

Designing a Light-Pollution Bylaw: Some Experiences and Comments

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ABSTRACT

Giving light-pollution literature to my local councillor for several years led to a request that I write a light-pollution bylaw. I used Richmond Hill's bylaw as a starting-point. I borrowed features from other bylaws, especially Ketchum, Idaho's and also Tucson, Arizona's. At my councillor's request, I included quantitative definitions of glare and of light-trespass. The resulting draft bylaw has since been modified in various ways by Town of Markham officials during the review process leading up to enactment. I have also proposed to Town of Markham officials a relatively painless way of obtaining compliance from commercial and residential owners of outdoor light-fixtures.

1. A Light-Pollution Bylaw for the Town of Markham

An important feature of my bylaw efforts is that the initiative came from my very energetic and conscientious Town of Markham Councillor, Stan Daurio, to whom I had been giving light-pollution literature for several years. As a result, *he* decided that something had to be done, and in January 2002, he came to my house with a copy of Richmond Hill's bylaw, and said: "I've got the entire Markham council onside for a light-pollution bylaw, but in spite of this, we're stalled for lack of expertise. I have proposed that if we can't do anything else, we enact an equivalent of Richmond Hill's bylaw, but I am giving you a chance to improve on it now!"

So I worked very hard for several months on this. I studied other bylaws and borrowed features from them, including those of Tucson, Arizona and especially Ketchum, Idaho. My councillor also pressed me to provide quantitative definitions for glare and for light-trespass. I think this last point is important; I had given him literature on these subjects. I believe that we will make more rapid progress if we can make common cause with people who worry about effects of inappropriate lighting on any of the following:

- * drivers' and pedestrians' safety
- * wildlife
- * everyone's inability to see what a night sky should look like (City dwellers: did you notice how beautiful the stars were on the evening of the blackout?)
- * suppression of people's immune systems by insufficient darkness during sleeping hours
- * aesthetics (glary fixtures produce a "trashy" nighttime appearance)
- * energy-efficiency
- * vandalism of schools (Did you know that various jurisdictions, including York Region, have found out that turning schools' exterior lights off *decreases* vandalism)
- * security of people and property
- * whatever else.

Markham's bylaw is still being reviewed by lawyers and others prior to enactment, and I am waiting rather anxiously to see what changes might still be made to it, but so far, I think that it makes significant progress relative to Richmond Hill's bylaw in several areas. These include the following:

- Restrictions on glare and light-trespass
- *no* direct illumination above the horizontal direction (Richmond Hill's bylaw allows 2%)
- A time-limit to grandfathering of old fixtures
- No exemption for the Parks Department

- Approval required if *any* new fixtures are added after the site-plan-approval stage (as opposed to an increase of up to 50% allowed by Richmond Hill).

A potential “show-stopper” was avoided when I learned that at least one manufacturer’s full-horizontal-cutoff streetlamp does not require spacing the utility poles closer together.

In a recent conversation with my councillor, I suggested to him that there might be two ways to deal with fixtures which predate the Markham bylaw. One is to say to people: “Your fixtures will be illegal as of (date), and you have to change them”; this is guaranteed to be unpopular. But another strategy may be to say: “Your fixtures will be illegal as of (date), and you can either change them yourself, or you can choose to have us (the Town) do it for you, and we will bill you for this through your electric bill, spread over a period of, say, five years. But at the same time, we will be able to decrease your electricity costs by an approximately equal amount, because we will install fixtures which have a better light-distribution, so we will be able to decrease your wattage. So your net cost will be approximately zero for the first five years, and afterward you get to pocket the savings.” He seemed enthusiastic about this approach.

My councillor says that following enactment, he intends to promote this bylaw to surrounding municipalities and to York Region.

Conversion of the Town of Markham’s streetlights to the full-horizontal-cutoff type has already begun.

2. Success with the Ontario Department of Highways

In the early 1990s, a start to construction of Highway 407 was announced. It was to pass about one kilometre north of York University’s Astronomical Observatory on its Keele Campus. I said to Prof. Paul Delaney, the Director of the Observatory: “We know that the David Dunlap Observatory has a ten-kilometre protection zone around it, within which the Department of Highways installs only full-horizontal-cutoff light-fixtures.

Why don't we write a letter to them asking for a similar protection zone around our observatory?" As a result of that letter, we had a very cordial meeting with a group of Department of Highway engineers. This meeting was attended also by the Dunlap Observatory's Prof. Tom Bolton, who had spearheaded the development of Richmond Hill's bylaw, aimed at protecting the Dunlap Observatory.

Some time afterward, Norm Rutenberg of Rutenberg Sales Ltd., a local distributor of high-quality outdoor lighting fixtures, said to me: "You guys really hit the target with that letter of yours. The Highways Department have decided not only to give you your ten-kilometre protection zone, but to standardize on full-horizontal-cutoff lighting *right across the province*". I now notice more and more such lighting on the freeways around Toronto.