

Tiffany Antol

From: Christian Luginbuhl [starlightcbl@msn.com]
Sent: Thursday, September 04, 2014 5:33 PM
To: Tiffany Antol
Cc: Chris Luginbuhl work; Paul Shankland; hch@nofs.navy.mil; Fred Vrba
Subject: Aspen Crossing lighting discussion

Hello Tiffany.

I have reviewed the potential lighting impacts from the property APN 112-01-019, located at the SW corner of West Rte 66 and Woody Mtn Rd, as we discussed last week, and come to the conclusions described below. I am pleased to discuss the topic with you after you have reviewed this material, and discuss the way forward.

As a preamble, you will note that following the current Lighting Zone 1 light pollution management approach (that used when establishing the Lighting Zone 1 standards in 1989), i.e. that properties zoned (in 1989) for commercial/industrial/multi-family residential uses would use the full code allowance of 25,000 lm/ac, while other properties zoned for residential uses in Lighting Zone 1 (including RR and G) would be so developed, or if rezoned would use no more lighting than if developed under current zoning, leads to a very low lighting amount. Though this "approach" is not described in detail in any Flagstaff or Coconino County planning documents, this is the approach underlying the determination of the code standards in Flagstaff and Coconino County lighting codes in 1989, as discussed at length in 1988 and 1989 with the developers of the former Yellow Freight property (now Waste Management), county and city planners, and county and city planning commissions/council/Board of Supervisors. It has continued to underlie all US Naval Observatory interactions regarding rezoning requests in Lighting Zone 1 since 1989, and been stated at many occasions during the development of both the Regional Plan 2001 and 2030 versions. The current and former Regional Plan statements regarding assessing dark sky impacts of rezoning are getting at the same issue, or the words have no meaning.

The standards were set such that, at build-out in Lighting Zone 1, the U.S. Naval Observatory would expect a 30% increase in sky brightness. This is equivalent to a nearly 70% loss of telescope efficiency for observations of the faintest sources in the visible part of the light spectrum affected by outdoor lighting. We feel this is more than compromise enough. And the zoning in place as of 1989 included in excess of 160 ac of commercial/industrial property.

ANALYSIS

Subject property:

Total acreage: 36.94 acres

Flagstaff/RR zoning: 33.8 acres

Coconino County/G zoning: 3.14 acres

Expected lighting under current zoning:

Flagstaff/RR zoning: 33 single-family residences at 604 lm per house = 19,932 lm

Coconino County/G zoning: one single-family residence at 604 lm per house = 604 lm

Total lumen output: 20,536 lm

Note: The current Lighting Code allows 10,000 lm/house (10 klm/house), so total of 330 klm, but this was never expected to be the amount needed or used, but rather a high cap to avoid interference/regulation of the majority of residential development yet provide recourse for exceptional overuse. Also, it is recognized that houses, unlike multi-family or commercial or industrial developments, have more lighting installed than is typically used all night. A survey of about 100 homes in the Flagstaff area shows an average use of 604 lm per house (that is, an estimate of the actual average amount of light left on all night at homes).

Allowed / expected lighting under proposed rezoning:

36.94 x 25,000 lm per acre = 923,500 lm

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As you can see, this represents a dramatic increase in impacts - 923,500/20,536 or almost 45x increase. This development alone, let alone the potential rezoning of substantial other areas nearby (approximately 200 ac), will dramatically degrade the US Naval Observatory dark sky conditions. It is critical that this be recognized, and specific policy be established to address the original balance and purpose of the lighting codes and local planning documents. I do not think it is over-dramatic to state that the future of the Naval Observatory dark sky conditions hinges on decisions made for this project.

US Naval Observatory Flagstaff Station suggestion concerning rezoning conditions:

Based on this analysis, to maintain effective management of the US Naval Observatory's dark sky resource, we request that a condition of rezoning be applied to limit the lighting use on the property after rezoning to that expected under the current zoning, or a total of 20,536 lm.

We note that per Section 10-50.70.050.C.2 of the Flagstaff Zoning Code, lighting installed under canopy or roof overhangs and 5 feet or more from the nearest canopy or roof edge count toward this cap at 10%-25% of the lamp rated output, so the actual lighting installed on the site could be 4-10x larger than 20,536 if the architectural details can accommodate canopies or overhangs of this size.

Best regards,

Chris

Christian B Luginbuhl
US Naval Observatory Flagstaff Station

PS - I am sending this from my private email account as I am out of town through Friday.

117

9/2/14 email

To Whom it may concern:

I am writing in regards to the rezoning of the section of land along Woody Mountain Road and Route 66. I am in favor of the rezoning. I just want to make sure that the planning takes into account the use of Woody Mountain Road by the large number of WL Gore employees who commute to the cluster of buildings along Kiltie Lane. The left hand turn off of Route 66 on to Woody Mountain Road can be tricky, especially for those of us who commute by bike. Please take our use of the road into consideration as the plans for the development are made. It has been a fairly quiet and safe road to bicycle along and it needs to remain safe for riders.

Sincerely,
Mark Spinti