

Friday, May 13, 2005

RE: Parking Lot Lighting: EEC Recommendations

Mr. Mayor and City Council:

Recently, the City Council has requested the City Staff to prepare a report regarding lighting guidelines for parking lots within the city. The Environment and Energy Commission (EEC) would like to take this opportunity for a follow-up recommendation regarding parking lot lighting contained within its earlier submission of a Council requested report on Outdoor Lighting (submitted 4/25/00).

The relevant Parking Lot Lighting Section of the 4/25/00 report "Proposed Outdoor Lighting Regulations" is contained in Section D of the report. That section recommends parking lot lighting standards based on recommendations by the Illuminating Engineering Society of North America (IESNA) which specify a minimum, a maximum, and a ratio of uniformity between those specifications for optimum visibility, security, and economy, (e.g., if IESNA specifications refer to a minimum of 0.2 foot-candles (ft-c), an ordinance may state that the minimum light level must not exceed IESNA guidelines by more than 0.2 ft-c (i.e., a maximum value of 0.4 ft-c). If the average to minimum ratio is specified as 4:1, then the average level of illumination will not exceed 1.6 ft-c.).

Another alternative is to consider a lumen per net acre limit (i.e., depending on the level of parking lot activity, each development could be allotted 25,000, 50,000, 100,000, or 200,000 lumens per acre, e.g., a one (1) acre parking lot (43,560 s.f.) requiring illumination would yield 0.3, 0.5, 1.0, or 2.1 ft-c., respectively). This approach has been developed in large part because of its apparent simplicity of calculation and application, though, in practical terms, calculations for either approach are computer generated and require no additional technical burden on the City Staff.

The EEC reaffirms its recommendation for parking lot lighting standards to be based on IESNA recommendations for minimum and maximum illumination guidelines with a specified optimum uniformity ratio. This preferred alternative guarantees adequate, uniform, and efficient lighting of parking lots while avoiding the unregulated over- or under-lighting possible with the lumen limit approach. Both alternatives have been utilized in a number of municipalities demographically comparable to Columbia.

Regardless of the approach, any adopted ordinance should also require the following:

1. A plan must be required and should include a Photometric Report (i.e., a 2-part computer generated numerical grid of proposed on-site illumination containing 1.) a light level grid measured in tenths of foot candles, and 2.) an Iso-illuminance chart measured in foot-candles. This report will indicate the minimum and maximum light levels within the lighted area of the site.

2. Specifications of lamp type and color rendering index (CRI), wattage, lamp loss, pole height, and pole distribution and number, must also be submitted along with the site plan.
3. Full cutoff fixtures (to eliminate unwanted glare) will be required unless architecturally based lighting exceptions are granted. Non-cutoff fixtures must be limited to no more than 2000 initial lumens (~150 watt incandescent bulb equivalent).
4. In an attempt to create evenness of illumination (for economy, security, and aesthetics), the uniformity ratio between average light levels and minimum light levels should not exceed the recommended IESNA guidelines of 4:1.

Finally, we would urge the City to consider a broad based approach to outdoor lighting as reflected in our initial recommendation of 4/25/00. Efficient and adequate parking lot lighting is important but there is a considerable public and business interest in the economic, security, aesthetic, and equity advantages of well designed commercial, industrial, street lighting, sports venue, and sign illumination applications, particularly among those who share their property borders.

Respectfully submitted,

Andrew Spain, Chair

Columbia Environment and Energy Commission