Dark Sky Presentation Talking Points

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**SECTION 1: LIGHT POLLUTION**

**Intro and loss of the night sky:**

1 – 3: We have **beautiful skies** in the Hill Country

4 – 6: Eastern half of US has much more light pollution than western half due to population density and poor development practices. **I-35 is the dividing line**. We are on the “edge of night”.

7: 4 out of 5 people in the US have **lost their view of the Milky Way** where they live, due to light pollution. What we have in the Hill Country is really special

8: People are losing their view of the stars because of cities that look like this. But **cities don’t have to look like this**.

9: **Towns don’t have to look like this**….

10**: Sports fields don’t have to look like this**. This is the ‘field of dreams’ in Henly, Hays County.

11-12: This is bad lighting

13: (No talking points)

**Types of Light Pollution:**

14: There are many ways that people talk about light pollution, but we are going to take a close look at three of them.

15: **Sky glow** is light that shines up into the sky, where it is not intended to go, lighting the sky and obscuring the stars.

16: **Light trespass** is light that shines from one property onto another. Again, this is wasted energy, and a nuisance for the neighbor. This picture of the ball field (previous slide) was taken from this house. All of the light on this house is coming from the ball field.

17: **Glare** is light that shines directly into the eyes of people walking or driving by. It is the result of unshielded or poorly shielded fixtures.

18-19**: Glare**, as we have all experienced actually **reduces our ability to see**, by increasing the perceived contrast. When we shield the fixture (slide 19) we can actually see things we were unable to see with the unshielded light and high glare.

**Why does light pollution matter?**

20: **Enjoyment of the night sky**, here in the Hill Country, if not everywhere, is something that parents, grandparents, and children have shared for generations. I believe it is our children’s right to have access to a star-filled sky.

21: **Wildlife** also depend on dark nights and star-filled skies. All of the plants and animals that live here evolved in these conditions and do better without light pollution. **Deer** get information about when to mate based on the subtle shifting balance of light and darkness throughout the year. Many of the **migratory birds** in our region use the night sky to navigate. Of course fireflies and all kinds of nocturnal creatures also do better without the nuisance of artificial light.

22: **Humans** also evolved to benefit from dark nights. The **American Medical Association** has found that artificial light at night – especially the blue wavelengths that are present in very white light like that from white LEDs—impede our melatonin production. Melatonin helps us sleep and recuperate at the end of each day. **Suppressed melatonin can lead to sleep disorders, metabolic problems (diabetes), mental health issues, and increased risk of prostate and breast cancer.**

23: People often use outdoor lighting at night to deter **crime**. Depending how this is done, however, it can actually be counter productive. Sometimes, a light on an otherwise dark landscape acts as a **beacon to would-be criminals**, directing them to a target. If the light is unshielded, then, as we saw before, it is that much easier for a criminal to approach a target undetected. We can see that in these pictures as well. **The best approach is to put security lights on motion sensors**, so they turn on when someone is there, alerting you or your neighbors that something may be going on.

24: Really brightly lit places like gas stations can actually create **so much glare** that they make it **harder for drivers to see** as they drive by. Also, it takes our eyes 30 minutes to establish our full night vision, so after leaving a gas station and getting back onto a country road, our vision is a lot worse than it was before we stopped to fill up. Lower lighting and glare reduction at gas stations and parking lots can help preserve our night vision, while **still providing enough light for us to safely navigate those spaces.**

25: Last but not least, there are the **financial impacts of light pollution**. It is estimated that **30% of outdoor lighting is shining where it is not intended or needed, at a cost of $3 Billion annually in the U.S., $250 Million of wasted electricity costs for Texas homeowners.** Then there is also the lost opportunity to generate revenue from our dark skies.

26: **Astro-tourism**, is a growing field, and the Hill Country is visited by more and more tourists who come to see our stars every year. **It’s an important part of our appeal as a region.**

27: Studies have shown that **a family visiting a location overnight spends between 3 and 4 times what a family spends just visiting for the day**. Families who want to enjoy the stars here, in almost every case, will stay overnight.

28: (No talking points)

**SECTION 2: WHAT IS GOOD LIGHTING?**

29: **Only on when needed, use switches and motion sensors.**

30: **Not more than is needed for a specific task.** These are before and after pictures from Big Bend National Park. They realized that they don’t need all this light after hours on this porch. Instead they have this subtle but sufficient light on this map, kiosk and, when folks walk up to it, additional porch lights turn on.

31: **Good lighting is warmer or more amber in color, less blue or blue-white**. This is measured in Correlated Color Temperature, the lower the better. **Color Temperatures below 3000K are preferred.** Look for this info on the **Lighting Facts label** when you buy LEDs.

32: Good lighting is **fully shielded, shining the light only where it is needed,** preventing sky glow, glare, and light trespass.

33: That means that the **bulb or LED component is hidden from sight,** within the fixture shielding.

34: Shine your lights down and away from your **neighbors** and they **will like you more**.

35: This is a new hospital facility in Fredericksburg. It complies with their ordinance that all non-residential lighting must be fully shielded. There is sufficient light for them to do their important work, here at the emergency room entrance, but the light is only shining where it is needed, not into the plant beds, or our eyes from across the street.

36: This is a before and after from the Stripes in Alpine.

37: This is a new hotel in Fredericksburg.

38: It’s also important to know, when buying a fixture, how to tell a good fixture from a bad one. Unfortunately, there are many fixtures on the market that label themselves “dark sky friendly” that actually aren’t. This one on the left is an example of that. It comes up in a “Dark Sky” search on Home Depot’s website. This fixture on the right is a really good dark sky fixture. The International Dark-Sky Association does have a great **‘Fixture Seal of Approval Program.’** If you see this seal, than you know it’s good fixture, but they can’t keep up with every fixture on the market. The **Hill Country Alliance also has a document that weeds out all of the bad fixtures** and leaves only the good ones that are available on Home Depot’s website. **You can go to www.hillcountrynightskies.org to find that document.**

**SECTION 3: PROTECTING HILL COUNTRY NIGHT SKIES**

39: I’m going to talk now about **how Hill Country Communities are working to preserve our region’s dark skies.**

40: There are lots of organizations doing their part. **Partnerships are key.** Here are some of the organizations that are already pitching in in our region.

41: **Star Parties** are a really great way to help the community enjoy the night sky and, in many cases, open their eyes and say “wow, this is incredible, and I’ve been taking it for granted.” Star parties don’t have to be all about telescopes either. It’s also fun to show people how to identify constellations, or to listen to stories and myths connected to the stars. There are several astronomy groups in our region that are well versed and happy to help put on star parties. The Hill Country Alliance can help with this as well.

42: **Working with young people** is so important, and exciting. Schools, scouts, camps, can all get involved.

43: So much of preserving our dark skies is just about raising public awareness. So **presentations to local civic groups, or at the library, or to City Councils**, are very helpful. It is also helpful to pull community leaders together to talk about the issue, both locally, and across the region.

44: Several communities in our region have adopted **Night Sky Friendly Business Recognition Programs**, to thank and draw positive attention to those businesses that have responsible, neighbor-friendly lighting. These programs are a partnership between the Hill Country Alliance and the local chamber of commerce. Recognized businesses get written up in the news paper, they are recognized at a chamber event and on the websites for the chamber of commerce and the Hill Country Alliance, and they receive this decal to put in their windows.

45: **Official resolutions and ordinances** are also an important part of preserving our night skies. More than a dozen municipalities have adopted ordinances that require non-residential lighting to be fully shielded on new construction. The best of these ordinances also set a timeline for existing lighting to come into compliance, usually in the 5 to 10 year range. Counties in the Hill Country are not allowed to adopt these kinds of ordinances, but many of them have adopted resolutions recognizing the value of the night sky to their residents and encouraging the use of good lighting and night sky preservation efforts.

46-47: Finally, several Hill Country communities and parks have applied or are applying to become **International Dark Sky Places**. The International Dark Sky Association designates municipalities, subdivisions and neighborhoods, parks, or larger landscape-scale areas as Dark Sky Places, indicating that these places have made dark sky preservation and education a priority.

48: **Dark Sky Communities** are legally organized cities and towns that adopt quality outdoor lighting ordinances and undertake efforts to educate residents about the importance of dark skies. There are two Dark Sky Communities in the Hill Country—**Dripping Springs and Horseshoe Bay**. Wimberley and Fredericksburg are currently working on applications.

49: **Dark Sky Parks** are publicly- or privately-owned spaces protected for natural conservation that implement good outdoor lighting and provide dark sky programs for visitors. There are three Dark Sky Parks in our region. **Enchanted Rock, South Llano River, and UBarU**, a private ranch near Mountain Home that is owned by a group of Unitarians and is open for public use. Lost Maples is working on their application, as is Reimer’s Ranch in Travis County.

50: **Dark Sky Developments of Distinction** are subdivisions, master planned communities and unincorporated neighborhoods and townships whose planning actively promotes a more natural night sky but does not qualify them for the Dark Sky Community designation. There are **two unincorporated subdivisions outside Austin** that have this designation currently.

51: At the landscape scale, the IDA recognizes Dark Sky Reserves. **Dark Sky Reserves** consist of a dark “core” zone surrounded by a populated periphery where policy controls are enacted to protect the darkness of the core. There is currently an application underway to create a Reserve in the area around Enchanted Rock, between Mason, Llano, and Fredericksburg. When this application is accepted, this will be the second Dark Sky Reserve in North America.

**According to the IDA, there is more Dark Sky Preservation work underway in the Hill Country than there is in any other similarly sized region in the world**. Of course, that doesn’t surprise us—everything’s bigger in Texas—but the challenge is really big here two, because we are at the “Edge of Night”, sitting right beside the fastest growing urban area, the Austin-San Antonio corridor, in the country.

52: Next Steps. Use this slide to tell the audience how they can get involved and to plug upcoming events. (This photo was taken at UBarU, the yellow glow is coming from Kerrville).

53: THANK YOU. Add your contact info to this slide. Leave Cliff’s contact info if it is appropriate to do so.