

Request: Review and Comment



EMIGRATION CANYON
METRO TOWNSHIP

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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

Applicant Name: Emigration Canyon Planning Staff

MSD Planner: Matthew Starley

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 important to community members, and the identify 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.”

Utah Department of Workforce Services has distributed a “Guidance & Best Practices Dark Sky Planning” manual intended to introduce community leaders and their communities to dark sky planning and concepts. I this document they 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.

To mitigate for some of these potential negative effects, Emigration Canyon planning staff have engaged in an effort 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 this report will constitute the second draft to be shared with the commission.

For this second draft, we have received, and integrated comments made on the previous draft from Dark Sky Lighting experts; Nancy Clanton (Founder, Clanton and Associates) and Rick Utting (Clanton and Associates). Heidi Hoven of the Audubon Society was kind enough to pass our draft along and return comments made. The following is a complete list of the responses received and the associated response from planning staff. **The Response Record Color Key** below is intended to help the reader identify the “voices” participating this conversation regarding components of the Dark Sky Ordinance Draft, and so that comments from various sources could be grouped by

Request: Review and Comment

general subject.

Response Record Color Key:

Context text

Comments from Nancy Clayton

Comments from Rick Utting

Response from Matthew Starley

- We changed the language “trespass” to “intrude”
 - This was on the recommendation of one of our Commission members... He is a lawyer and had some concerns about the legal implications of the word “trespass”
 - Any thoughts about this?
 - Light Trespass is the technical term used in all of the lighting recommendations from IES and IDA. I do understand his concern, and yet when light is unwanted in a neighbor’s house or property, it is trespassing.
 - I prefer the term “Trespass” because it has widespread adoption in existing lighting standards (IES, IDA, etc.), and the definition means “*without permission and; an offense against*”. Many ordinances have an “Enforcement and Penalty” section, so it’s probably a good thing that Trespass has the lawful bite needed.

Trespass has been used in all instances in the ordinance.

- It feels as if we are limiting even shielded light use to 5,000 lumens per net acre. This will equate to about 6, standard 60 watt lightbulbs per home...
 - *Five thousand (5000) lumens per net acre. Partially and unshielded lighting on a property shall not exceed One thousand (1,000) lumens per lot and shall be included in the total outdoor light output calculations.*
 - Is this how you interpret what is written?
 - The per net acre metric has many issues. It was originally proposed by Chris Lingeziel (sp?) before the Model Lighting Ordinance (MLO) and it was used in City of Flagstaff, AZ in its lighting ordinance. The main issue is that that light assigned to an acre of land may be a lot if the only “hardscape” area where people are active could be very small. Therefore, this could lead to very high lighting levels assigned to a much smaller nighttime use area. This is only exaggerated if there are several acres, but only one is used. The MLO assigns a lumens/SF of hardscape area which applies only to areas that are not in the landscape. This limit appears to be working much better and has been applied to energy codes (Ashrae 90.1 and CA Title 24) where they have a Watts/SF of hardscape.
 - Is that too restrictive?
 - See my answer above on how this metric should be changed to lumens/SF
 - Regarding Matt Starley’s comments about restrictions on lighting: The limitation of 5000 (commercial) and 1000 (residential) lumens per acre for Un-Shielded sources is worth discussion. Many ordinances don’t allow un-shielded sources at all, but this tactic is a common compromise to allow up to ~20% un-shielded lighting if wanted. This region appears to be blessed with larger than average residential acreage. The median residential lot in the US is about 1/5 acre, so it might be difficult to enforce multiple neighbors living within the same acre. Conversely, it’s not ideal to let a sprawling ranch have lighting allowance on acreage where it’s not needed. It might be easier to list lumens allowed per single or two family residential home. See next bullet.
 - Additionally, depending on the residential density, the 5,000 lumen restriction for a residential acre might be too restrictive.

Request: Review and Comment

- How has it been received/interpreted in other communities?
 - To my knowledge, only a very few communities in Arizona use lumens/acre. Other communities such as Plymouth, MN, Malibu, CA, Fort Collins, CO and more use the lumens/SF of hardscape method.

A Lumen per square foot of hardscape system has been adopted

- **References:**

- Restrictions on Total Amount of Unshielded Light
- Total Light Output

- On the hillside issue...
 - Emigration Canyon has a Foothill and Canyons Overlay Zone established to protect sensitive lands in the canyons...
 - I have included language that would require home within this zone... Often steep slopes... would need to include in there lighting plan considerations for light potentially emitted from their structures. Preventing it from intruding from the property.
 - Dane and Travis did an extensive modeling of light trespass at Pepperdine University (which is on a hill). This 3D analysis was focused on proposed lighting for a soccer field that was located high up on a hill. They had to show that the proposed lighting did not reach other homes on the hill, and also did not trespass into California Coastal Commission lands. As Travis for an accounting of this modeling which was amazing!!
 - On a side note, we have been working on DOD Unified Facility Criteria language (ask Brittany) on how to limit candela into critical viewing areas for security personnel. Also, Dane performed a visible light analysis for homes in a suburb close to Denver's Airport such that no home would have a visual view of any electronic signs.
 - I'm glad they made a comment about interior spill light on adjacent property, but they might need to define "negatively impacts". Let me know if you have a way to solve this beyond using blinds after curfew.
 - FCOZ
 - *Lighting plans submitted with applications subject to FCOZ Development Approval Procedures shall include plans or drawings, and language, indicating efforts to ensure that no interior lighting intrudes outside of the property boundary.*
 - *We may show examples on how to do this, since the novice contractor or engineer will not have a clue on how to do this. It is a combination of vertical illuminance on the property line (refer to Brittany for Rolland Moore Baseball Fields in Fort Collins, and soccer field at Pepperdine University. It is definitely either vertical illuminance or line of sight illuminance at different heights (2nd floor bedroom window, etc)*

Language has been developed which is intended to control the levels of vertical illumination emanating from the interior of structures by requiring them to ensure Lux levels at the property line are controlled for.

- **Reference:**

- Hillides, Ridgelines, and Special Cases

- I do not have language in here about retroactive application of these standards.
 - Have you guys become aware of any instance where retroactive application has been a success story?
 - City of Boulder made their lighting ordinance retroactive but allowed I think 13 years where all property improvements have been depreciated to zero per IRS regulations.
 - Nonconforming lights: Depending on their end goal, they could choose to say nonconforming lights have 10 years from date of ordinance to meet the requirements.

Request: Review and Comment

Amortization: All exterior lighting fixtures which do not conform to the following standards shall be brought into conformance no later than 10 years from the adoption of this ordinance.

- Reference:
 - Violations

- Curfew is my favorite tool to enforce and meet many of the dark sky and environmental initiatives. Bless this community for starting curfew at 10pm. They should also list an end to curfew. 6am is common.

Comment has been included:

- Reference:
 - Light Curfews
 - Exemptions

- Regarding Matt Starley's comments about "Substantial Modification": Here is some text that might work for him... "In the event a nonconforming outdoor light fixture is destroyed, damaged, or modified by fifty percent (50%) or more, the replacement fixture shall conform with the provisions of this ordinance".

Comment has been included:

- Reference:
 - Scope and Applicability
 - Violations

- Given the fact EC is trying to do the right things, full cutoff, 3000K maximum CCT, and a 10pm curfew, they could probably redefine the criteria to 5,000 lumens (exclusive of pool and pool deck) per residential home (single or two family) up until 10pm. They mention entrances, paths, patios, and pools as acceptable applications. Pool lighting alone would consume all of the useful allowance so it's usually listed as an exemption that must meet local code.

Comment has been included:

- Reference:
 - Exemptions

- Depending on what they are trying to achieve, the full cutoff exemption in this ordinance for architectural, fountain, and sign lighting is not very restrictive. The architectural and fountain light does not seem to meet the "useful" criteria. Do you know if they have a separate signage ordinance to restricting the internally lit signs?

Language has been adapted to reflect the "Lumens per square foot" approach. The intent is express that 10% of the total light in the light plan (The total amount of outdoor lighting, whether shielded or unshielded, shall not exceed .5 lumen per square foot of hardscape including the square footage of the primary residential structure on the site). This combined with the .05 allowed for unshielded light (see: Restrictions on Total amount of Unshielded Lighting) allows for a potential total of 20% unshielded light on residential properties. This seems to be a relatively consistent in most lighting ordinances.

- Reference:
 - Architectural lights, water feature illumination and sign illumination are all exempted from the fully shielded fixture requirement, provided no more than .05 lumens per square foot of hardscape including the square footage of the footprint of the primary residence are utilized per lot, identified

Request: Review and Comment

within an approved lighting plan, and such illumination meets all other applicable standards of this chapter.

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 exert for 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

- **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 protections 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 township. The intent is to control the use of night lighting between the hours of 10:00 pm until 6:00 am the following morning. It is the opinion of planning staff that controlling night time lighting use through the update of the existing Night Sky Ordinance will support the current land use expressed within the canyon by reenforcing 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
- Properties which fall withing the FCOZ Zone area

ISSUES OF CONCERN/PROPOSED MITIGATION

Planning Staff is hoping the Council and Planning Commission will consider the merits of proposed updates to the

Request: Review and Comment

Night Sky Ordinance. Issues of particular interest that have been addressed:

- Language in the plan has been adjusted to adopt an “Expectable lumens per square foot of hardscape on the property” approach to managing the amount of light each property is allowed to emit.
 - This approach has been recommended to replace the previous calculation strategy biased on “net acres” of the property.
 - “Net acres” approach can create scenarios in which homes on large properties are over allotted light allowances compared to homes of similar size on smaller lots.
 - By controlling using per “Square Foot of Hardscape” lighting allowances are restricted by developed spaces rather than property size.
 - This approach has also affected the way unrestricted lighting and lighting used to illuminate architecture and water features in conducted.

- A suggested amortization period of 10 years has been adopted for existing lighting features.
 - This could be revised to 13
 - Should be tied to IRS depreciation rates as suggested by commentors.

- Language has been developed which is intended to control the levels of vertical illumination emanating from the interior of structures by requiring them to ensure Lux levels at the property line are controlled for.
 - This can simply be stated... You must ensure that from within your structure does not your property.
 - The Lux rating provides a metric by which that can be measured...

Additional changes have been made in response to comments made by local experts.

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 were kind enough to meet with planning staff to review goals and give general direction as the project was initiated. Once a first draft of the ordinance had been produced, Heidi Hove was kind enough to share it with Nancy Clanton (Founder, Clanton and Associates) and Rick Utting (Clanton and Associates), we have received, and integrated comments made from these dark sky experts. I complete list of there comments were provided in the Project Discretion Section of this report.

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

Request: Review and Comment

received guidance and advice from Dark Sky experts with the planning community here Northern Utah. The current version 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 recommended by the expert commentors referred to previously. These changes reflect, in the opinion of 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.

