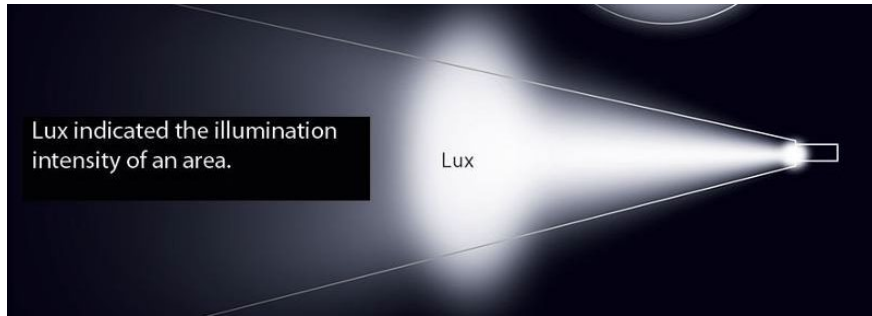


Figure XX: Lux Example

Manufacturer's Catalog Cuts: A publication or other printed material of a lamp or lighting manufacturer offering visual and technical information about a lighting fixture or lamp.

Mounting height: The height of the fixture or lamp above the ground plane for pole mounted lamps. The height of the fixture above the elevation identified for the lowest elevation entrance to the corresponding side of the structure, each structure having an identified front, two sides, and a rear.

Multi-Family Residential Property: Any parcel having a building containing three to ten dwelling units.

N-Z

Optic: The components of a luminaire such as reflectors, refractors, and protectors which make up its light emitting section.

Outdoor Light Fixture (Outdoor Lighting): An outdoor, electric, or solar powered, illuminating lamp or similar device used for lighting structures, parking lots, pathways, service canopies, recreational areas, signs, or other similar outdoor uses. These lighting fixtures may be attached to a building, parking structure, or sign, or may stand on their own.

Partially Shielded Light Fixture: An outdoor light fixture constructed and mounted so that the installed fixture emits most of its light below the horizontal plane. Light emitted at or above the horizontal plane (sideways or upwards) shall arise solely from incidental decorative elements or strongly colored or diffusing materials, such as colored glass or plastic. Fixtures using spot or flood lamps are considered partially shielded if the lamps are aimed no higher than forty-five (45) degrees above the vertical plane beneath the fixture.



Figure 1: Unshielded versus Shielded Light Fixtures

Pathway Lights: A luminaire, or collection of luminaires, less than eighteen inches (18") in height, lining one or both sides of an outdoor path or walkway that provides illumination to guide persons along the outdoor path or walkway.

Photometry: The quantitative measurement of light level and distribution.

Photocell: An electronic device that changes the light output of a luminaire dynamically in response to the ambient light level around the luminaire.

Pool Lighting: Underwater lighting fixtures provide illumination to all underwater areas of a pool.

Recreational Lighting: Lighting used to illuminate sports fields, ball courts, playgrounds, or similar outdoor recreational facilities.

Reflector: An optic that achieves control of light by means of reflection (using mirrors).

Refractor: An optic that achieves control of light by means of refraction (using lenses).

Religious Institutions: Property containing a Church, Synagogue, Mosque, Temple, Cathedral, or other religious or spiritually-oriented structure(s), including any accessory buildings and uses, where persons regularly assemble for religious or spiritual purposes and related social events and which building, with accessory buildings and uses, is maintained, and controlled by a religious body organized to hold religious ceremonies and purposes.

Security Lights: Lighting designed to illuminate a property or grounds for the purpose of visual security.

Shielding: An opaque material that blocks the transmission of light.

Single-Family, Two-Family Residential, and Duplex Unit Properties: Any parcel within the FR-0.5, FR-1, FR-2.5, FR-5, FR-10, and FR-20 zones having a building containing one or two dwelling units.

Skyglow: The brightening of the nighttime sky resulting from the scattering and reflection of artificial light by moisture and dust particles in the atmosphere. Skyglow is caused by light directed or reflected upwards or sideways and reduces one's ability to view the nighttime sky (Figure 5).

Spotlight: A fixture or lamp designed to light a small area very brightly. See the definition of Floodlight.

Stationary Lighting. Lights that are intended to stay in one position

Stray light: Emitted light that falls away from the area where it is needed or wanted. Light trespass.

Task Lighting: Task lighting is used to provide direct light for specific activities without illuminating the entire area.

Tower: Any monopole, antenna or the like that exceeds eighteen feet (18') in height.

Unshielded Lighting Fixture: A fixture that allows light to be emitted above the horizontal plane, either directly from the lamp or indirectly from the fixture or reflector.

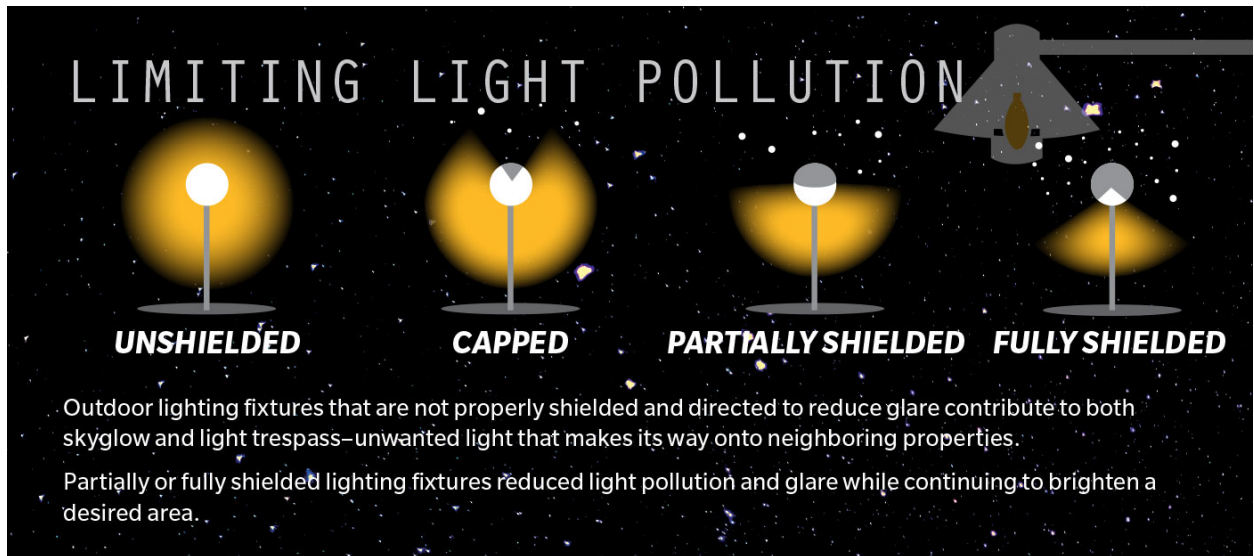


Figure XX: Unshielded, Capped, Partially Shielded, and Fully Shielded Fixtures

Vertical Illuminance: The amount of light falling on a vertical surface or plane such as the night sky.

Visibility: The distance one can see as determined by light and weather conditions.

Wallpack: A luminaire, typically affixed to the side of a structure, used for area lighting.

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? Steep slopes in Emigration Canyon can create scenarios in which light sources can directly effect 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 make a pilgrimage 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.

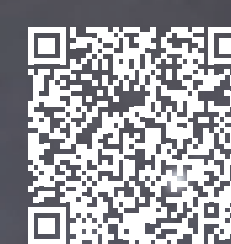


Light Pollution Can Put Your Health at Risk
International Dark Sky Association

Ecological Health

Artificial Lights Disrupt 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 deadly effects 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

Poorly designed outdoor lighting wastes energy by not being shielded, emitting more light than necessary or shining when and where it's not needed. Wasting energy in this way has huge economic and environmental consequences.

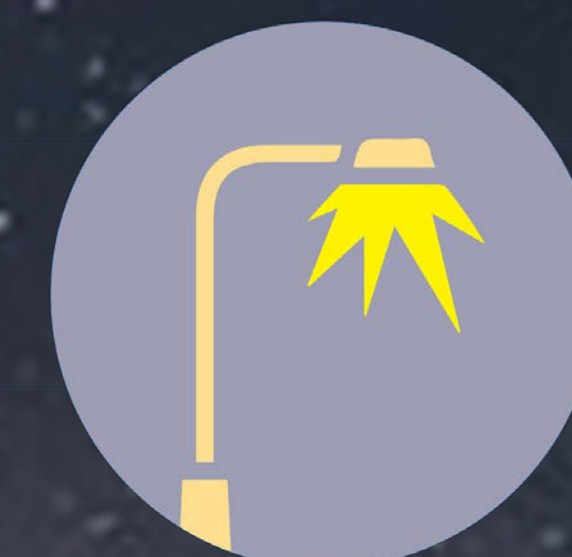


Light Pollution Costs Money and Wastes Resources
International Dark Sky Association

Safety

Brighter Does NOT Mean Safer

Lighting up the nighttime environment does not necessarily improve safety or security. This may seem contradictory, but there is no clear scientific evidence that increased outdoor lighting deters crime and increases safety.



Outdoor Lighting, Crime, and Safety
International Dark Sky Association

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

Emigration Canyon Metro Township
DARK SKY ORDINANCE | MUNICIPAL CODE: 19.73.110 NIGHT LIGHTING
Dark Sky Friendly Home Lighting Program
International Dark Sky Association



Develop YOUR Plan

Follow the steps below and utilize the Emigration Canyon Dark Skies Do's and Don't's 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 luminaires you will use, and identify on the plan which luminaires will be used at each light source.

Dark Skies Don't's Dark Sky Dos

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 illuminated.

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 of a person's ability to see clearly in the dark after the car has passed. This can lessen a person's nighttime depth perception and their ability to discern between different shadows in the dark.

Leave Lights on All Night!

If you are not using the area, please don't light 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 person's home.

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!

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.

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

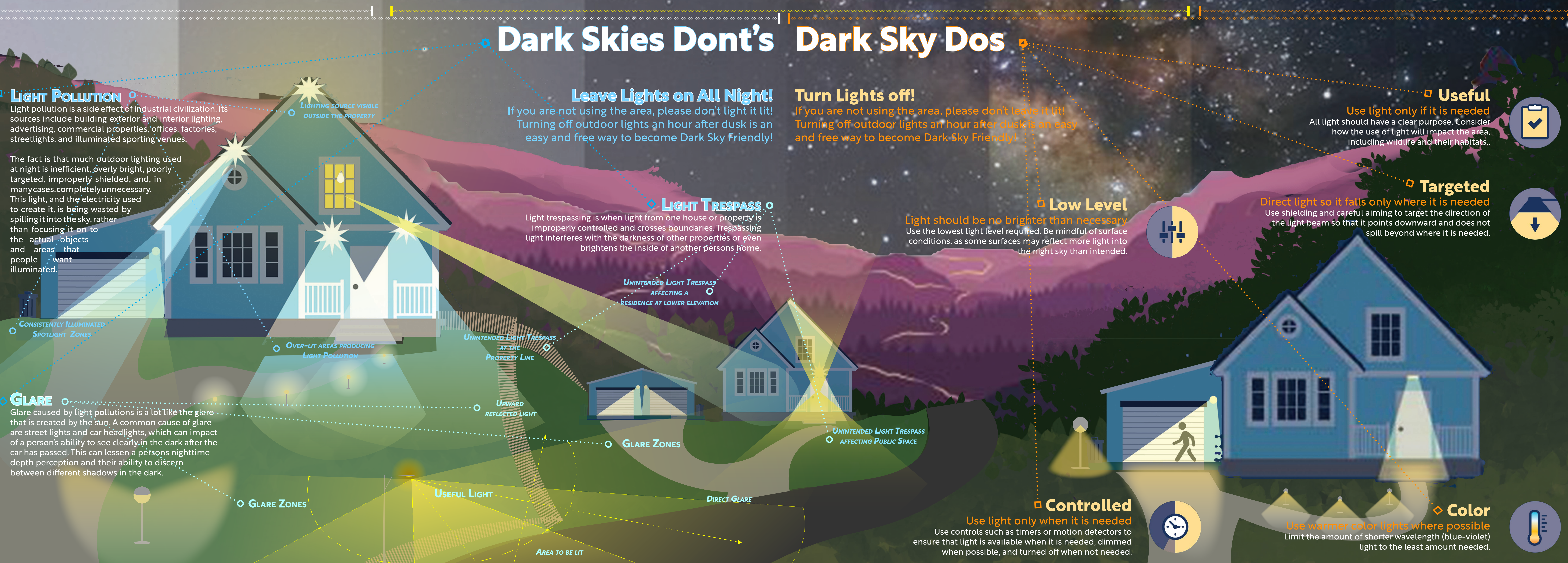
Direct light so it falls only where it is needed Use shielding and careful aiming to target the direction of the light beam so that it points downward and does not spill beyond where it is needed.

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.

Color

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



Develop your Night Lighting Plan

in 5 basic Steps

1. Sketch your Property's Landscape Plan



Measure distances and areas in Google Earth. [Google Earth Tips](#)



Use what you have!

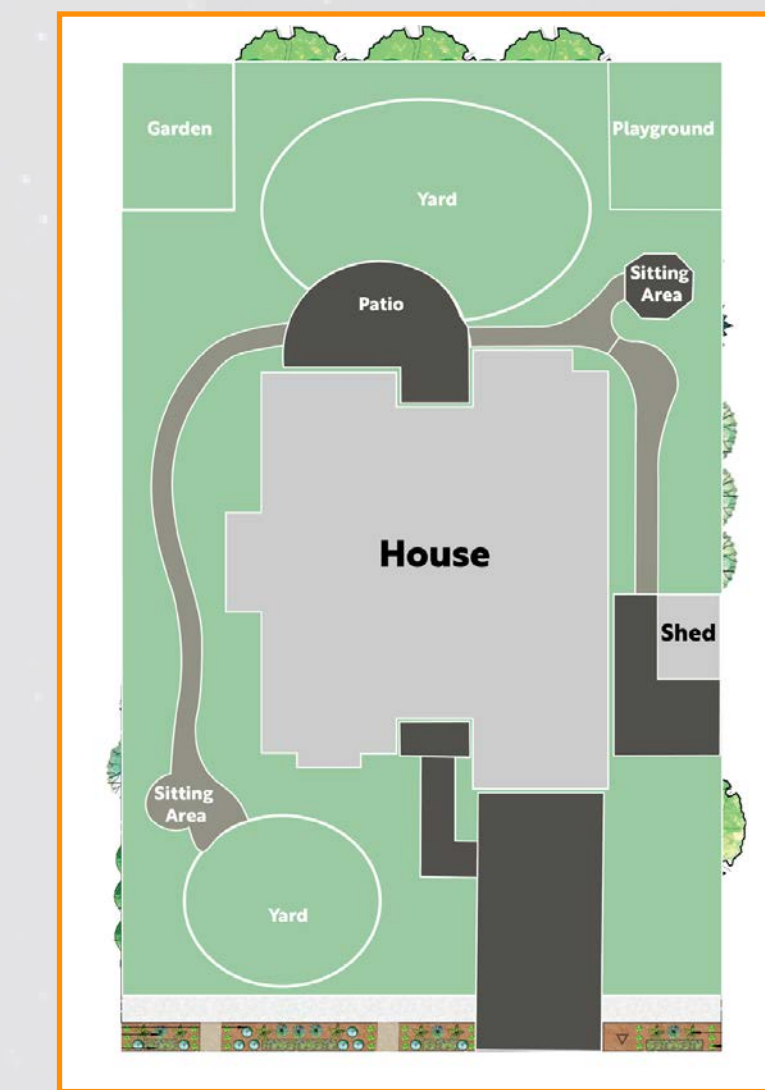
Do you already have a landscape plan? What you are looking for is a calculation of the square footage (sq. ft.) of the areas you would like to light.

If not, a pen and paper will do. Go analog. Pace off your areas for a ruff 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



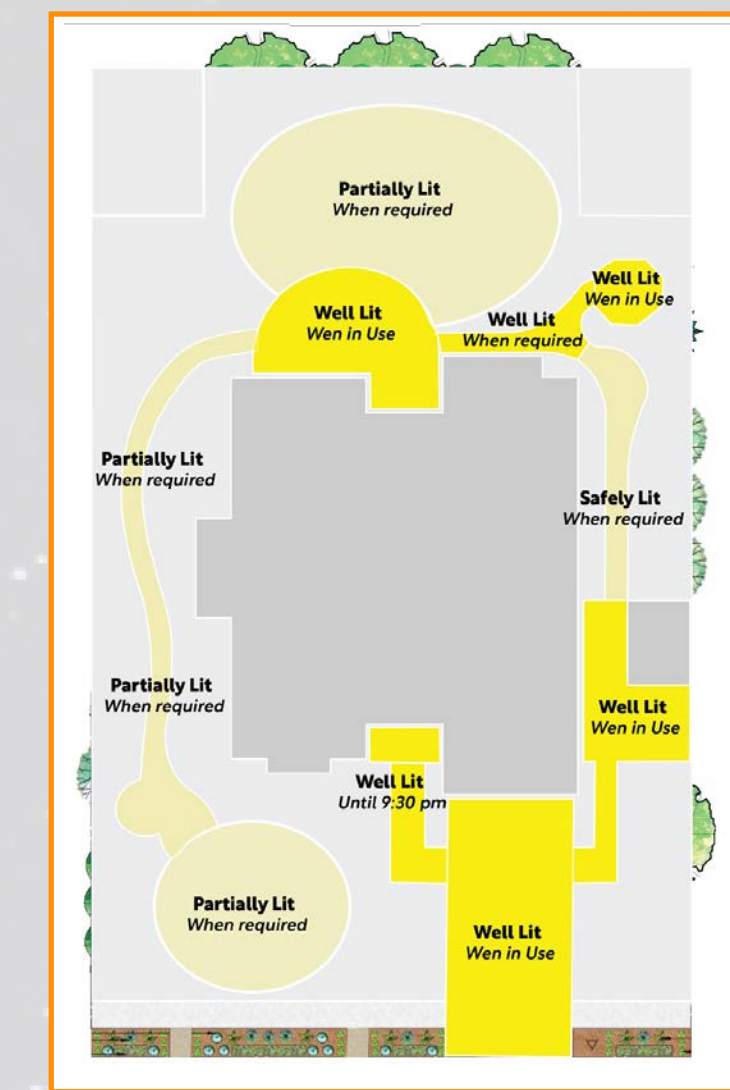
Why differentiate?

We typically have very different expectations about how we light hard and softscape areas. By prioritizing hardscape first, you will ensure you are being targeted and useful with your lighting choices.

Hardscape 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 Any area within the site plan where hardscape is not present. These areas are your turf grass, your planter beds, your garden.

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.

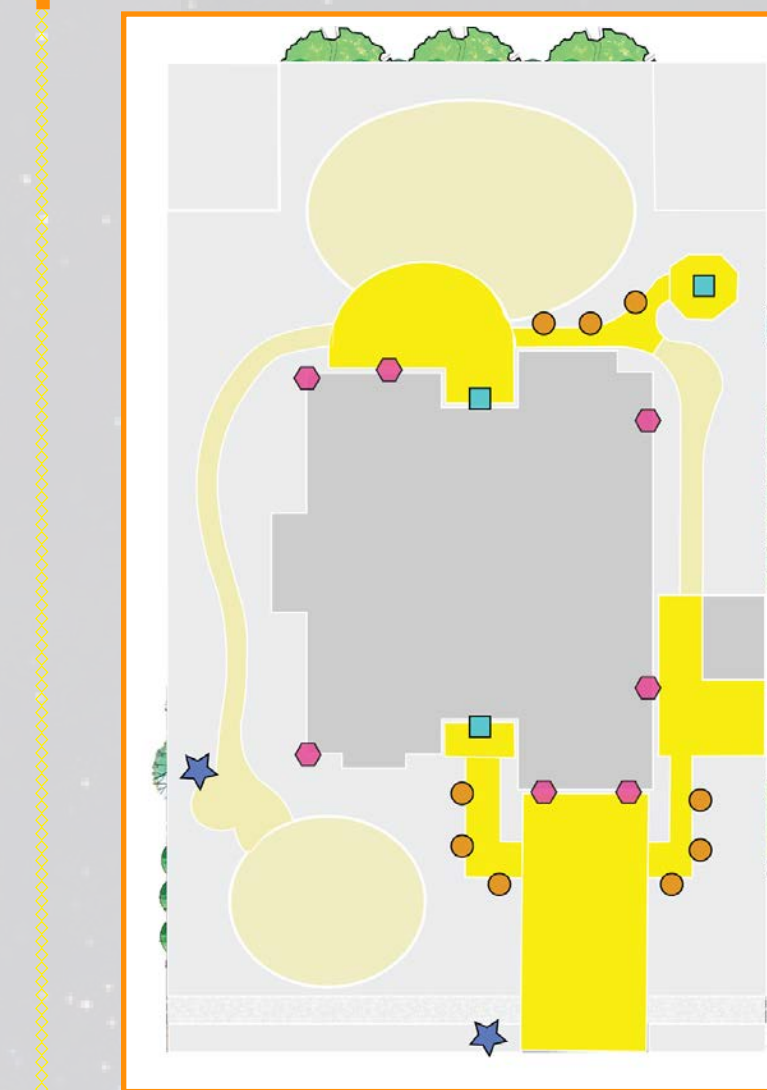
Calculate the sq. ft. of each individual hardscape area you wish to light. This will help you calculate how much lighting you will need to light each individual area.

Combine the total sq. ft. of all the hardscape areas you wish to light. You can get a general sense of how much light you will be allowed on your property. Assuming a typical mounting height a 60 lumen will illuminate approximately a 60 sq. ft. area for outdoor residential properties.

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



Find Dark Sky Friendly Lighting. [Lighting Plan Tips](#)



Lighting Choice

X Foot candles Allowed / Sq. Ft. Hardscape = Total Lumen
Use this simple formula to curate a lighting plan that meets the standards adopted by your community.

Use only Full Shielded Fixtures! Do not shine or reflect light upwards! Choose luminaires and fixtures that emit no light above the horizontal plain. 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 pathway lights under 18" in height allows 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 turn off lights when they are not in use.

Quick Tip Dark Sky Don'ts

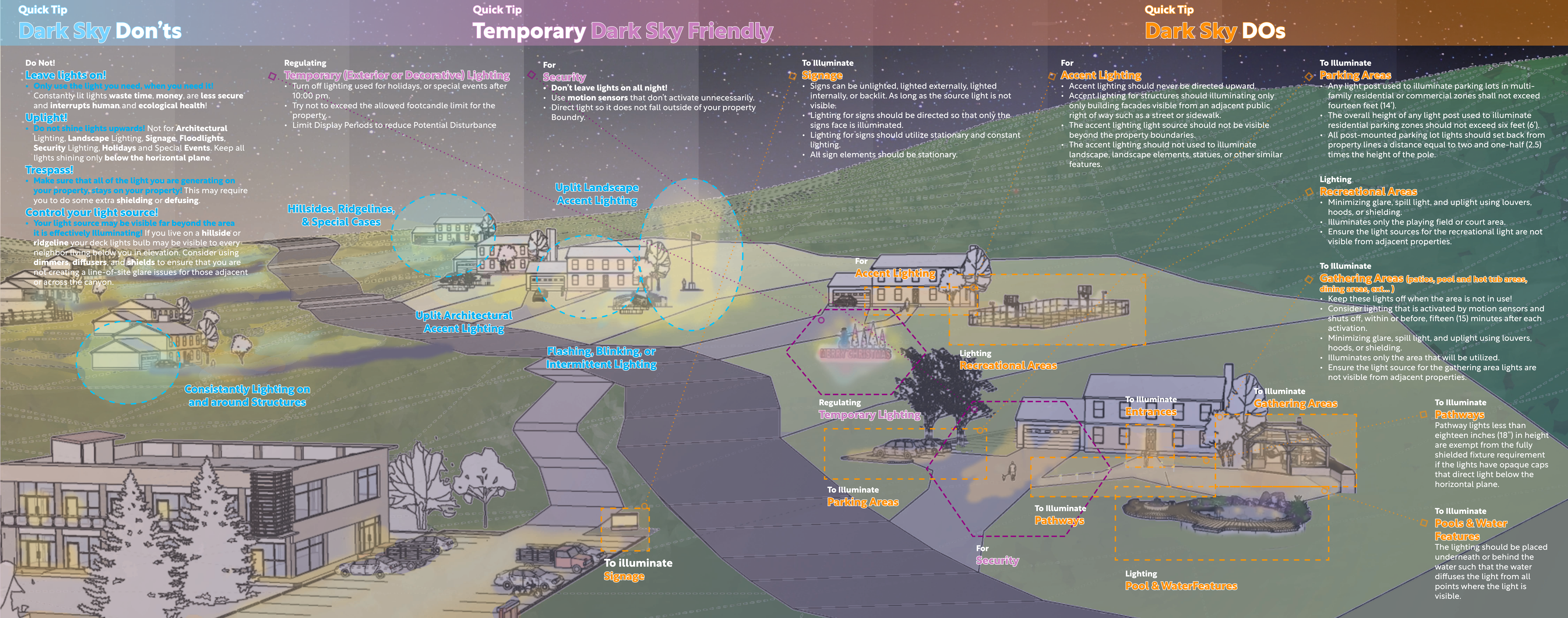
- Do Not! Leave lights on!**
 - Only use the light you need, when you need it!
 - Constantly lit lights waste time, money, are less secure and interrupts human and ecological health!
- Uplight!**
 - Do not shine lights upwards! Not for Architectural Lighting, Landscape Lighting, Signage, Floodlights, 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.
- Control your light source!**
 - Your light source may be visible far beyond the area it is effectively illuminating! If you live on a hillside or ridgeline your deck lights bulb may be visible to every neighbor living below you in elevation. Consider using dimmers, diffusers, and shields to ensure that you are not creating a line-of-site glare issues for those adjacent or across the canyon.

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.
 - Try 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 signs face is illuminated.
 - Lighting for signs should utilize stationary and constant lighting.
 - All sign elements should be stationary.
- For Accent Lighting**
 - Accent lighting should never be directed upward.
 - Accent lighting for structures should illuminating only 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 landscape, landscape elements, statues, or other similar features.
- To Illuminate Parking Areas**
 - Any light post used to illuminate parking lots in multi-family residential or 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.
- Lighting Recreational Areas**
 - Minimizing glare, spill light, and uplight using louvers, hoods, or shielding.
 - Illuminates only the playing field or court area.
 - Ensure the light sources for the recreational light are not visible from adjacent properties.
- To Illuminate Gathering Areas (patios, pool and hot tub areas, dining areas, ext...)**
 - Keep these lights off when the area is not in use!
 - Consider lighting that is activated by motion sensors and shuts off, within or before, fifteen (15) minutes after each activation.
 - Minimizing glare, spill light, and uplight using louvers, hoods, or shielding.
 - Illuminates only the area that will be utilized.
 - Ensure the light source for the gathering area lights are not visible from adjacent properties.
- To Illuminate Pathways**
 - Pathway lights less than eighteen inches (18") in height are exempt from the fully shielded fixture requirement if the lights have opaque caps that direct light below the horizontal plane.
- To Illuminate Pools & Water Features**
 - The lighting should be placed underneath or behind the water such that the water diffuses the light from all points where the light is visible.



DO NOT USE BLUE COLOR TEMPERATURE LIGHTING ON YOUR PLAN!

Use lighting with more natural color temperature.

> 3,000 Kelvin

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? Step slopes in Emigration Canyon can create scenarios in which light sources can directly effect 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 make a pilgrimage 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 Lights Disrupt 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 deadly effects 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

Poorly designed outdoor lighting wastes energy by not being shielded, emitting more light than necessary or shining when and where it's not needed. Wasting energy in this way has huge economic and environmental consequences.



Light Pollution Costs Money and Wastes Resources
International Dark Sky Association

Safety

Brighter Does NOT Mean Safer

Lighting up the nighttime environment does not necessarily improve safety or security. This may seem contradictory, but there is no clear scientific evidence that increased outdoor lighting deters crime and increases safety.



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

Emigration Canyon Metro Township
DARK SKY ORDINANCE | MUNICIPAL CODE: 19.73.110 NIGHT LIGHTING
Dark Sky Friendly Home Lighting Program
International Dark Sky Association

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 luminaires you will use, and identify on the plan which luminaires will be used at each light source.



Develop your Night Lighting Plan in 5 basic Steps

- 1. Sketch your Property's Landscape Plan**
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 hard and softscape areas. By prioritizing hardscape first, you will ensure you are being targeted and useful with your lighting choices.
Hardscape 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 Any area within the site plan where hardscape is not present. These areas are your turf grass, your planter beds, your garden.
- 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. You can get a general sense of how much light you will be allowed on your property. Assuming a typical mounting height a 60 lumen will illuminate approximately a 60 sq. ft. area for outdoor residential properties.
- 4. Mark on your plan where you will place each light source type**
Lighting Choice
X Foot candles Allowed / Sq. Ft. Hardscape = Total Lumen
Use this simple formula to create a lighting plan that meets the standards adopted by your community.
Use only Full Shielded Fixtures!
Do not shine or reflect light upwards! Choose luminaires 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 pathway lights under 18" in height allows 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 turn off lights when they are not in use.

