

## Dark Skies and Green Lights in Newton

By David Adams/Special to the TAB  
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If the night skies seem darker lately, one reason might be the Dark Sky Ordinance passed by the City of Newton in 2006. This ordinance requires that all licensing applications for outdoor lighting projects receive 'dark sky approval' by the City. The ordinance was prompted by increasing concerns about light pollution, which obscures our view of the universe, compromises research by astronomers, negatively affects human and animal health, and has other environmental impacts.

To comply with the ordinance, the City of Newton has replaced its old style streetlights that produced glare and wasted energy. This year the city completed work on a \$1.5 million investment to replace all 8,400 street lamps with energy saving high-pressure sodium (HPS) bulbs. The lamps were retrofitted with new housings that direct light downward, where it is needed. The old style mercury vapor lamps extend below their ballasts, spilling light laterally and upwards. HPS lights utilize 65% less electrical wattage to operate, resulting in a very significant reduction in carbon dioxide emissions. David Tannozzini, the city's Energy/Electricity Engineer, estimates that 6,784,000 fewer pounds of CO<sub>2</sub> will be released each year, and the Newton Energy Commission has calculated that the new lights will save the city \$750,000/year in electricity costs. And HPS lighting is far cheaper to maintain than the old lighting, according to City Traffic Engineer Clint Schuckel.



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Old style Mercury vapor lamp.

The Newton Energy Action Plan has many components. In 1999, one of the first steps taken to implement the Plan was to replace all of Newton's traffic lights with more energy efficient LED bulbs. (And those bulbs last five years on average, compared to about two years for the older ones.) By replacing 632 red and green traffic lights at 79 intersections the city has reduced carbon emissions by over 433,000 pounds and is currently saving \$70,000/year in electricity costs. In addition, between 2000-2005, the

city replaced incandescent lighting in all municipal buildings, creating an annual CO<sub>2</sub> reduction of about 1,256,000 pounds.

The state legislature is also promoting more energy efficient lighting. House Bill 808 would prohibit state funding for lighting that is not energy efficient or produces night glare. Night glare from streetlights can be blinding to drivers, particularly those with visual impairments such as cataracts.

Artificial lighting in cities and suburbs contributes to significant declines in insect populations. This may seem like a good thing, but diminishing numbers of insects means declining populations of birds, bats, frogs, lizards and amphibians who feed on them. In addition, more than 100 million birds annually have fatal encounters with man-made structures, including streetlights. Bright city lights can alter the migration patterns of birds, particularly nocturnal sea birds. Biologists have found that the reproductive cycles of frogs, salamanders and other reptiles are disrupted by light pollution, apparently interfering with their biological clocks. Light pollution can also be stressful to plants, and can cause them to bloom out of cycle. In some communities, these problems have generated interest in curfews for streetlights as well as efforts to limit lighting of commercial properties.

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