



NOTICE OF MEETING OF THE
SUSTAINABILITY COMMISSION
OF
BUDA, TX

7:00 PM - Thursday, January 3, 2019
Council Chambers Room 1097
405 E. Loop Street, Building 100
Buda, TX 78610

This notice is posted pursuant to the Texas Open Meetings Act. Notice is hereby given that a **Regular Sustainability Commission Meeting** of the City of Buda, TX, will be held at which time the following subjects will be discussed and may be acted upon.

A. CALL TO ORDER

B. INVOCATION

C. PLEDGE OF ALLEGIANCE TO THE FLAGS OF THE UNITED STATES AND TEXAS

PLEDGE OF ALLEGIANCE TO THE TEXAS FLAG: Honor the Texas flag; I pledge allegiance to thee, Texas, one state under God, one and indivisible.

D. ROLL CALL

E. PUBLIC COMMENTS

At this time, comments will be taken from the audience on non-agenda related topics for a length of time not to exceed three minutes per person. To address the Commission, please submit a Citizen's Comment form to the Board Liaison prior to the start of the meeting. No action may be taken by the Commission during Public Comments.

F. CONSENT AGENDA

F.1. Approval of the Sustainability Commission meeting minutes dated October 4, 2018

G. PUBLIC HEARINGS

H. REGULAR AGENDA

H.1. Discussion and possible action on submitting an application to become a Dark Sky Certified community

[IDSC Guidelines_Oct2015_9\(1\).pdf](#)

[Dark Sky Districts_24x36.pdf](#)

[Dark-Sky-Assessment-Guide.pdf](#)

[Street Light Audit Form.docx](#)

H.2. Discussion on education and outreach opportunities of the Sustainability Commission (Assistant City Manager Micah Grau)

[Sustainability Commission Public Awareness Ideas.docx](#)

H.3. Presentation and possible action on the installation and replacement the City's Automatic Meter Infrastructure (AMI) system (Assistant City Manager Micah Grau)

H.4. Deliberation and possible action on the Sustainability Commission's 2018-19 Workplan

[Sustainability By Laws.pdf](#)

[SC 2 Year Work Plan 2018-19.docx](#)

I. STAFF REPORTS

J. COMMISSION REQUEST FOR FUTURE AGENDA ITEMS

K. ADJOURNMENT

City Hall is wheelchair accessible and accessible parking spaces are available. Requests for accommodations must be made 48 hours prior to the meeting. Please contact City Hall at (512) 312-0084, or FAX (512) 312-1889 for information or assistance.

I, the undersigned authority, do hereby certify that the above Notice of Meeting of the Sustainability Commission of the City of Buda, was posted on the bulletin board in front of Buda City Hall, which is readily accessible to the public at all times, by 5:00 pm on December 31, 2018.

/s/ _____
Kenny Skrobanek



Meetings scheduled in the Council Chambers are set up to publicly broadcast meetings. You may be audio and video recorded while in this facility. Meetings scheduled in other City Facilities are set up to publicly audio record meetings. You may be audio recorded in the other City Facilities.

In accordance with Article III, Section 3.10, of the Official Code of the City of Buda, the minutes of this meeting consist of the preceding Minute Record and the Supplemental Minute Record. Details on meetings may be obtained from the Board Liaison, or video of the entire meeting may be downloaded from the website. (Portions of the Supplemental Minute Record video tape recording may be distorted due to equipment malfunction or other uncontrollable factors.)

Attendance by Other Elected or Appointed Officials: It is anticipated that members of other governmental bodies, and/or city boards, commissions and/or committees may attend the meeting in numbers that may constitute a quorum of the body, board, commission and/or committee. Notice is hereby given that the meeting, to the extent required by law, is also noticed as a possible meeting of the other body, board, commission and/or committee, whose members may be in attendance, if such numbers constitute a quorum. The members of the boards, commissions and/or committees may be permitted to participate in discussions on the same items listed on the agenda, which occur at the

meeting, but no action will be taken by such in attendance unless such item and action is specifically provided for on an agenda for that body, board, commission or committee subject to the Texas Open Meetings Act.



Sustainability Commission Agenda Item Report

Date: Thursday, January 3, 2019

Agenda Item No. 2018-705-

Contact: Micah Grau

Subject: Discussion and possible action on submitting an application to become a Dark Sky Certified community

1. Executive Summary

This item is placed on the agenda in order to allow the Commission and staff to discuss the lighting audit for the Dark Sky analysis.

2. Background/History

IDA's mission is to preserve and protect the nighttime environment and our heritage of dark skies through environmentally responsible outdoor lighting.

Goals

Advocate for the protection of the night sky

Educate the public and policymakers about night sky conservation

Promote environmentally responsible outdoor lighting

Empower the public with the tools and resources to help bring back the night

History

International Dark-Sky Association (IDA) is a 501(c)(3) (tax ID #: 74-2493011) founded in 1988, and is dedicated to protecting the night skies for present and future generations.

Light pollution – the inappropriate use of artificial light at night – is an environmental pollutant that harms our planet and robs us of the opportunity to experience the wonder of a natural night sky.

Today, IDA is the recognized authority for night sky protection and has taken the lead in identifying and publicizing the negative impacts of artificial light at night on human health, wildlife and climate change.

We work with the public, city planners, legislators, lighting manufacturers, parks, and protected areas to provide and implement smart lighting choices.

Our public outreach efforts provide solutions, quality education, and programs that inform audiences across the United States and throughout the world. At the local level, our mission is furthered through the work of our U.S. and international chapters representing five continents.

How are Dark Sky Places designated?

IDA designates Dark Sky Places following a rigorous application process requiring applicants to demonstrate robust community support for dark sky protection and document designation-specific program requirements.

Applications are reviewed bimonthly by an IDA standing committee composed of dark sky experts and previously successful program applicants. Regular status updates ensure that designated places continue their commitment to dark sky preservation.

Upon certification, IDA works with certified places to promote their work through media relations, member communications, and social media. A Dark Sky Places designation helps enhance the visibility of designated locations and foster increased tourism and local economic activity.

An IDA International Dark Sky Community is a town, city, municipality or other legally organized community that has shown exceptional dedication to the preservation of the night sky through the implementation and enforcement of a quality outdoor lighting ordinance, dark sky education and citizen support of dark skies. Dark Sky Communities excel in their efforts to promote responsible lighting and dark sky stewardship, and set good examples for surrounding communities. Dripping Springs and Horseshoe Bay are the only Texas cities to have earned the designation.

3. Staff's review and analysis

Staff will review and discuss the lighting assessment process and how the Sustainability Commission can assist.

4. Financial Impact

The financial impact of submitting an application is unknown. The largest expense will be for staff and volunteer time to draft an application, host programs and events, and supply annual reports required by the program.

5. Summary/Conclusion

Staff seeks direction and assistance from the Commission on conducting the lighting assessment.

6. Pros and Cons

N/A

7. Alternatives

N/A

8. Recommendation

N/A

INTERNATIONAL DARK-SKY ASSOCIATION

3223 N first Ave - Tucson Arizona 85719 - 520-293-3198 - www.darksky.org

*TO PRESERVE AND PROTECT THE NIGHTTIME ENVIRONMENT AND OUR HERITAGE OF DARK
SKIES THROUGH ENVIRONMENTALLY RESPONSIBLE OUTDOOR LIGHTING*



**International Dark-Sky Association
Dark Sky Community Guidelines**

October 2015

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DEFINITION OF AN IDA DARK SKY COMMUNITY

An IDA Dark Sky Community (DSC) is a town, city, or municipality that has shown exceptional dedication to the preservation of the night sky through the implementation and enforcement of quality lighting codes, dark sky education, and citizen support of dark skies.

GOALS FOR IDA DARK SKY COMMUNITY CREATION

- To identify communities with exceptional commitment to and success in pursuing dark sky preservation and restoration, and their promotion of quality outdoor lighting
- To promote ecotourism
- To promote protection of human health, nocturnal habitats, public enjoyment of the night sky and its heritage, and/or areas ideal for professional and amateur astronomy;
- To provide local, national, and international recognition for such communities
- To promote the ideals of International Dark-Sky Association (IDA) by encouraging communities to identify dark skies as a valuable community asset and goal

BENEFITS

Achieving this designation brings recognition of the efforts made by the Community council, the local government authorities (police department, planning and zoning, etc.), the citizens, and any other public and private organization to protect the night sky and the environment dependent on it. This designation will enhance awareness of dark sky matters to all residents and visitors of the Community.

Designation as an DSC entitles the Community to display the IDA Dark Sky Community logo in official publications, promotions, signs at the entrance or within the Community, and retain the use of this logo by other groups within the Community when identifying the area itself (i.e. a Community can say “Flagstaff, the world’s first IDA Dark Sky Community” or in other words to the same effect, for example, an organization within the Community can say “located in Star City, an IDA Dark Sky Community”). IDA will maintain a web page identifying and describing all DSCs available on www.darksky.org.

ELIGIBILITY

Community must have some type of legal organization that is officially recognized by outside groups. This can be in the form of a town, city, municipality, or other legally organized community (such as a urban neighborhoods and subdivisions).

MINIMUM REQUIREMENTS FOR ALL COMMUNITIES

- A) A quality comprehensive lighting code like the IDA/IES Model Lighting Ordinance (MLO) with the following minimum standards for permanent lighting installations (more on developing a lighting code and guidelines may be found on our website <http://www.darksky.org/outdoorlighting/mlo>):
 - i) Fully-shielded or full-cutoff standard for all lighting fixtures over 1500 lumens initial lamp output (or equivalent wattages), AND;
 - ii) Establishes a threshold of 3000 Kelvins for the allowable correlated color temperature of all lighting fixtures, AND;
 - iii) Restrictions on total amount of unshielded lighting, such as a limit on lumens per acre or total site lumens in unshielded fixtures (or equivalent wattages), AND;
 - iv) A policy to address over-lighting, such as energy density caps, lumens/acre caps, or maximum illuminance specifications, AND;
 - v) A provision that clearly: (1) indicates where, when, and under what circumstances new public outdoor lighting (street lighting and lighting on other public property and rights-of-way) is warranted and will be permitted, and (2) requires that adaptive controls and curfews be employed in all future installations of public outdoor lighting.
- B) Community commitment to dark skies and quality lighting as shown by:
 - i) City owned lighting conforming with, or committed to conforming with, the lighting code (if the latter, a published plan with a timeline for completion in no more than 5 years), AND;
 - ii) Municipal support of dark skies and good lighting as indicated through city publications, flyers, public service announcements, funding of lighting upgrades, etc.
- C) Broad Support for dark skies from a wide range of community organizations such as:
 - i) Chamber of Commerce
 - ii) Local electrical utility
 - iii) Local IDA Chapter
 - iv) Lighting retailers
 - v) Home Owners Association
 - vi) Business Improvement Associations
 - vii) Others
- D) Community commitment to dark skies and education as shown by at least one of the following:

- i) Planning and execution of at least two community dark sky awareness events per year. This may be organized through a local astronomy club, municipality, school, etc. AND/OR;
 - ii) Inclusion of dark sky awareness documents (IDA brochures or Community-created brochures) with other Community informational documents for residents and visitors, AND/OR;
 - iii) Inclusion of dark sky education in Community schools and curriculum.
- E) Success in light pollution control. At least one of the following conditions must be demonstrated:
- i) Examples of a minimum of ten projects built under the lighting code, demonstrating effective application of the local lighting code, AND/OR;
 - ii) Alternative demonstration of success in light pollution control, to be discussed with IDA for compliance.
- F) A sky brightness measurement program must be maintained either by the Community or by another public or private organization (university, research center, IDA chapter, astronomy club, etc.) to follow the evolution of light pollution in the DSC.
- G) Designation is permanent, but is subject to regular review by IDA and possible revocation if minimum requirements are not maintained. More details may be found in the “Reassessment of DSC designation” section.
- H) Periodic checks, through the submission of the annual report due October 1st, will be preformed to ensure that minimum standards and objectives of the program are being upheld and adequate progress is being made. This report is a short 1 to 2-page synopsis of the Community’s activities and initiatives throughout the last year. The Borrego Springs, CA report is included on the website for reference <http://darksky.org/idsp/communities/>.

PROVISIONAL STATUS

- In some cases, a Community interested in the program may lack all of the resources required to achieve a designation outright. If resource unavailability otherwise hinders the progress of a Community’s application, that Community may apply for and be granted Provisional status at the discretion of the IDA Board of Directors. Provisional status recognizes the Community’s ongoing work to become an IDA Dark Sky Community and is intended as a leverage point to successfully enable actions such as lighting upgrades/retrofits and policy changes.
- Provisional status expires after three (3) years. At any time before the end of this period, a Community may reapply for full status. Material submitted for the removal of provisional status may be an addendum to the initial application as long as the material includes a current assessment of the goals, outreach efforts, and lighting policy listed in the original application and clearly demonstrates that any program requirements left unmet at receipt of the Provisional status have been satisfied.
- To be considered for a provisional status, send a nomination package that includes the following information:

- Documented intent to create and support an IDA Dark Sky Community;
- A description of the circumstances that currently prevent the Community from meeting the minimum Dark Sky Community requirements; and
- An action plan describing steps the aspiring Community will take to meet all program requirements in the specified Provisional status period

GUIDELINES ON THE DSC PROCESS

NOMINATION

The nomination may be initiated by an IDA qualified nominator who has personally reviewed a Community's outdoor lighting and commitment to night sky preservation. To become an IDA qualified nominator, you must be an IDA member and be approved by the IDA Dark Sky Places manager. The nomination may be a joint effort between Community and the qualified nominator. Nominators are encouraged to correspond with IDA staff and the Community throughout this process—from first consideration of a DSC through the final submission package.

DSC APPLICATION PROCESS

STEPS FOR APPLICANT

- A) Initial contact with IDA by phone or email to discuss the process and receive recommendations followed by continued contact to update IDA staff on progress and receive continued recommendations;
- B) A formal point of contact (POC) person is designated and their phone, address and email information is forwarded to IDA staff. Before and after designation, any changes to this POC, or their information, must be communicated to IDA in order to ensure accurate communication at all times;
- C) Official supporting letter for the nomination from elected representatives of the Community, such as the mayor and/or council of a municipality. Any additional letters of support from organizations, clubs, groups, universities, etc.;
- D) Upon completion, the Community sends the application to IDA staff for review of the document. IDA staff confirms that the application is complete and ready for submission;
- E) Completed application packet in PDF and/or MS Word .doc format sent electronically to International Dark Sky Places committee (DSPC) by IDA staff for review.
- F) Submit in plenty of time for IDA staff to review and prepare your application to make the bi-monthly deadline that you prefer, find the deadlines at <http://darksky.org/idspacecommunities/>. Requests to

rush applications will NOT be accepted; meaning that planning ahead is essential if the Community is planning to meet a deadline.

TO BE INCLUDED IN DSC SUBMISSION

- A) Map of Community and factual information, i.e. population, number of schools, etc.
- B) Letter of nomination support by IDA qualified nominator and elected representatives of the Community such as the mayor and/or council.
- C) The Community's lighting code and guidelines must meet the minimum requirements as stated in the minimum requirements section.
- D) Documentation of examples of Community support and projects.
- E) Proposed alternative wording for a DSC (e.g. Dark Sky Village, Starry Sky City, etc.), if desired.
- F) An outline of a completed application is available and may be used upon request.

IDA REVIEW PROCESS

- A) Applications are sent to the committee on a bi-monthly basis.
- B) Before the Community's final application is submitted it is highly recommended that the Community be in regular conversation with IDA staff to perfect the application before the next application deadline. Applications not ready for submission by the deadline for committee consideration will be considered at the next committee meeting.
- C) IDA staff forwards application to Dark Sky Places Committee for review at the deadline.
- D) Approval of application by DSPC is by a 2/3-majority vote, or denial with reasons and recommendations. The DSPC committee may consider the applications for up to two months before a decision is released to the applicant. If approved the location will be notified and the program manager will organize a press release with the location during a 10-day waiting period during which the Board of Directors will have the formal right to veto should they perceive a problem with the application. The Community has the right to choose when the press release is made public but must organize the announcement to be made at the same time as the IDA press release unless otherwise discussed and agreed upon by both parties.
- E) If approved the Community is awarded the DSC designation and listed along with their application on the IDA website. By submitting the application, the Community agrees to have the application posted to the website unless otherwise stated;
- F) If denied, a letter is sent to applicant outlining elements of the application that need improvement and specific recommendations for ways to remedy them. Applications can be resubmitted for future consideration after remediation is complete.
- G) IDA realizes that certain circumstances surrounding a DSC application may cause some potential authors of letters of support (or opposition) to feel uneasy about publicly declaring their opinions about the IDA designation. In the interest of providing the Dark Sky Places Committee with as full a picture of Community sentiment about applications as possible, it is possible for some letters to be

suppressed from online publication if it is felt that making the letters publicly available will subject their authors to retaliation or harassment. A prospective DSC seeking this protection for letter writers must make a formal written request to that effect. The Program Manager must approve suppression of publication of any part of an application. Note that suppression of online publication does not prevent either the Committee or the IDA Board of Directors from reading all submitted letters.

REASSESSMENT OF DSC DESIGNATIONS

To ensure that Communities continue to be exemplary in their protection and restoration of natural lightscapes, IDA will periodically reevaluate each site in the Dark Sky Places Program. This is done to confirm that the Community continues to meet the minimum requirements and is making adequate progress toward LMP compliance goals outlined in this document.

To this end, the Community will submit an annual report to IDA by October 1st detailing activities and progress towards meeting DSC requirements during the previous twelve months. The report should include dates and brief descriptions of any interpretive events, lighting retrofit projects, outreach efforts, etc. Samples of printed materials and press articles should also be included. The annual report should not require a lot of time to produce, as it should be a compilation of information generated during the year. Electronic submission of the report and supporting documentation is required in PDF or Microsoft Word format. If the annual report is not sent in a timely fashion, IDA may suspend the site's DSC status until the annual reporting requirement has been met (see the following section).

Investigation and Due Process

A DSC designation is intended to represent the beginning of an ongoing relationship between the Community and IDA to our mutual benefit. IDA will periodically review the nature of that relationship in the required annual reports as described in the previous section. From time to time, IDA also receives comments from visitors to Communities that raise concerns about the veracity and timeliness of information provided to IDA by site administrators. IDA may, at its discretion, investigate claims in which it is alleged that DSCs are not living up to commitments made to IDA and the public in their applications to the Program. This section details the IDA procedure for carrying out such investigations, and the rights of DSCs in such matters.

An allegation of impropriety concerning any of the elements of participation in the Program outlined in this document is subject to IDA investigation and potential remedial action including temporary suspension and/or permanent revocation of the DSC designation. IDA staff shall perform due diligence in gathering facts concerning such allegations it deems credible, and will prepare a report of its findings for consideration by the DSPC. The DSPC commits to weighing the evidence fairly and impartially, and to seek to resolve disputes whenever possible through dialog. A Community subject to an investigation shall be notified in a timely manner and solicited for evidence contrary to the specifics of the allegation at hand. The resolution manner of dialog shall be emphasized from the beginning, and the Community will be given an opportunity to correct any deficiencies with regard to the Program guidelines established by the IDA investigation within a reasonable time period to be prescribed by the DSPC.

Failure to achieve consensus through these means risks a DSPC recommendation for suspension or

revocation of the DSC designation. If made, such a recommendation will be forwarded to the IDA Board of Directors for formal ratification before coming into force. The Board's decision on any disciplinary matters involving a DSC shall be considered definitive and binding.

Any DSC so investigated has the right to review the allegations against it and all factual information collected by IDA pertinent to the allegations.

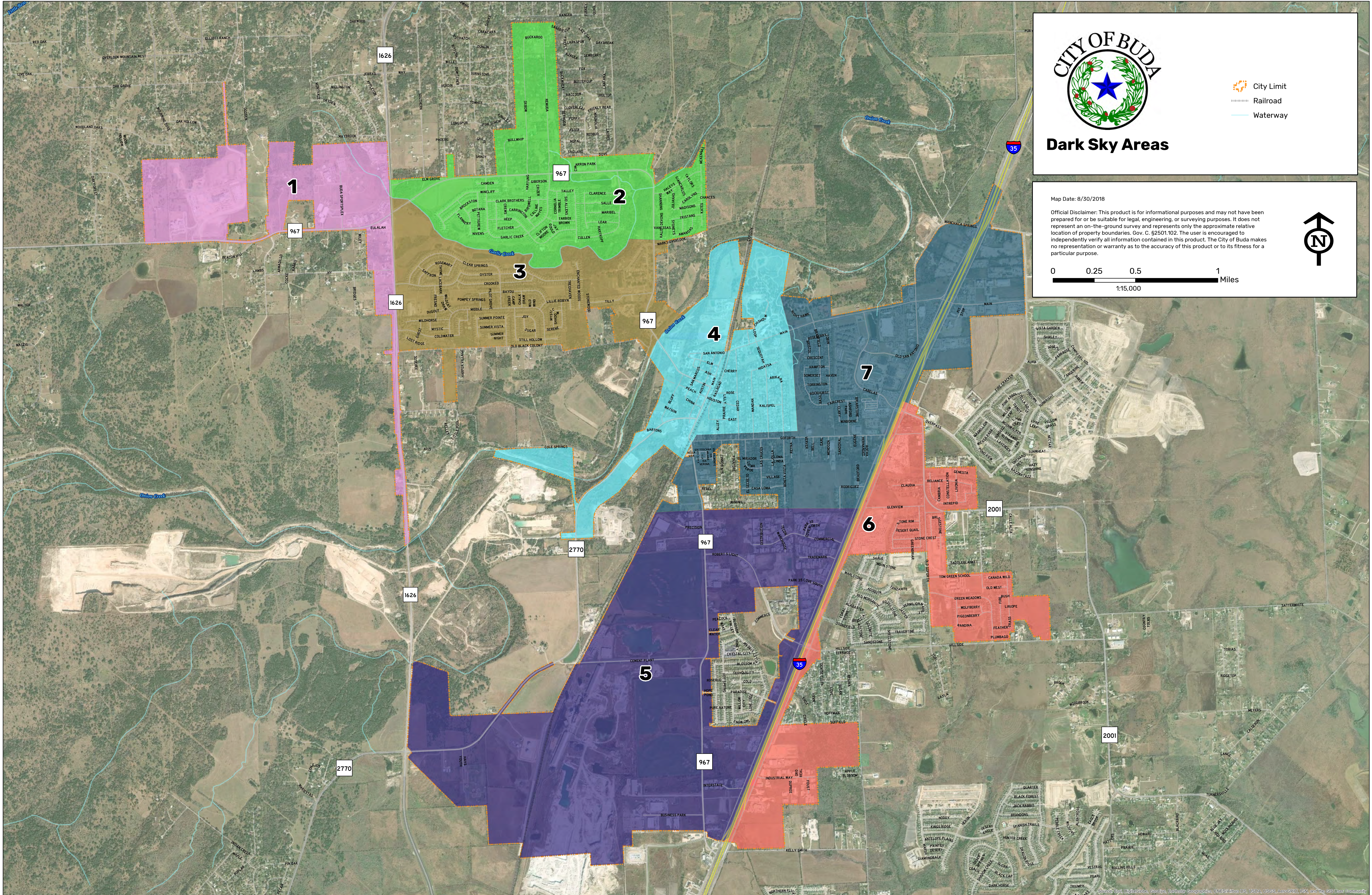
Reinstatement Following Suspension

If the DSPC recommends a suspension of a Community's IDA designation and the Board ratifies the suspension, the Community administration shall be immediately notified. The status of a suspended DSC shall be changed to "Provisional" in all IDA communications until the designation is reinstated or revoked; however, the process of obtaining reinstatement of a designation is not the same as that outlined in the "Provisional Status" section of these guidelines.

To obtain reinstatement of a suspended designation, the DSC must provide evidence to the DSPC's satisfaction that the specific issues identified by the DSPC as grounds for the suspension have been corrected and that all Program guidelines are once again met. The DSPC will consider the evidence presented by the DSC and render a judgment to either

- Accept the reinstatement petition, OR
- Reject the petition and recommend revocation, OR
- Return the petition with further instructions and a defined deadline for a DSC response.

A suspension left unresolved after one (1) year from the date of the Board's assent to the suspension automatically becomes a permanent revocation. Revocation entails removal of the DSC from IDA's roll of approved Dark Sky Places, and from mention on the IDA website and in member and external communications. IDA reserves the right to take legal action against any former DSC whose designation is duly revoked but continues to use the IDA name/logo in advertising, communications, and/or signage.





City Limit
Railroad
Waterway

Dark Sky Areas

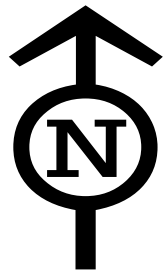
Map Date: 8/30/2018

Official Disclaimer: This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. Gov. C. §2501.102. The user is encouraged to independently verify all information contained in this product. The City of Buda makes no representation or warranty as to the accuracy of this product or to its fitness for a particular purpose.

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DARK SKY ASSESSMENT GUIDE

A QUICK GUIDE TO LIMITING LIGHT POLLUTION

WHAT IS LIGHT POLLUTION?

Light pollution is "the inappropriate or excessive use of artificial light," and consists of four factors¹:

1. **Glare:** Excessive brightness that causes visual discomfort
2. **Sky glow:** Brightening of the night sky over inhabited areas
3. **Light trespass:** Light falling where it is not intended or needed
4. **Clutter:** Bright, confusing and excessive groupings of light sources

Light pollution caused by the inappropriate or inefficient use of outdoor lighting is costly, and effects people, wildlife, and outdoor environments—most noticeably, it limits our view of the starry night sky.

HOW DO I USE THIS WORKSHEET & GUIDE?

The initial groundwork for a dark sky designation is establishing the current status. This worksheet guides users through several evaluation methods which could be used for a general assessment of dark sky-friendly lighting. While not all of the included methods are required for a quality assessment, it is recommended that those conducting the assessment use as many methods as appropriate to gain a broader perspective. In addition, the various methods may be adapted for public education and engagement on dark sky issues.

After completing your assessment, you will know the current state of lighting in your town and will have identified key areas for improvement.

For help with this guide, contact the State of Utah's Rural Planning Group: (801) 468-0133, info@ruralplanning.org.

PREPARING FOR YOUR DARK SKY ASSESSMENT

1. Define your purpose

- ☐ Who requested the assessment? Who is sponsoring or supporting it?
- ☐ What is the goal of your assessment?
- ☐ How will you use information gathered during the assessment?
- ☐ Will it be the only assessment or will there be more?

2. Identify who should be involved

- ☐ List and invite key stakeholders (leaders, active citizens, business owners, etc).
- ☐ What do they need to know to support your project and engage in the assessment?
- ☐ Who might help you engage with necessary stakeholders and supporters?

3. Design and prepare for the assessment

- ☐ Prepare a map of town (can use Google maps, a hand drawn map, or existing city maps).
- ☐ Organize where the assessment will begin and end. It may help to divide into different areas, separating commercial districts, residential sectors, or government districts for the purposes of the assessment.
- ☐ Walk the route beforehand—are there safety concerns or other considerations that should be acknowledged before conducting an assessment?
- ☐ Select areas during the day to take illustrative photos—most SLR cameras can take a good night photo.
- ☐ You should try to carry out your assessment on a clear night, with little or no cloud cover. Don't do the assessment when the moon is in the sky.

4. Get the word out

- ☐ If not initiated or conducted by the town, notify the town when your assessment will be performed.
- ☐ Notify and remind stakeholders.
- ☐ Notify the public (fliers, posters, Facebook, etc.); assessments can be helpful and fun for community education (e.g. Our Town Nights, Community Night Connections, etc.).

NOTES

REMEMBER TO TAKE...

- ☐ This guide
- ☐ Printed map of assessment area
- ☐ Pencils / pens / colored markers
- ☐ Clipboards
- ☐ Measuring tape
- ☐ DSLR camera & tripod
- ☐ Orange vests / visible clothing / reflective gear
- ☐ Comfortable walking shoes



DARK SKY ASSESSMENT GUIDE

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GENERAL LIGHTING TERMS

CLUTTER: Bright, confusing and excessive groupings of light sources.

COLOR SPECTRUM: Refers to the portion of the electromagnetic spectrum that is visible to the human eye.

CORRELATED COLOR TEMPERATURE (CCT): Specifies the color appearance of light emitted by a lamp.

DARK SKY: Denoting or located in a place where the darkness of the night sky is relatively free of interference from artificial light.

DSLR CAMERA: "Digital single-lens reflex" or DSLR cameras are versatile cameras with changeable lenses that produce high-quality photos.

FOOTCANDLE (fc): Illuminance produced on a surface that is everywhere one foot from a uniform point source of light of one candle and equal to one lumen per square foot.

FULLY SHIELDED: A fixture that allows no emission above a horizontal plane passing through the lowest light-emitting or light-reflecting part of the fixture.

GLARE: Excessive brightness that causes visual discomfort.

KELVIN: A measurement unit for light's "warmness" or "coolness."

KILOWATT (Kw): A measure equal to 1,000 watts of electrical power.

KILOWATT HOUR (kWh): A measure of electrical energy equivalent to a power consumption of 1,000 watts for 1 hour.

LIGHT TRESPASS: Light falling where it is not intended or needed.

LUMEN: A measurement unit for the brightness from a light source.

LUMINAIRE: A complete lighting unit that usually includes the fixture, ballasts, and lamps.

LUX: One lumen per square meter. Unit of illuminance.

REFLECTION: Light redirected back into the sky off of surfaces that are being illuminated.

SKYGLOW: Brightening of the night sky over inhabited areas.

WATT: The standard unit of power in the International System of Units (SI).



DARK SKY ASSESSMENT GUIDE

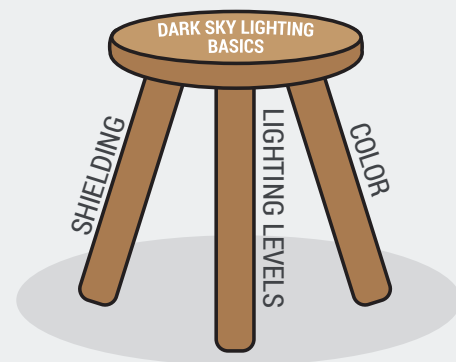


DARK SKY LIGHTING BASICS: THE “THREE-LEGGED STOOL”

We need lighting for safety at night. However, many city lights are undirected and waste energy while causing light pollution. Proper lighting begins with proper lighting design standards which form a proverbial “three-legged stool”. The legs of the stool are:

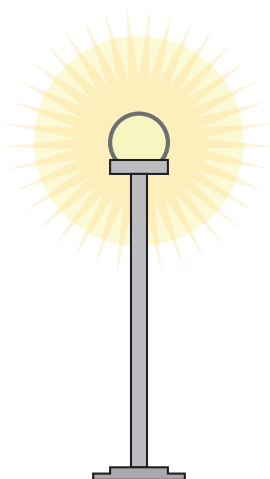
1. **Shielding**
2. **Appropriate lighting levels**
3. **Lighting color**

These three basic design principals form the basis for good lighting design, and when applied correctly, will reduce light pollution.

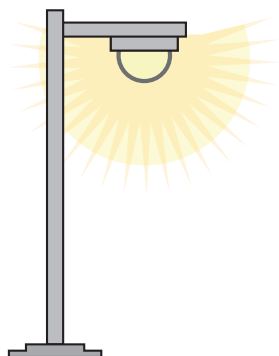


1. LIGHTING SHIELDING

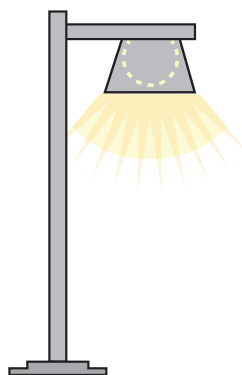
UNSHIELDED



PARTIALLY SHIELDED



FULLY SHIELDED



Outdoor lighting should be “fully shielded,” meaning no light above a 90-degree angle. The goal of fully shielded light fixtures is to prevent:

- **Light trespass** is light falling where it is not wanted or needed. Light trespass can create problems for neighboring and distant properties.
- **Glare** is intense and blinding light that can cause discomfort and temporary blindness.
- **Skyglow** reduces our ability to view celestial objects due to scattered light from sources on the ground.

The more light is directed towards the intended subject, the better. Fully shielded lighting can be purchased or retrofitted.

2. APPROPRIATE LIGHTING LEVELS

Outdoor lighting can easily become excessive or “cluttered.” Appropriate lighting levels means practically managing the amount of outdoor lighting in terms of duration and illuminated area. Ordinances that support appropriate lighting levels will specify the acceptable amount of lumens within an area (such as lumens per acre). Many municipalities use illumination guidelines established by the [Illuminating Engineering Society \(IES\)](#) to set lighting levels in their ordinances. In addition municipalities will remove lights no longer in use or needed. Note that International Dark Sky Association (IDA) standards are more strict than IES standards.

- **Lumens** are a measurement unit of the brightness from a light source.
- **Clutter** is excessive groupings of light sources that create a bright and confusing environment.
- **Reflection** off of what is being illuminated causes light to be redirected back into the sky, contributing to sky glow.

Timers, motion sensors, dimmer switches, and turning lights off when not in use can help improve lighting levels.

Generally, use lighting where it's needed, when it's needed, and only as bright as needed.

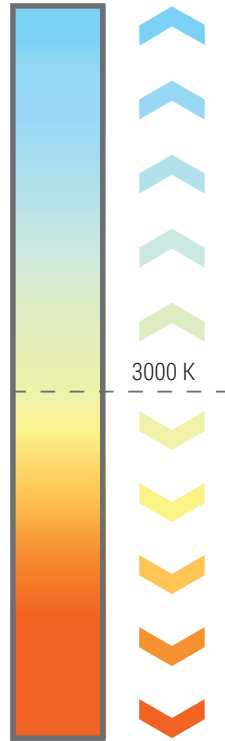
DARK SKY ASSESSMENT GUIDE

3. LIGHTING COLOR

The color of the light is important as well. Cool, blue spectrum lights brighten the night sky more than amber colored light and researchers are beginning to connect blue light spectrum to negative health effects in people and greater problems for wildlife. IDA recommends using long-wavelength lighting with a color temperature of < 3000 Kelvins.

- **Kelvins** are a measurement unit for light's warmness or coolness.
- **Color Spectrum** refers to the portion of the electromagnetic spectrum that is visible to the human eye.

WARM SPECTRUM COOL SPECTRUM



NOTES

ESSENTIAL TAKEAWAYS

- ☐ **LIGHT ONLY WHAT YOU NEED:** Use fully shielded fixtures. Shine lights down, not up. Direct lighting at desired areas. Be strategic with lighting and only use it where needed.
- ☐ **LIGHT ONLY WHEN YOU NEED:** Install timers, motion sensors, and dimmer switches, and turn off lights when not in use.
- ☐ **LIGHT ONLY HOW MUCH YOU NEED:** Use the right amount of light. Save electricity by using the lowest adequate wattage bulbs. Too much light is wasteful, impairs vision, and can be costly.
- ☐ **LIGHT ONLY HOW YOU NEED:** Use long-wavelength lights with a red or yellow tint to minimize negative health effects. Use warmer colored bulbs, like yellow or amber instead of white. Avoid bluish light, which is known to have a variety of negative effects.

ADAPTED FROM THE INTERNATIONAL DARK-SKY ASSOCIATION, DARKSKY.ORG

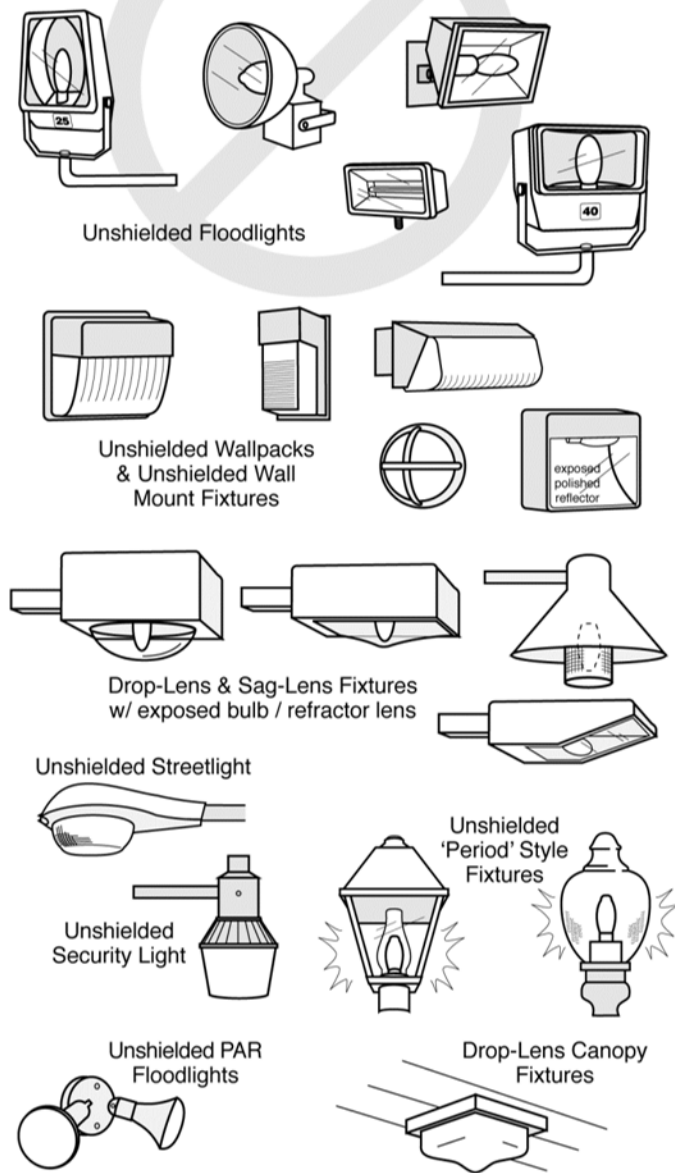
DARK SKY ASSESSMENT GUIDE

ACCEPTABLE LIGHTING TYPES

The images below illustrate various acceptable lighting forms. For more informations, visit <http://www.darksky.org/fsa/fsa-products/>.

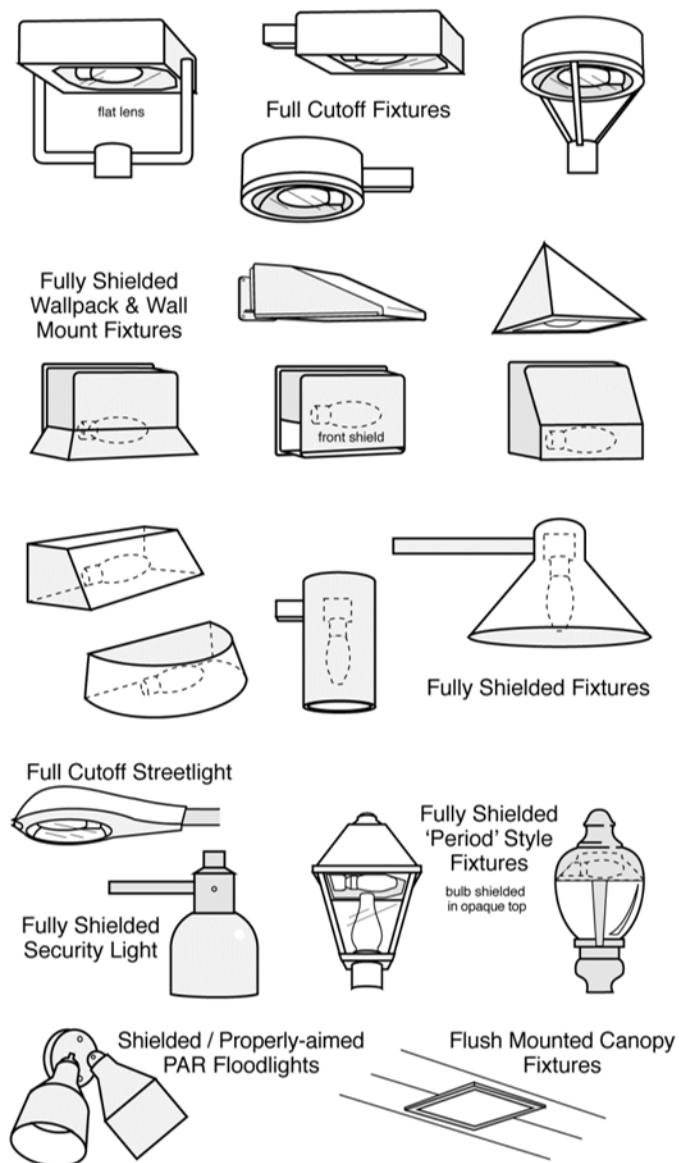
Unacceptable / Discouraged

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 CRELIN©. RENDERED FOR THE TOWN OF SOUTHAMPTON, NY. COURTESY OF INTERNATIONAL DARK-SKY ASSOCIATION.

DARK SKY ASSESSMENT GUIDE



CONDUCTING A FORMAL LIGHTING AUDIT

The IDA requires formally designated Dark Sky Communities (DSC) to adopt a quality and comprehensive lighting code which includes a commitment to a brightness measurement program. The brightness measurement program can be maintained either by the community or by another public or private organization. The measurement program is meant to monitor success in reducing light pollution. A formal lighting audit should be performed to establish a baseline for monitoring success.

A formal audit may require outside help from organizations such as a university, research center, IDA chapter, astronomy club, or other qualified entities since determining the electrical, physical, and operational characteristics of lighting can be difficult or technical. The process for lighting audits vary depending on the organization; however, the Federal Department of Energy (DOE) recommends several basic guidelines.

BASIC LIGHTING AUDIT GUIDELINES

THE FOLLOWING ITEMS ARE RECOMMENDED FOR CONSIDERATION:

- ☐ The age, condition, quality, and location of existing light fixtures.
- ☐ Model and manufacturer of lighting system to obtain existing photometrics (perceived brightness).
- ☐ Lamp wattage and ballast type (if appropriate).
- ☐ Take note of the environment, is there the possibility of particulate, moisture, or dirt buildup in or around the lighting fixture?
- ☐ Take note of what kinds of activities, or uses are being performed in the space. Are there are special visual requirements?
- ☐ Observe how the lighting system is controlled and how often it is used.
- ☐ Note the perceived color of the lighting, e.g. blue, white, or amber light.
- ☐ Measure the physical layout of the existing lighting system and take note of height and spacing.
- ☐ If possible, use an illuminance meter to measure light intensity. Readings should be taken on the ground and at even intervals to create a "grid" of measurements.

ADAPTED FROM THE FEDERAL DEPARTMENT OF ENERGY EXTERIOR LIGHTING AUDIT GUIDELINES

A lighting audit provides benchmarks for determining the effectiveness of lighting improvements and energy savings.

EXAMPLE LIGHTING AUDIT LOG

There are different ways to log your lighting audit information. One simple way is to record the information on a spreadsheet. The following is an example spreadsheet from the Federal Department of Energy's Exterior Lighting Guidelines. **Some data points can be captured during the day while other data points will require a nighttime visit.**

FIXTURE/LENSES				LAMP								
ITEM NUMBER	LOCATION DESCRIPTION	AGE	CONDITION (soiled, cracked, ect.)	LAMP TYPE	AGE	CONDITION (soiled, cracked, ect.)	SYSTEM WATTAGE	MODEL NUMBER	MANUFACTURER	PERCEIVED COLOR (blue, white, amber)	OCCUPANT TYPES (age, work, activities, ect.)	SHIELDING (none, partially, fully shielded)

DARK SKY ASSESSMENT GUIDE

EXAMPLE LIGHTING AUDIT WORKSHEET

Below is another example of how to record and organize your lighting audit data. Specific technology or technical assistance may be required to capture each data point. No matter what method or structure you use, be consistent and well organized.

DAYTIME VISIT		NIGHTTIME VISIT	
Visit Date:	Fixture Power:	Visit Date:	
Fixture Height (ft):	<input type="checkbox"/> Solar	Fixture Height (ft):	
Fixture Lighting Purpose:	<input type="checkbox"/> Utility	Correlated Color Temperature CCT:	
<input type="checkbox"/> Area	<input type="checkbox"/> Other	Illuminance:	
<input type="checkbox"/> Entrance/Egress	Fixture Adaptive Controls:	Footcandle:	
<input type="checkbox"/> Pathway	<input type="checkbox"/> Motion Sensor		
<input type="checkbox"/> Parking	<input type="checkbox"/> None		
<input type="checkbox"/> Roadway	<input type="checkbox"/> Photocell		
<input type="checkbox"/> Sign	<input type="checkbox"/> Switch		
<input type="checkbox"/> Stairway	<input type="checkbox"/> Timer Switch		
<input type="checkbox"/> Other	<input type="checkbox"/> Other		
Fixture Type:	Lamp Type:		
<input type="checkbox"/> Barn	<input type="checkbox"/> CFL	Mitigation Required	
<input type="checkbox"/> Bollard	<input type="checkbox"/> Empty Socket	<input type="checkbox"/> Yes	
<input type="checkbox"/> Ceiling Mount	<input type="checkbox"/> Fluorescent Tube	<input type="checkbox"/> No	
<input type="checkbox"/> Dark Cowbell	<input type="checkbox"/> Halogen	Mitigation Date:	
<input type="checkbox"/> Flood	<input type="checkbox"/> HPS		
<input type="checkbox"/> Hanging Light	<input type="checkbox"/> Incandescent		
<input type="checkbox"/> Lamp Post	<input type="checkbox"/> Induction		
<input type="checkbox"/> Phone Booth	<input type="checkbox"/> LED		
<input type="checkbox"/> Recessed	<input type="checkbox"/> LPS		
<input type="checkbox"/> Spotlight	<input type="checkbox"/> Mercury Vapor		
<input type="checkbox"/> Tin Hat	<input type="checkbox"/> Metal Halide		
<input type="checkbox"/> Tube	<input type="checkbox"/> Other		
<input type="checkbox"/> Vending Machine	Shielding:		
<input type="checkbox"/> Wall Pack	<input type="checkbox"/> Fully Shielded Eve		
<input type="checkbox"/> Wall Sconce	<input type="checkbox"/> Fully Shielded Fixture		
<input type="checkbox"/> Other	<input type="checkbox"/> Fully Shielded Lamp Lens		
Number of Fixtures	<input type="checkbox"/> Partially Shielded Eve		
Lamps per Fixture:	<input type="checkbox"/> Partially Shielded Fixture		
Historic Fixture?	<input type="checkbox"/> Partially Shielded Lamp Lens		
<input type="checkbox"/> Yes	<input type="checkbox"/> Unshielded		
<input type="checkbox"/> No			



DARK SKY ASSESSMENT GUIDE



DIFFERENT ASSESSMENT TOOLS

There are a variety of ways to collect information for your dark sky assessment. The following pages describe different methods for collecting, documenting, and organizing information. While the DOE and IDA offers basic guidelines, each community is unique, and the methods used and data collected will depend on individual goals, capacity, and access to technology. Dark Sky Community status won't be the goal for every community, but a formal audit will provide a baseline for limiting light pollution.

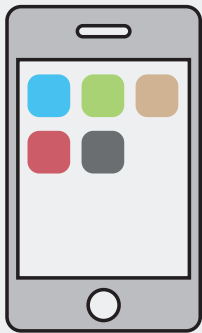
USE TECHNOLOGY

A wide variety of Iphone and Android apps can be used to take night sky brightness measurements. Other applications, such as [COLLECTOR FOR ARCGIS](#) can capture a comprehensive set of geographic data points.

For more precise measurements, the IDA recommends using a [SKY QUALITY METER](#) with Lens (SQM-L). Choose apps and resources that make sense for you and your community or contact a dark sky expert for help. Below is a list of basic apps to get you started.

NOTES

MOBILE APPS AND RESOURCES



DATA COLLECTION

[COLLECTOR FOR ARCGIS](#)

Collector can capture geolocated measurements for:

- ☐ Shielding
- ☐ Fixture height
- ☐ Lamp type
- ☐ Color temperature
- ☐ Lumens (Lux)
- ☐ Footcandles (fc)

SKYGLOW

[SKY QUALITY METER](#)

[DARK SKY METER APP \(IOS\)](#)

[CITIES AT NIGHT PROJECT](#)

[GLOBE AT NIGHT PROJECT](#)

[MY SKY AT NIGHT PROJECT](#)

[LOSS OF THE NIGHT APP](#)

WHO CAN I CONTACT FOR HELP WITH A FORMAL AUDIT?

The International Dark Sky Association (IDA)

(520) 293-3198

<http://www.darksky.org>

The Colorado Plateau Dark Sky Cooperative

(435) 260-8540

<https://cpdarks skies.org/>

darks skycooperative@gmail.com

The Consortium for Dark Sky Studies

(435) 260-8540

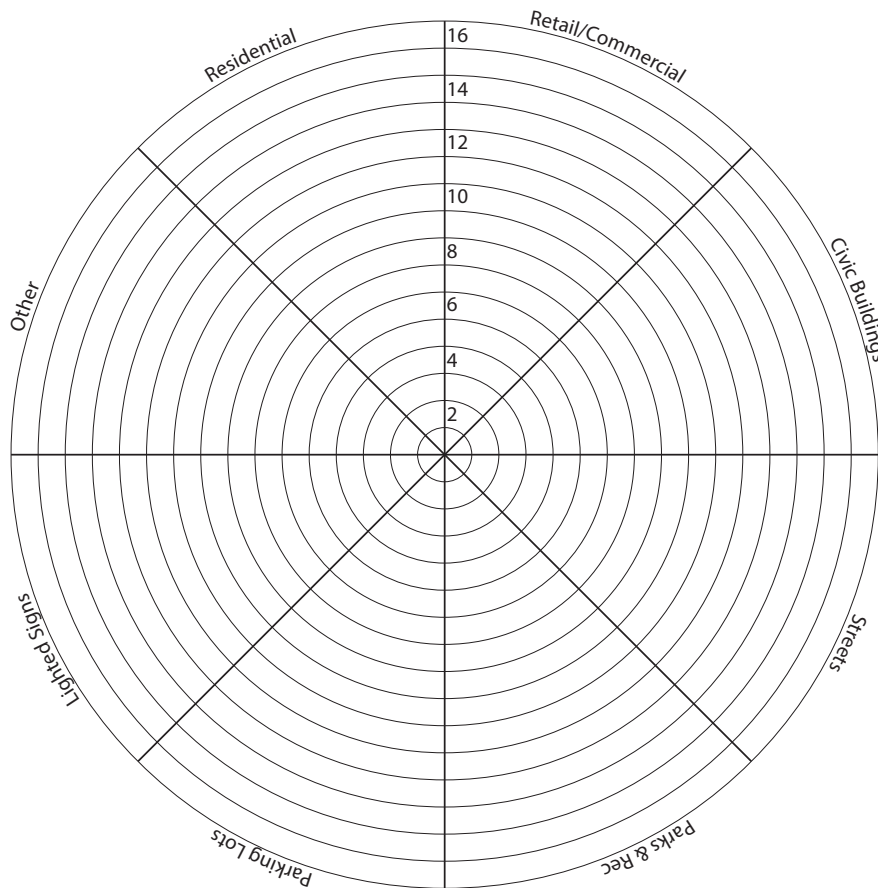
<http://www.darks kystudies.org/>

goldsmith@arch.utah.edu

DARK SKY ASSESSMENT GUIDE

LIGHTING ISSUE CONCERNS & LAND USE

Another tool for documenting light pollution sources is to mark the number of issues (e.g. poor shielding, blue/white lighting color, excessive lighting) observed in relation to land use. This can help identify focus areas and large-scale opportunities. Color in the number of issues related to the “three-legged stool” observed in the radial table below. Optional “issue-related” color coding is suggested below. The goal is to be able to compare the size of the “pie slices” after the assessment.



OPTIONAL “ISSUE” COLOR CODING

- Shielding
- Lighting Color
- Inappropriate/ Excessive Lighting

RESIDENTIAL

All types, single-family, apartments, etc.

RETAIL

Stores, shops, businesses, restaurants, etc.

CIVIC BUILDINGS

Government, post office, schools

STREETS

Street lighting

PARKS & REC

Sports parks, baseball fields, tennis courts, etc.

PARKING LOTS

Lighted parking lots

LIGHTED SIGNS

Business signs, advertising signs, etc.

OTHER

Any other uses, industrial, etc.

PUBLIC ENGAGEMENT & EDUCATION

Community engagement is an essential part of any kind of community-wide initiative. The support of local leaders, residents, and business owners can be gained from talking to people on an individual level and addressing their concerns. Make an effort to talk to neighbors and friends about light pollution and educate them on the benefits of improved lighting.

2 MINUTE SURVEYS...

Ask residents and business owners about their experience with light pollution. As you survey people educate them about basic light pollution concepts and issues. Why should they care?

QUICK QUESTIONS

Is preserving dark skies important to you?

Would you support simple changes to limit light pollution?

What concerns do you have?

EDUCATE

Briefly explain why light pollution is an issue.

Describe why preserving the night sky is important to you.

Discuss the “three-legged stool” and simple ways to mitigate light pollution.

DARK SKY ASSESSMENT GUIDE

MARKING A MAP

Marking lighting issues on a map can help identify and document spatial clusters and provide a reference for others.

An official zoning map, Google map, or other reference map of your community can be used to document sources of light pollution as well as examples of “dark-sky friendly” lighting.

Some areas may require a map that is “zoomed in on an area” such as on main street or a sports park. Your assessment may include just publicly owned lighting or all lighting including commercial, residential, and open space. The scale and amount of detail are up to the community.

Marked lighting issues should relate to the “three-legged stool” but should also be tailored to your community’s specific dark sky assessment goals.

IDEAS FOR WHAT TO MARK



Unshielded lighting



Glare/ intense brightness



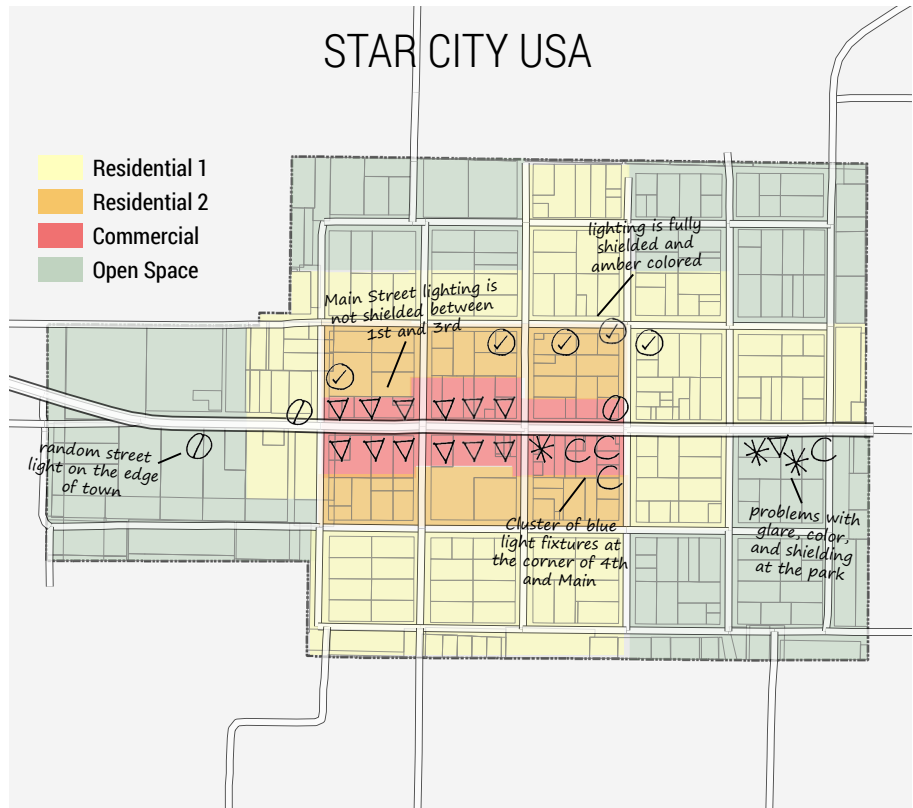
Unnecessary lighting



Blue/ White Colored Light



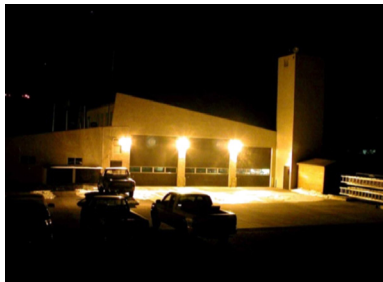
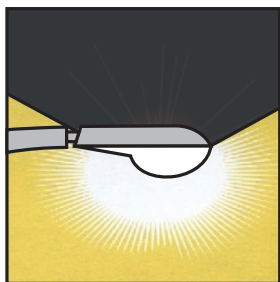
Good lighting



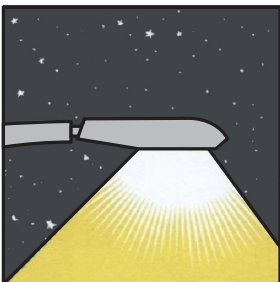
TAKING NIGHT PHOTOS

Documenting light pollution is an important way for educating the public on the actual situation and to support a case for improved lighting.

UNSHIELDED



SHIELDED



NIGHT PHOTO GUIDELINES

The following are helpful guides on settings for taking certain types of photos at night. Remember, always use a tripod. These settings should be adjustable on the manual mode for any DSLR camera.

- **DSLR** stands for “digital single-lens reflex.” DSLR cameras are versatile cameras with changeable lenses that produce high-quality photos.

	SHUTTER	APERTURE	ISO	FLASH
SIGNS	1/50	F/2.8	100	N
CITY SCAPE	1/320	F/4.5	100	N
BRIDGES	15/1	F/5.6	100	N
STREET	1/5	F/4	320	Y
MONUMENTS	15	F/16	250	Y
LIFE	6	F/9	100	Y
THE MILKY WAY	20+	F/2.8	1600	N

IMAGES FROM IDA INTRO TO LIGHTING POWERPOINT

DARK SKY ASSESSMENT GUIDE

CALCULATE THE SAVINGS

Many communities are now realizing the benefits of controlling energy waste through better-quality and better-designed lighting. Calculating potential energy savings and payback for upgrade conversions is another way to understand how adopting dark sky policies and best practices can benefit your community. Use the following formula from the Federal Department of Energy's Exterior Lighting Guidelines to calculate an estimation of lighting power and energy use. Compare your current lighting energy costs with estimated energy costs of an upgrade conversion. Calculating an energy use estimation for prospective lighting replacements is an effective way to illustrate cost savings.

LIGHTING POWER & ENERGY USE ESTIMATION

1. COMPUTE THE TOTAL POWER (kW) USED BY THE EXISTING SYSTEM

EXISTING LAMP OR LUMINAIRE WATTAGE		NUMBER OF LAMPS		TOTAL POWER CONSUMED
_____	W	x	_____	lamps = <input type="text"/> W

2. COMPUTE THE TOTAL ENERGY (kWh) CONSUMED ANNUALLY BY THE EXISTING SYSTEM.

TOTAL POWER CONSUMED BY SYSTEM LUMINAIRE		HOURS OF USE PER DAY		DAYS OF USE PER WEEK		WEEKS OF USE PER YEAR		TOTAL ENERGY CONSUMED		
_____	W	x	_____	hrs/day	x	_____	days/wk	x	_____	wks/yr = <input type="text"/> kWh/

3. COMPUTE THE TOTAL ENERGY COST (DOLLARS) ANNUALLY FOR OPERATION OF THE EXISTING SYSTEM.

TOTAL ENERGY CONSUMED		ENERGY RATE		TOTAL COST
_____	kWh/yr		\$/kWh	= <input type="text"/> \$/yr

BACK TO THE BASICS

- **W (watt)** the standard unit of power in the International System of Units (SI)
- **Wh (watt hour)** a unit of energy equal to the power of 1 watt operating for 1 hour
- **kW (kilowatt)** a measure of 1,000 watts of electrical power.
- **kWh (kilowatt hour)** a measure of electrical energy equivalent to a power consumption of 1,000 watts for 1 hour.
- **Luminaire** a complete lighting unit that usually includes the fixture, ballasts, and lamps

IN A NUTSHELL...

ENERGY = POWER x TIME

DARK SKY ASSESSMENT GUIDE



NOW WHAT? AFTER YOUR DARK SKY ASSESSMENT

What you do after your dark sky assessment is almost as important as the assessment itself. Depending on your specific goals, the following steps can lead to an organized and effective action plan.

1. Debrief after the assessment

- ☐ Hold a post-assessment meeting with all assessors.
- ☐ Compile information, recording comments and clarifying notes.
- ☐ Brainstorm and record suggestions for changes and improvements. Develop ideas for projects that take advantage of opportunities, improve strengths, strengthen weaknesses, or mitigate threats.
- ☐ Invite participants to be involved in your project and identify how they will be committed.
- ☐ Thank everyone for their participation and outline next steps.

2. Form a local Dark Skies Group

(adapted from Advice on Starting a Local Dark Skies Group, Ed Stewart, Dark Skies, Inc., of the Wet Mountain Valley)

- ☐ Educate yourself on the various aspects of light pollution.
- ☐ Develop a core working group to support the initiative.
- ☐ Build awareness and education through local media and social media.
- ☐ Personally contact business owners and managers on the benefits of proper outdoor lighting.
- ☐ Provide a vendors list of dark sky friendly fixtures to contractors, hardware stores, and home improvement businesses.
- ☐ Contact the local power company for potential incentives or discounts on amber LED fixtures.
- ☐ Individually approach town leadership to get a feel for local support.
- ☐ Take the long-range approach. This may be seen as a “tree hugger” issue, but is about protecting the rural environment and quality of life.
- ☐ Stay positive and focus on benefits and advantages: reduced power consumption, cost savings, improved quality of life, and improved potential tourism.

3. Pursue Dark Sky Places certification

- ☐ Provide the compiled report to local leadership, with suggested actions.
- ☐ Gauge the level of willingness of local leadership to take action.
- ☐ Outline the current project prioritization for leaders and ask leaders for input.
- ☐ Examine the potential to become a dark-sky certified community at <http://www.darksky.org/idsp/become-a-dark-sky-place/>.
- ☐ Fill out the application at <http://www.darksky.org/idsp/become-a-dark-sky-place/dark-sky-community-inquiry/>.

4. Plan action

- ☐ Create an implementation plan based on prioritized projects or actions.
- ☐ Identify potential funding sources as needed, required partners, and any needed changes to town code.
- ☐ Plan completion of small simple tasks first to build momentum for larger projects.
- ☐ Build critical mass—get the word out! Notify and continually engage and invite stakeholders, land owners, business owners and general public.

NOTES

IDA DARK SKY COMMUNITY

An IDA Dark Sky Community (DSC) is a town, city, or municipality that has shown exceptional dedication to the preservation of the night sky through the implementation and enforcement of quality lighting codes, dark sky education, and citizen support of dark skies.

Communities apply with the IDA who will make a decision in an average of one-to-two years from the initial request.

Requirements that must be maintained:

- ☐ Quality comprehensive lighting code
- ☐ Community commitment to dark skies
- ☐ Broad support from community organizations
- ☐ Community commitment to education on dark skies
- ☐ Success in light pollution control
- ☐ A continuing sky brightness measurement program

For full instructions and information:

<http://www.darksky.org/idsp/become-a-dark-sky-place/>

DARK SKY ASSESSMENT GUIDE

ADDITIONAL RESOURCES

GENERAL

International Dark Sky Association: <http://www.darksky.org>

Colorado Plateau Dark Sky Cooperative: <https://cpdarks skies.org>

The Consortium for Dark Sky Studies: <http://darks kystudies.org>

International Dark Sky Association Salt Lake City Chapter: <https://www.darks kyslc.org/>

Interactive light pollution mapping tool: <https://www.lightpollutionmap.info>

Building Energy Codes Program: <https://www.energycodes.gov/comcheck>

Watts-to-lumens free calculator: <http://www.rapidtables.com/calc/light/watt-to-lumen-calculator.htm>

Sensible outdoor lighting: <https://darks kywisconsin.uwex.edu/files/2015/11/township-brochure.pdf>

The new world atlas of artificial night sky brightness: <http://advances.sciencemag.org/content/2/6/e1600377.full>

Federal Department of Energy's Exterior Lighting Guidelines: http://cltc.ucdavis.edu/sites/default/files/files/publication/2010_DOE_FEMP_Exterior_Lighting_Guide.pdf

How to carry out a dark sky survey: <https://darks kydiary.wordpress.com/2010/12/18/how-to-carry-out-a-dark-sky-survey/>

Luginbuhl and Hall. "How Flagstaff is Preserving Dark Skies." *Astronomy*, Sept. 2017, pp. 56-60.

RECREATION LIGHTING

Powder Mountain Night Skiing: 6,248,060 total lumens for 19 acres of skiable terrain (ratio of 7.6 lumens per square foot). 6500 Kelvin color temp. <http://ultratechlighting.com/wp-content/uploads/2016/01/SNBT-FL-300W-B2.pdf>

Nordic Valley Night Skiing: 6,639,390 lumens and about 54 acres of skiable terrain (ratio of about 3 lumens per square foot). 6500 Kelvin color temp.

International Tennis Federation: <http://www.itftennis.com/technical/facilities/facilities-guide/lighting.aspx>

FLAG LIGHTING

Federal law for US flag: <http://www.senate.gov/reference/resources/pdf/RL30243.pdf>

Federal and state facilities: See UCA §17-27a-304. <http://le.utah.gov/xcode/Title17/Chapter27A/17-27a-S304.html>

Canopy lighting a parking lot light: See IDA model ordinance regarding lumens per gas pump and lumens per parking stall: <http://darks ky.org/our-work/public-policy/mlo/>

TOWER LIGHTING

Federal Aviation Administration: https://www.faa.gov/regulations_policies/faq_regulations/

Federal Communications Commission: <https://www.fcc.gov/general/rules-regulations-title-47>

ILLUMINATION STANDARDS

Illuminating Engineering Society (IES): <https://www.ies.org/standards/>

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info@ruralplanning.org • 801-468-0133



City of Buda Lighting Audit

	Park or Facility Name	Approximate Address	Light Type	Direction from Road	Fixture Type	LED	Quantity
	Ex: City Hall/Library	405 Loop Street	Parking Lot Lights	N/A	Unknown	Yes	12
1							
2							
3							
4							
5							
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Sustainability Commission Agenda Item Report

Date: Thursday, January 3, 2019

Agenda Item No. 2018-55-

Contact: Micah Grau

Subject: Discussion on education and outreach opportunities of the Sustainability Commission (Assistant City Manager Micah Grau)

1. Executive Summary

A core function of the Sustainability Commission is to help provide outreach and education on sustainable initiatives of the City and to let Buda citizens know of ways they can engage in sustainable activities on their own. Last year, the Sustainability Commission drafted a calendar of sustainable topics by month in order to guide the outreach efforts of the City.

2. Background/History

In 2018, the Commission drafted a calendar to guide the sustainable topics and themes for different times of the year. Staff would again like input from the Commission on a schedule of themes and identification of important topics. Furthermore, staff would like input on additional ways to make citizens aware of sustainable ideas and initiatives.

3. Staff's review and analysis

Not applicable.

4. Financial Impact

Not applicable.

5. Summary/Conclusion

The Commission is asked to provide input on important themes and ways to convey educational information on sustainable topics to the public.

6. Pros and Cons

Not applicable.

7. Alternatives

Not applicable.

8. Recommendation

Not applicable.

Sustainability Commission Public Awareness Efforts

Hashtag ideas

- #SustainableBuda
- #BudaBetter
- #GreenBuda
- #BudaConserves

Taglines

- Sustain – Ability – Buda
- Gather Here. Go Green. Buda Green.
- Sustainable Living – Buda
- Sustain, Engage, Buda
- Green Lines - Buda

Resources

- Take Care of Texas Infographics - <http://takecareoftexas.org/media/infographics>

Evergreen Topics

- Recycling Reminders
 - What can be recycled (<http://www.ci.buda.tx.us/DocumentCenter/View/4836>)
 - Recycle Electronics and Batteries (<http://takecareoftexas.org/do-your-part/around-house>)
 - Buy Recycled-Content Products (<http://takecareoftexas.org/do-your-part/around-house>)
- Conservation Tips (<http://takecareoftexas.org/do-your-part/around-house>)
 - Turn off the lights
 - Use Energy-Saving Light Bulbs
 - Adjust Your Thermostat
 - Make Your Cooling and Heating System an ENERGY STAR
 - Reduce Standby Power
 - Cut Back on Amount of Mail

Seasonal Topics

Seasonal Tips from Take Care of Texas - <http://takecareoftexas.org/media/seasonal-tips>

January:

- Recycling (info in seasonal summary below)
 - Locations of facilities that recycle not commonly accepted materials
 - Ex. – plastic bags, household hazardous waste

February:

- Weatherization (preparing for cold temperatures)

March:

- Support Locally Grown Produce (Downtown Buda Farmer's Market starts)
- Native landscaping, home gardening
- Downtown Buda/citywide beautification
- Promote sustainable features of the new CHL facility
 - Could be included in PIO video/outreach efforts for the facility grand opening media materials

April:

- Earth Day (April 22)
- Address the topic of sustainability, in general (what is it, why is it important, etc.)

May:

- Water conservation (in home, landscaping)
 - Education about the city's "purple pipe" (recycled, non-potable water) program
 - Rainwater harvesting
- Weatherization(preparing for summer temperatures and energy use)

June:

- Air quality
- Bike& pedestrian education
 - Commuting, transportation by cycling and walking
 - Buda's trail system and sidewalk infrastructure
- Vehicle maintenance
 - Education on how an efficient vehicle can be better for the environment
 - Tire pressure, etc.

July:

- Electric conservation
 - Information above in Summer "category"

August:

- Dark Skies (Perseid meteor shower peaks on August 13)
 - Light pollution reduction efforts

September:

- Preservation of waterways/protection of ecosystems
 - Education about hazardous runoff

October:

- Planting pollinator gardens
- Texas Native Plant Week (third week in October)

- Promote preservation of insect pollinators (bees/butterflies)

November:

- Arbor Day (November 2)
 - Tree health/manicuring/maintenance
 - Non-native/invasive tree education
 - What/what not to plant and why
- Fall is the prime time for planting trees and bluebonnets

December:

- Christmas Tree Recycling
- Zero waste wrapping ideas
- Hays County Master Naturalist Applications (<http://haysmn.org/>)

Winter:

- Stay warm, but keep energy use low
 - Use Ceiling Fans (<http://takecareoftexas.org/do-your-part/around-house>) – “In the winter, reverse your fan to force warm air near the ceiling down into the room, the blades should be set on a low speed and spin in a clockwise direction.”
 - Weatherize Your House (<http://takecareoftexas.org/do-your-part/around-house>) – “Sealing air leaks around your home and adding insulation can help you maintain a comfortable indoor temperature and save up to 10 percent on your annual energy bills. Simple fixes include installing weather stripping on doors and caulking around windows, while bigger jobs might include sealing leaks and adding insulation in your attic.”
 - Adjust Your Thermostat (<http://takecareoftexas.org/do-your-part/around-house>) – “Cut your cooling and heating costs by using a programmable thermostat, or simply adjust your thermostat during overnight hours or when no one is home. Try setting the thermostat at 68 degrees or cooler in the winter to reduce energy consumption.”
- Check your tire pressure in cold weather

Summer:

- Stay cool, but keep energy use low
 - Use Ceiling Fans (<http://takecareoftexas.org/do-your-part/around-house>) – “Ceiling fans allow you to raise the thermostat setting about four degrees without discomfort. A ceiling fan cools people, not the room, so be sure to turn it off when you leave the room.”
 - Weatherize Your House (<http://takecareoftexas.org/do-your-part/around-house>) – “Sealing air leaks around your home and adding insulation can help you maintain a comfortable indoor temperature and save up to 10 percent on your annual energy bills.”

Simple fixes include installing weather stripping on doors and caulking around windows, while bigger jobs might include sealing leaks and adding insulation in your attic.”

- Adjust Your Thermostat (<http://takecareoftexas.org/do-your-part/around-house>) – “Cut your cooling and heating costs by using a programmable thermostat, or simply adjust your thermostat during overnight hours or when no one is home. Try setting the thermostat at 78 degrees or warmer in the summer to reduce energy consumption.”
- Water conservation
 - Buda’s rain barrel incentive program (discount off water bill)



Sustainability Commission Agenda Item Report

Date: Thursday, January 3, 2019

Agenda Item No. 2018-668-

Contact: Micah Grau

Subject: Presentation and possible action on the installation and replacement the City's Automatic Meter Infrastructure (AMI) system (Assistant City Manager Micah Grau)

1. Executive Summary

In November 2018, the City Council approved a contract with Siemens Industries to upgrade the city's automatic metering infrastructure. Staff will provide a brief presentation on this item and discuss how the project will improve water conservation efforts of the City. Discuss how the Sustainability Commission can help promote this project in the community and what types of marketing information the City should release related to the project.

2. Background/History

The City installed its current automatic meter reading (AMR) system in 2007. The current system is a fixed-base Itron 200W system that reads water consumption approximately every four hours. Collector radios located strategically around town collect the reads and utility staff download those reads and process billing on a monthly basis. The 200W system is no longer supported by the industry as new technology has been created, making it difficult for staff to purchase endpoints that work with our system. Also, due to the age of the equipment, endpoints are reaching the end of their life cycle and are no longer working. This requires staff to manually read approximately 600 meters each month and prevents us from providing daily read data to consumers when reviewing bills. This number has nearly doubled from one year ago. As new houses are added to the City's utility system, these must also be manually read. Not only are the endpoints of the former system failing, but the meters themselves are nearing end of life for accurately billing. A typical residential meter will measure accurately for approximately 10 years or 1 million gallons of water, depending on the type/make of the meter. When meters begin to fail, they typically fail to register water flow through the meter which results in lost revenue to the City.

The project is to replace the Itron system including 3,806 City of Buda water meters located throughout the City with the Neptune system. Five collectors would be located at locations throughout the City. The Neptune system was selected by staff because they offer a no moving parts meter for meters up to 2". This results in more accurate reads and a longer lifespan of the meter. The meter is also brass instead of a composite.

The benefits of the new system are increased meter accuracy, improved transparency, and enhanced

customer service. The new system will enable customers to see their consumption in real-time data as opposed to having to request their consumption data from the City. This will empower customers to take control over their consumption by setting usage alerts and leak warnings.

3. Staff's review and analysis

Performance contracting is a procurement method that is similar to the design-build approach and utilizes guaranteed efficiency and energy savings to offset project costs. Local governments are authorized to utilize Performance Contracting as defined in Texas Local Government Code Ch.302.

In addition, the state statute requires that a 3rd party review of the technical calculations and assumptions about the project benefits and scope of work be performed by a licensed Professional Engineer. The 3rd Party Review was conducted by HDR Engineering because of their familiarity with the City's utility system as part of the annual evaluation of the utility rates.

4. Financial Impact

The total cost for project management, training, equipment, and installation is \$2,584,475. Siemens estimates that replacement of the system will result in an additional \$5.7 million in revenue over the next 15 years. The audit and testing of 70 randomly selected current meters found that the current system lost accuracy in low flow situations (85% accurate when flows were .25 gallons per minute (gpm)). This unaccounted for consumption results in lost revenue to the utility system. Additionally, the City will experience efficiency savings by not having to manually read approximately 600 meters per month, thus freeing up utility staff to focus on projects and maintenance.

5. Summary/Conclusion

Approval of this item enables the City to proceed with a replacement of its meter reading system. In the age where customers expect to view their consumption and data in real-time, the new system will give citizens that opportunity. It will empower them to control their usage resulting in improved water conservation. It also enhances customer service by allowing citizens to access and see their data anytime, improved transparency, and trust. If approved, implementation of the system would take approximately 9 months.

6. Pros and Cons

Pros: Enhanced accuracy, transparency, customer service, and improved trust with citizens; can result in better water conservation practices by the customer.

Cons: Technology is constantly evolving. The Neptune system is at the forefront. This system could be obsolete in 15 years like the current Itron system. It will be important for the City to implement a meter replacement schedule so that meters are replaced routinely in smaller increments rather than a system-wide replacement.

7. Alternatives

8. Recommendation



Sustainability Commission Agenda Item Report

Date: Thursday, January 3, 2019

Agenda Item No. 2018-263-

Contact: Micah Grau

Subject: Deliberation and possible action on the Sustainability Commission's 2018-19 Workplan

1. Executive Summary

Review and discuss the Sustainability Commission's 2018-19 Work Plan and goals for 2019.

2. Background/History

Please see the attached 2018-19 work plan.

3. Staff's review and analysis

4. Financial Impact

Not applicable.

5. Summary/Conclusion

The work plan outlines the goals and direction of the Commission as well as focuses staff's efforts as it relates to the Commission.

6. Pros and Cons

Not applicable.

7. Alternatives

8. Recommendation

Not applicable.

These Bylaws govern Sustainability Commission of the City of Buda

ARTICLE ONE ORGANIZATION

- I. A. The Sustainability Commission (Commission) shall consist of seven (7) members in accordance with the enabling ordinance adopted by the City of Buda, as it may be amended from time to time.

B. If the enabling ordinance sets specific residency requirements, then those requirements must be observed, provided that if a vacancy occurs as a result of the death, incapacity, resignation, or change of residency of a member (as provided above), the Commission may continue its functions in the interim during the process of filling the vacancy.
2. Unless otherwise required by ordinance or other applicable law, all matters shall be decided by a majority vote of the members present and voting. Proxy voting shall not be permitted.

ARTICLE TWO MEETINGS

- I. All meetings of the Commission shall be conducted in strict compliance with the Texas Open Meetings Act. All members shall attend and complete a state approved Open Meetings Act training program.
2. A. The Commission shall establish a date and time for its regular meetings. It shall not be required to give notice of regularly scheduled meetings to members, other than compliance with the Open Meetings Act.
3. A. The Commission shall establish a date and time for its regular meetings. It shall not be required to give notice of regularly scheduled meetings to members, other than compliance with the Open Meetings Act.

B. Special meetings of the Commission may be called by:

 - (1) The Chairperson or interim Chairperson of the Commission;
 - (2) The City Manager or his or her designee; or
 - (3) Three (3) Commission members.

Unless otherwise required by the enabling ordinance, UDC or state law, not less than three (3) days notice shall be given by the City Manager or his or her designee of special meetings.

C. Emergency meetings may be called in accordance with the Texas Open Meetings Act.

4. A member, who attends a meeting for any purpose other than objecting to the meeting because of lack of required notice, waives any objection to the meeting.
5. *Conflict of Interest.* A Commission member having any potential conflict of interest, as defined by the City Code of Ordinances or State law, on any policy, decision, or determination before the Commission shall disclose to each of the other members the nature of his potential conflict and shall abstain from voting on such policy, decision or determination. In the event that the Commission member recognizes a conflict or clear potential for conflict of interest, he or she shall recuse him or herself from discussion and action on the topic involving such conflict. The disclosure shall be recorded in the Commission's minutes. Intentional or knowing failure to disclose a conflict of interest shall be governed under the general penalty section as set forth in the City's Code of Ordinances.
 - (1) Any member of the Commission who does not legally have a conflict of interest but would like to avoid the appearance of a conflict of interest may elect to follow the procedure established in Section 5.
 - (2) Members shall not represent any other person, group or interest before the Planning and Zoning Commission, the Zoning Board of Adjustments and Appeals, Historic Preservation Commission, Parks and Recreation Commission, Library Commission, Economic Development Corporation, Local Government Corporation or the City Council on any matter pending before such Board or Commission. This provision shall not preclude a member from representing an interest in his or her real homestead property. Members may represent the Parks and Recreation Commission in reporting on the activities or decisions made of the Commission to the Zoning Board of Adjustments and Appeals, Historic Preservation Commission, Planning & Zoning Commission, Library Commission, Economic Development Corporation, Local Government Corporation or the City Council.

ARTICLE THREE OFFICERS

Unless otherwise required by the enabling ordinance or state statute, the following provisions shall control the officers of the Commission:

1. The Commission shall have a Chairperson and a Vice-Chairperson elected from its membership to serve for a one (1) year term. Officers shall be elected annually by the Commission.
2. The Chairperson and Vice-Chairperson shall be residents within the city limits.
3. The Chairperson shall preside over the Commission and shall have the right to vote on all items before the Commission.
4. The Vice-Chairperson shall fulfill the duties of the Chairperson when the Chairperson is not available for any reason.

ARTICLE FOUR ATTENDANCE POLICY

Recognizing that members serve voluntarily and that the business of the Commission is advisory in nature, and keeping a proper balance between those principles and the important nature of the public business entrusted to the Commission, the following attendance policy shall apply to all members of the Commission:

- A. The voluntary absence of a Commissioner from three (3) consecutive regular meetings of the Commission will result in automatic resignation of the member from the Commission.
- B. The voluntary absence of a Commissioner from more than twenty-five (25) percent of the Commission's regular meetings during a calendar year will result in automatic resignation of the member from the Commission.

However, in no case shall a Commissioner, regardless of whether excused or voluntary, be absent from more than fifty (50) percent of the Commission's regular meetings during a calendar year. Such absenteeism will result in an automatic resignation of the member from the Commission.
- C. In this section:

- (1) *Regular meeting* includes only regularly scheduled meetings, and does not include special meetings, workshops, or committee meetings of a board or commission.
- (2) *Excused absence* means an absence that results from, including but not limited to:
- a medical reason of a board or commission member or a relative of the member,
 - child care for a newly born or newly adopted child during the first eight weeks of the child's life,
 - death of a family member,
 - a scheduled vacation
 - o More than one (1) scheduled vacation will be deemed a voluntary absence.
 - business travel,
 - school, or
 - from an unexpected factor beyond the control of the Commissioner.

The City Manager or his or her designee shall be responsible for determining whether an absence is excused.

- (3) *Voluntary absence* means an absence other than an excused absence.
- D. Members shall strive to notify the City Manager or his or her designee in advance of any known or planned absence to enable the City Manager or his or her designee to determine if a quorum will be present. Failure to give reasonable notice may be considered when determining whether an absence shall be excused.
- E. In the event where there is an automatic resignation, the City Manager or his or her designee shall coordinate with the City Secretary to provide a list of eligible candidates to the City Council for consideration of replacement for such vacancy.
- F. The City Manager or his or her designee shall keep abreast the City Council on such voluntary absences.

ARTICLE FIVE RECORDS

All records of the Commission are public records. All such records shall be in the custody of the City Secretary but available to the members in the due course of their proceedings. The City Manager or his or her designee shall be responsible for the care and custody of the records while in the Commission's use.

All secretarial duties of the Commission shall be performed by City staff with the aid and assistance of the Chairperson.

ARTICLE SEVEN REGULATIONS

The Commission is not a regulatory body and has no authority to adopt regulations governing persons or properties, nor does it have authority to adopt rules implementing City policies. Should the Commission determine rules or regulations would provide a public benefit, those rules or regulations shall be submitted to the City Council for review and adoption.

ARTICLE EIGHT RULES OF DECORUM

1. A. The purposes of these rules are as follows:

- (1) To ensure that meetings of the city boards and commissions are conducted in a way that allows the business of the city to be effectively conducted.
- (2) To ensure that members of the public who attend meetings of the city council and of city boards and commissions can be heard in a fair, impartial and respectful manner.
- (3) To ensure that meetings of the city boards and commissions are conducted in a way that is open to all viewpoints, yet free from abusive, distracting or intimidating behavior.
- (4) To ensure that the rules governing decorum at meetings of the city boards and commissions are understood by persons attending the meetings.

B. This section applies to meetings of boards and commissions whose membership is wholly appointed by the city council.

C. Members of the public may address the city board or commission at the following times during a meeting:

- (1) During citizen comment period, if such a period is on the agenda for the meeting;

- (2) During a public hearing on an agenda item; or
 - (3) At other times with the permission of the presiding officer.
- D. Members of the public who wish to address a board or commission at any time during a meeting must complete a sign-in form prior to the meeting at the office of the staff liaison, for a board or commission meeting. Speakers must state their name and place of residence, and must limit their remarks to the specified time limit on the agenda unless otherwise determined by the presiding officer. The allotted time will commence from the beginning of the speaker's remarks and will include any time spent in discussion between the speaker and board or commission members. Issues taking longer to communicate can be addressed outside the meeting to the city staff or to individual members of a board or commission, or submitted in writing.
- E. All comments and questions by members of the public at a meeting will be directed to the presiding officer.
- F. During a citizen comment period, members of the public will be given an opportunity to speak, and they must observe the specified time-limit, unless otherwise determined by the presiding officer, under subsection D.
- G. The presiding officer and members of boards and commissions will endeavor to ensure that meetings are conducted in a courteous manner, and in an atmosphere free of defamation, intimidation, personal affronts, profanity, or threats of violence.
- H. Members of the public shall not engage in any of the following in the meeting room during a board or commission meeting:
 - (1) Shouting, unruly behavior, distracting side conversations, or speaking out when another person is talking.
 - (2) Defamation, intimidation, personal affronts, profanity, or threats of violence.
 - (3) Audible use of phones, pagers, radios, computers or other electronic equipment notwithstanding the use during presentation purposes before a board or commission.
 - (4) Booing, hissing, foot stomping, parading, singing or other similar behavior that impedes or disrupts the orderly conduct of the meeting.
- I. The rules in this section shall be enforced in the following manner:
 - (1) The presiding officer will request that a person who is violating a rule cease the violation.
 - (2) If the violation continues, the presiding officer will warn the person that he or she will be required to leave the meeting room if the violation continues.
 - (3) If the violation continues, the presiding officer will order the person to leave the meeting room.

- (4) If the person does not leave the meeting room, the presiding officer may order any peace officer at the meeting to remove the person from the meeting room.
- J. It is unlawful for any person to intentionally or knowingly resist removal from a meeting room by a peace officer under subsection I of this Article.

ARTICLE EIGHT

MOTIONS AND MEETING PROCEDURES

The motions and meeting procedures set forth herein are to guide Commissioners during meetings. Any errors and/or omissions by a Commissioner(s) on a procedure during such meeting shall not constitute the action to be illegal. Any motions and/or meeting procedures not expressly defined in this section or any procedures as set forth within the City Charter shall follow under the latest edition of Robert's Rules of Order.

1. Motions. After a Commissioner obtains the floor, he/she may make a motion on the particular subject of discussion or a procedural point as permitted. A "Second" to the motion, if required, must be made by another Commissioner within a reasonable but brief time period. A "Second" merely implies that the seconder agrees that the main motion should come before the meeting and not that he/she necessarily favors the motion. Without a "Second", if required, the motion dies.
2. Debate. Debate, if permitted, must be limited to the merits of the issue under discussion as stated by the presiding officer.
3. Motion Procedures. There are eleven (11) types of motions in three (3) categories: Meeting Conduct Motions (4 types), Disposition Motions (6 types), and Main Motions. When any motion is pending, any motion listed above it on the chart below is in order; those below it are out of order.

Motion	May Interrupt Speaker	Second Required	Debatable	Amendable	Resolved by Chair No Vote	Affirmative Vote by 3 Commissioners	2/3 Vote
A. Meeting Conduct Motions							
1.point of privilege	yes	no	no	no	yes	no	no
2.point of procedure or order	yes	no	no	no	yes	no	no
3.to appeal a ruling	no	yes	yes	no	no	yes	no
4.to recess	no	yes	yes	yes	no	yes	no
B. Disposition Motions							
5.to withdraw	yes	no	no	no	yes	no	no
6.to postpone	no	yes	yes	yes	no	yes	no
7.to refer	no	yes	yes	yes	no	yes	no
8.to amend	no	yes	yes	yes	no	yes	no
9.to limit; extend or close debate; or to "call the question"	no	yes	yes	yes	no	no	yes
10.to count the vote	no	yes	no	no	no*	no	no
C. Main Motions							
11.to take action or reconsider action taken	no	yes	yes	yes	no	yes**	no

* Mandatory if seconded; no vote required

** Unless a greater vote is required by the Charter or State law

4. Point of Privilege. A point of privilege, sometimes called a point of personal privilege, is a communication from a Commissioner to the presiding officer, drawing urgent attention to a need for personal accommodation. For example, the point may relate to an inability to see or hear, a matter of comfort, a matter of requested convenience, or an overlooked right of privilege that should have been accorded to the Commissioners in essence, it is a call to

presiding officer for the purpose of assuring a Commissioner's convenient and appropriate participation in the meeting. Because of its urgent nature, a point of privilege can interrupt a speaker. Because it is addressed to the attention and action by the presiding officer, it cannot be debated or amended, and no vote is required.

5. Point of Procedure or Order. A point of procedure, sometimes called a point of order, is a question addressed to the presiding officer, no seconding is required, and either inquiring into the manner of conducting business or raising a question about the propriety of a particular procedure. It is simply an inquiry and is resolved by correction or clarification by the presiding officer. A point of procedure can interrupt a speaker. Because it is addressed to the attention of and action by the presiding officer, a second is not required, and it cannot be debated or amended, and no vote is taken.
6. To Appeal a Ruling. Decisions or rulings of the presiding officer are final on questions of procedure, except that any ruling by the presiding officer's ruling can be appealed to a vote of the Commission. Whenever a Commissioner questions the appropriateness or essential fairness of the presiding officer, that member can appeal the ruling to a vote of the meeting. If, however, a motion is out of order as a matter of law (not a proper subject of the meeting, improper notice given etc.), the presiding officer's ruling cannot be appealed. A motion to appeal cannot interrupt a speaker. To prevent frivolous appeals, a second is required. The motion is subject to debate (which should be brief) and, by its nature, is not amendable. To overrule a procedural decision of the presiding officer, an affirmative vote of three (3) Commissioners is required.
7. To Recess. A motion to recess requests a brief interruption of the meeting's business, usually so that an ancillary matter can be addressed, or simply to provide a needed break. Unless stated in the motion, the period of recess is decided by the presiding officer. If necessary, a recess can extend the meeting from one day to another, subject to State law. The motion cannot interrupt a speaker, and a second is required. It is debatable, it can be amended, and an affirmative vote of three (3) Commissioners is required.
8. To Withdraw. Only the maker of the motion can make a motion to withdraw it. It is essentially a communication to the presiding officer that the maker is withdrawing his/her proposal. This is the maker's privilege; thus, it does not require a second. Because the withdrawal motion obviates discussion, it can interrupt a speaker. In addition, because another Commissioner later can make a similar motion, a withdrawal motion is not subject to debate, amendment, or vote. The presiding officer should

simply state that the motion is withdrawn, and the meeting should proceed with a new treatment of the issue at hand - or a new issue.

9. To Postpone. This motion may arise from a need for further information, a matter of convenience, or for any other reason that will enable the Commission to deal with the issue more effectively at a later time. Unless otherwise specifically provided in the motion itself, a postponed motion can be renewed at a later appropriate time during the meeting or, if properly posted, at a later meeting. This motion cannot interrupt a speaker. It requires a second, it is debatable, and it is amendable (particularly as to postponement, timing), and an affirmative vote of three (3) Commissioners is required.
10. To Refer. A motion to refer is typically used to submit an issue to a committee, usually for study leading to a subsequent recommendation. Because it ordinarily disposes the motion for purposes of the current meeting, a motion to refer is subject to the same rules that apply to a main motion. (See Section 14.). This motion cannot interrupt a speaker, and a second is required. It is debatable and amendable, and an affirmative vote of three (3) Commissioners is required.
11. To Amend. A motion to amend proposes a change in the wording of a motion then under consideration. When a motion to amend is pending and an amendment to the amendment is proposed, the presiding officer should focus discussion on the latest amendment, resolve that question, then proceed to the first amendment before continuing discussion on the main motion. Votes on amendments thus are in reverse order of the sequence in which they are proposed. A motion to amend cannot interrupt a speaker. It requires a second, and it is debatable and amendable. An affirmative vote of three (3) Commissioners is required for approval of the amendment. Note that State law may restrict amendments to proposals that are required to be set forth in the notice of the meeting.
12. To Limit, Extend, or Close Debate or "Call the Question". Because the extent to which an issue is discussed rests primarily with discretion of the presiding officer, it is the presiding officer who carries the burden of ensuring that adequate time and discussion are given to differing points of view. A motion to limit, extend, or close debate is therefore an overruling of the presiding officer's determination. A motion to close debate is the same as a motion to "call the question". Because this motion affects the most fundamental right of any Commissioner, the right to speak one's views, it is the only procedural motion that requires an affirmative vote of two-thirds of the participants voting.
13. To Count the Vote. A motion to count the vote should be limited to those circumstances where the convenient hearing of "yeas" and "nays" cannot clearly resolve the issue. It represents the right of a Commissioner to have a vote demonstrated by count. That count can be directed by the

presiding officer either as a showing of hands or a standing of voting members while the vote is recorded. Upon completion of the count, the presiding officer announces the result-and final disposition of the issue voted upon. This motion cannot interrupt a speaker. It requires a second; it is neither debatable nor amendable; and, because of the importance of the matter, it should be considered mandatory; thus, no vote is required.

14. To Take Action or Reconsider an Action; Main Motions. These main motions state proposed policy or action on a substantive issue being considered by the Commission. As such, the motion can be an initial call to take particular action; to reconsider action taken; or to rescind a prior decision. Although lowest in precedence among all motions, main motions are clearly the most important: through their content, the business decisions of the Commission are determined. A main motion can be made only when a prior main motion has been disposed of. It cannot interrupt a speaker; a second is required; it is debatable and amendable; and an affirmative vote of three (3) Commissioners is required unless a greater vote is prescribed by the Charter or State law.

ARTICLE NINE AMENDMENTS TO BYLAWS

These Bylaws may be amended only by the City Council. Requests for amendment may be submitted to the City Council by any member of the Commission.

APPROVED AND ADOPTED by the City Council on February , 2017.

CITY OF BUDA, TEXAS

Todd Ruge, Mayor

ATTEST:

Alicia Ramirez, City Secretary

Sustainability Commission Two-Year Work Plan

2018-19

The following tasks have been selected as focus areas for the Sustainability Commission.

Priorities: Project Name	Priority Level High, Medium, Low	Time Term Long, Medium, Short	Strategy & Action
Dark Sky Certification	High	Short	<ul style="list-style-type: none"> • Lighting audit • UDC amendment • File application
Conservation Education and Outreach	High	Ongoing	<ul style="list-style-type: none"> • Social Media • Presence at community events
Keep Texas Beautiful affiliate	High	Long	<ul style="list-style-type: none"> • Partner with Parks Commission • Draft by-laws • Community support • Annual trash-off? • Adopt-a-spot program?
Alternative Transportation	High	Long	<ul style="list-style-type: none"> • Support Emerald Crown Trail • Commuter bus options • Pedestrian/bike connections and trails • Alternative transportation methods
Alternative Water Supplies	Low	Long	<ul style="list-style-type: none"> • Aquifer Storage & Recovery • Direct Potable Reuse • Rain water harvesting • Purple-pipe program expansion
Green Waste and Composting	Medium	Medium	<ul style="list-style-type: none"> • HHW Collection Event • Christmas Tree recycling • Individual composting education and promotion • City composting and mulch program
Capital Project Sustainability	Medium	Long	<ul style="list-style-type: none"> • Policy evaluation • Greenbelt project
Sustainable Housing			<ul style="list-style-type: none"> • "Tiny Homes"

Tree City USA Application	Low	Long	<ul style="list-style-type: none"> • File application • Support Arbor Day • Inventory heritage trees
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Ongoing Projects:

- Explore grants and funding opportunities for sustainable projects/programs as they arise
- Work closely with Parks on programming, grants, projects, etc. as they arise
- Assist in the annual review of the Capital Improvements Programs as part of the annual budget process, identifying opportunities to address sustainability at various levels

DRAFT

Dark Sky Certification



1. Begin Application Process

- a. Contact IDA to formalize interest
- b. Send current lighting ordinance
- c. Meet with Texas representative
- d. Receive application instructions

2. Application Development – 1 to 2 year process

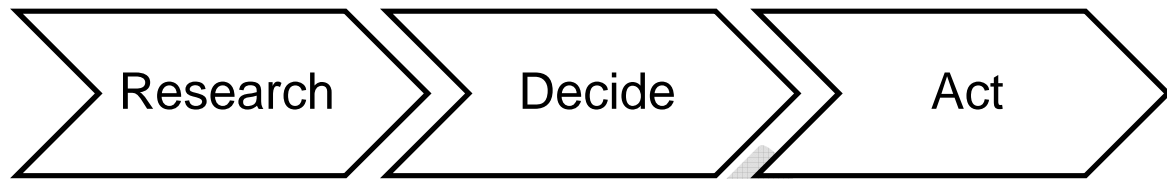
- a. Coordinate with case manager to delegate work
- b. Review and edit application, as needed
- c. Application approved by City Council before final draft is submitted

3. Submit Application to become a Dark Sky Place

- a. Application submitted for IDA board review
- b. Dark Sky Plan certification received

Note: This is a free application and includes a case manager. IDA will work with applicants to ensure that the application is approved by the board. The application development period may take up to two years, depending on activity.

Innovative Trail Options



1. Research

- a. Review Parks and Trails Master Plan
- b. Identify allowances and limitations of existing a projected trails
- c. Review Regional Existing and Proposed Trails
 - i. Coordinate with CAMPO to review regional trails
 - ii. Identify connection points

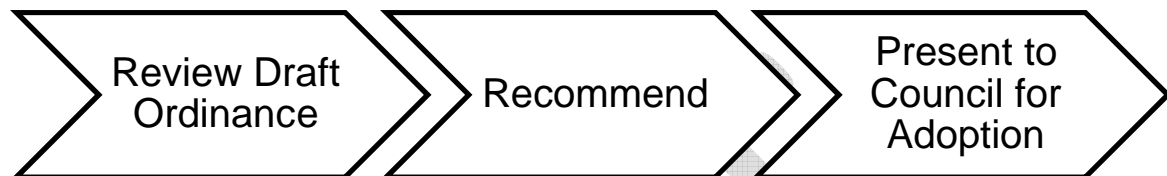
2. Decide how to address the problem

- a. Action Plan
- b. TBD by funding, etc

3. Review Grants and Funding Mechanisms for Trail Improvements.

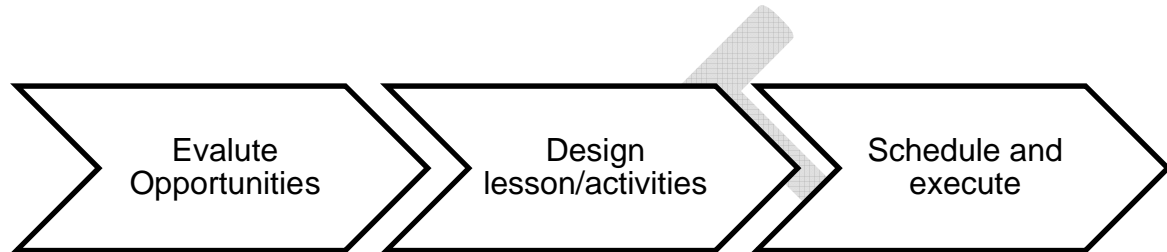
Note: This item will be in a research stage initially. Action and decisions will depend on research.

Water Conservation Initiative



1. Staff drafts Conservation Ordinance
 - a. Sustainability Commission edits and gives feedback to staff
 - b. Aim for no more than three review cycles
2. Recommend Ordinance
 - a. Sustainability Commission gives final recommendation to support the ordinance
3. Staff presents ordinance to Council for Adoption

Educational Activities



1. Evaluate opportunities for learning
 - a. Review scheduled events city-wide
 - b. Identify topics with educational opportunity
2. Design Lessons and/or Activities
 - a. Commission will research and design lesson plans/activities for identified topic(s)
 - b. Evaluate alternative funding opportunities
 - c. Consider event/topic consolidation
 - d. Coordinate with speakers, if needed
3. Schedule and execute an event