

KENDALL COUNTY RESOLUTION 01-27-2020
SUPPORTING EFFORTS TO PRESERVE NIGHT SKIES

WHEREAS, Kendall County residents recognize the importance of the Texas Hill Country for its diverse ecosystems, ethics for land stewardship, rich cultural heritage, and scenic beauty; and

WHEREAS, the influx of people into the region over the years and accompanying light trespass from area lighting fixtures and billboards has been steadily on the rise, and these factors have impacted the natural environment and the quality of life of the people of this region by, among other things, reducing night sky visibility and enjoyment for residents and visitors alike; and

WHEREAS, in recent years greater focus has been placed on the economic and financial benefits of preserving the scenic beauty in Kendall County in order to maintain its unique historic heritage and enhance tourism; and

WHEREAS, preserving the rich historic heritage and starry night skies of Kendall County is important for Kendall County to remain unique among other fast-growing Texas Counties; and

WHEREAS, the included local astronomer report measures night sky readings that demonstrate a significant night sky degradation over the past three years due to area development and growth; and

WHEREAS, preserving dark nighttime skies in our region is vital to the United States military, which conducts extensive nighttime training at sites proximal to our County, requiring a degree of darkness for these training activities to be possible;

WHEREAS, parts of Kendall County are already subject to Kendall County Order No. 11-27-20178 Regulation of Outdoor Lighting In The Unincorporated Areas Of Kendall County, Texas Within Five Miles Of The Camp Bullis Boundary; and

WHEREAS, Kendall County is committed to supporting practices throughout the County that limit or minimize light trespass, glare, and skyglow from outdoor lighting in order to protect the beauty of the night skies and allow others the full benefit and use of their property; and

WHEREAS, outdoor lighting fixtures are readily available that are designed to direct light only where it is needed, distribute light more efficiently and effectively, and thereby reduce glare, power consumption and cost; and

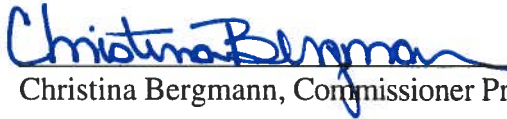
WHEREAS, these best practices are well documented (see the Outdoor Lighting Handbook v 1.14 from the International Dark Sky Association) and easy to follow, some of which include using only fully-shielded fixtures placed in a manner such that the light does not shine up into the sky and the light source is not visible from any other properties or public roadways; using only LED's with a Correlated Color Temperature of 2700 degrees Kelvin or less, as indicated on the manufacturer's packaging; using no more light than is needed for a specific task; using switches and motion sensors to ensure that lights are only on when they are needed for a specific task; considering the use of reflective surfaces as an alternative before installing any streetlight; lighting signs from above, not below, choosing dark background and lighter lettering for internally lighted signs; and foregoing the use of electronic billboards.

NOW, THEREFORE, by action of the Kendall County Commissioners Court at a duly noticed and held public meeting and as reflected in the minutes of the Court, be it resolved that Kendall County will encourage the design, installation, and use of outdoor lighting fixtures that follow up-to-date guidelines and use available technologies for efficient, non-intrusive lighting and will endeavor to educate and encourage landowners, businesses, residential neighborhoods, and public entities to join in this commitment to reduce energy consumption, save money, reduce light trespass and preserve our starry night skies.

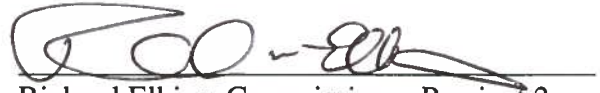
PASSED AND ADOPTED, this the 27th day of January 2020.



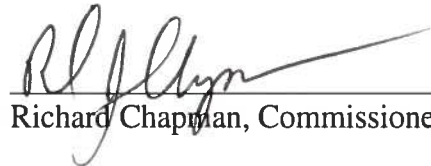
Darrel L. Lux, County Judge



Christina Bergmann, Commissioner Precinct 1



Richard Elkins, Commissioner Precinct 2



Richard Chapman, Commissioner Precinct 3



Don Durden, Commissioner Precinct 4

Local Astronomer Jack Estes Report

The included Excel spreadsheet details the readings related to the deteriorating night time sky quality from my backyard at 401 River Mountain Dr, Boerne TX 78006 in the River Mountain rural subdivision in Kendall County. This is directly north of Cordillera. I can see the Christmas lights of their clubhouse low on my southern horizon. I'm fortunate to have neighbors in all directions that know I'm an astronomer and they keep their lights off. We have a River Mountain yahoo group where I'm always posting astronomical happenings if they can go out and see it, like meteor showers, etc.

Explanation of readings: when looking at my spreadsheet, I'm using a Sky Quality Meter. You hold it up to the night time sky, push a button, and it records the darkness level digitally. The scale goes from 16 (standing under a street light) to 22 (the darkness of space). On earth I've never heard of a reading of 22.0. A typical reading in Boerne proper would be 17 to 19. A typical good rural reading would be 20 to 21. The McDonald observatory at Ft Davis reading would be 21-21.75.

Quantity of readings: the reason there are not a huge amount of readings are several. (1) I only take them once a night when there is no moon. That limits me to a few days before, during, or after new moon. There is typically only one new moon a month. (2) Then at least one of those nights has to be free of clouds and (3) I have to be home to take the readings. A non-astronomer would be surprised how few nights a year that are clear and no moon. Also any of the readings are improved when taken between midnight and sunrise.

Looking at the spreadsheet, I take readings, N, S, E, W, and O for overhead. For all except overhead, I point the meter at about 30 degrees up from the horizon. My rural residence is about 12 miles or so directly north of Fair Oaks. State highway 46 runs east/west about 4 miles south of our house. The proposed concrete plant will be 4 miles directly south of my house with 24 hour operations. Even before that sad event, you can see the meter reading showing a steady degradation to the south.

The averages per year to the south are:

Year 2016 | 20.63 averaged together

Year 2017 | 20.54 averaged together

Year 2018 | 20.37 averaged together

Year 2019 | 20.23 averaged together

You'll note the readings for N, S, E, and O show no degradation in the past 4 years. A drop from 20.63 to 20.23 is quite noticeable. My southern horizon has gotten markedly brighter.

DATE TIME N S E W O

AVERAGE		20.90	20.37	20.69	20.70	20.85	OVERALL
AVERAGE		20.89	20.23	20.68	20.68	20.84	2019
AVERAGE		20.98	20.37	20.70	20.78	20.88	2018
AVERAGE		20.93	20.54	20.83	20.77	20.93	2017
AVERAGE		20.93	20.63	20.74	20.77	20.89	2016
2016-02-12	5:00 AM	21.01	20.72	20.73	20.88	21.03	
2016-03-27	10:15 PM	20.85	20.69	20.66	20.68	20.89	
2016-07-23	11:00 PM	20.94	20.65	20.79	20.69	20.92	
2016-08-23	11:09 PM	21.03	20.45	20.84	20.83	20.92	
2016-09-12	4:45 AM	20.98	20.73	20.78	20.98	20.98	
2016-09-16	9:00 PM	20.88	20.55	20.68	20.64	20.76	
2016-09-28	9:30 PM	20.79	20.60	20.67	20.66	20.72	
2017-01-01	11:15 PM	21.12	20.66	21.01	20.98	21.01	
2017-01-23	10:15 PM	20.78	20.55	20.67	20.63	20.80	
2017-02-17	10:30 PM	20.83	20.50	20.83	20.64	20.88	
2017-02-23	11:45 PM	21.01	20.47	20.89	20.79	21.01	
2017-03-17	12:30 AM	20.99	20.55	20.98	20.91	21.05	
2017-08-19	10:00 PM	20.87	20.48	20.62	20.66	20.84	
2018-04-24	4:30 AM	21.01	20.58	20.61	20.86	21.00	
2018-05-07	11:15 PM	20.92	20.35	20.72	20.70	21.01	
2018-05-08	12:11 AM	20.92	20.33	20.69	20.73	20.92	
2018-05-09	10:07 PM	20.89	20.38	20.73	20.66	20.81	
2018-06-14	1:10 AM	21.19	20.48	20.74	20.97	21.13	
2018-07-02	11:45 PM	21.11	20.57	20.76	20.91	21.04	
2018-07-11	1:06 AM	21.13	20.34	20.78	20.93	20.89	
2018-07-13	10:52 PM	20.98	20.14	20.60	20.70	20.80	
2018-07-14	2:20 AM	20.84	20.37	20.69	20.75	20.73	
2018-07-19	12:40 AM	20.91	20.35	20.66	20.69	20.77	
2018-08-04	11:45 PM	20.99	20.30	20.76	20.82	20.83	
2018-08-08	10:25 PM	20.98	20.32	20.55	20.71	20.81	Best view of Milky Way from Boerne ever
2018-08-16	12:45 AM	21.04	20.31	20.79	20.77	20.87	
2018-08-31	11:15 PM	20.87	20.39	20.69	20.65	20.70	
2019-01-05	11:20 PM	20.76	20.26	20.55	20.66	20.72	The winter of 2018/2019 has had high humidity each night
2019-03-25	10:05 PM	20.73	20.20	20.60	20.47	20.67	
2019-03-26	10:32 PM	20.70	20.16	20.60	20.42	20.68	
2019-03-29	10:43 PM	20.84	20.19	20.64	20.57	20.73	
2019-04-25	11:20 PM	20.84	20.15	20.68	20.66	20.84	
2019-04-26	10:50 PM	20.84	20.32	20.66	20.59	20.79	
2019-04-27	11:40 PM	20.88	20.27	20.70	20.64	20.88	A fine night
2019-05-21	10:50 PM	21.15	20.47	20.98	20.86	21.04	
2019-06-07	12:05 AM	21.01	20.20	20.70	20.86	21.03	After a storm had cleared the sky. 99% humidity though perfectly clear
2019-06-25	11:15 PM	21.00	20.17	20.68	20.80	20.97	Very nice night with no clouds, temp 69, no wind
2019-07-21	11:45 PM	21.00	20.20	20.68	20.83	20.98	Very clear night after a cold front came through a day earlier--temps in low 60s
2019-08-21	11:30 PM	20.98	20.15	20.72	20.74	20.75	
2019-09-17	9:00 PM	20.72	20.18	20.54	20.55	20.57	Truly a fine night. Best of Summer. Horizon to horizon Milky Way
2019-09-24	10:31 PM	20.90	20.15	20.75	20.70	20.84	Good night but not as good as the reading just above. Strange
2019-09-27	11:15 PM	20.74	20.28	20.69	20.57	20.81	
2019-10-21	10:30 PM	20.57	20.17	20.48	20.42	20.66	Nice night, milky way prominent
2019-10-22	9:08 PM	20.46	20.03	20.37	20.29	20.46	

2019-10-23	12:35 AM	20.84	20.37	20.54	20.16	20.73	
2019-10-25	11:00 PM	20.60	20.15	20.34	20.51	20.66	Clear and cold