

Department of Legislative Services  
Maryland General Assembly  
2011 Session

FISCAL AND POLICY NOTE

House Bill 906 (Delegate Carr, *et al.*)  
Environmental Matters

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Marilyn J. Praisner Safe and Earth-Friendly Roadway Act

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This bill authorizes the State Highway Administration (SHA), Maryland Transportation Authority (MDTA), or a political subdivision to install or replace permanent outdoor highway light fixtures only (1) if other means of passive or reflective lighting do not address safety concerns; and (2) with lights designed to minimize light pollution, veiling luminance ratio, and light trespass. The bill applies to highway lighting (1) installed along a new highway or a sidewalk along a new highway; (2) replaced due to the reconstruction or upgrade of a highway or a sidewalk along a highway; or (3) replaced as part of a planned upgrade of existing lighting along a highway or a sidewalk along a highway. The bill establishes a waiver process and specifies duties for electric companies when installing or replacing highway lighting.

The bill takes effect June 1, 2011.

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Fiscal Summary

**State Effect:** Nonbudgeted expenditures may increase beginning in FY 2011 to the extent MDTA is required to use restricted upright luminaires when replacing existing lighting or installing new lighting. There is a potential for reduced expenditures; however, any cost savings cannot be reliably estimated at this time. Operational delays at SHA and MDTA may result due to waiver requirements. Revenues are not affected.

**Local Effect:** To the extent local jurisdictions are required to install or replace existing lighting with restricted upright luminaires, expenditures may increase. There is a potential for reduced expenditures; however, any cost savings cannot be reliably estimated at this time. Operational delays may result due to waiver requirements.

**Small Business Effect:** Minimal or none.

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## Analysis

**Bill Summary:** A “restricted upright luminaire” is a lighting fixture that (1) allows no direct light emission above a horizontal plane through the fixture’s lowest light-emitting part, except for a 0.5% maximum incidental upright from reflection off mounting hardware; and (2) emits no more than 10% of the total direct light emission at or above a vertical angle of 80 degrees.

The bill does not apply to (1) electric cooperatives; or (2) the replacement of five or fewer luminaires due to a vehicle accident or other unplanned events.

SHA, MDTA, political subdivisions, and specified electric companies must use new or replacement road lighting fixtures that are restricted upright luminaires, unless (1) a waiver is necessary due to specified reasons or other reasons not related to cost; or (2) the fixture is located in a tunnel or an underpass.

For each waiver granted, SHA, MDTA, and political subdivisions are required to document in writing their efforts to comply with lighting requirements and the reasons for the waiver. Cost cannot be a reason for granting a waiver. SHA, MDTA, or a political subdivision may also waive the requirements for electric companies under specified conditions. To obtain a waiver, electric companies must provide written notice, describing efforts made to comply with lighting requirements and stating the reasons the waiver is necessary, to the State agency or local government that pays the cost of operating the light, at least 30 days before installing or replacing specified highway lights.

**Current Law:** Statute does not address the energy efficiency or output of State-funded lighting fixtures. The Governor’s EmPOWER Maryland Initiative (Chapter 131 of 2008) establishes a State goal of reducing per capita energy consumption by 15% from calendar 2007 consumption levels to calendar 2015.

**Background:** SHA is responsible for more than 5,200 miles or approximately 16,800 lane miles of road, 2,500 bridges, 3,500 small stream crossing structures, and 80 miles of sound barriers. It also has responsibility for planning, designing, constructing, and maintaining these roads and bridges to safety and performance standards while considering sociological, ecological, and economic concerns.

Established in 1971 as an independent, nonbudgeted State agency, MDTA manages, operates, and maintains the State's seven toll facilities (four bridges, two tunnels, and one highway) and provides law enforcement for these facilities, as well as for Baltimore/Washington International Thurgood Marshall Airport and the Port of Baltimore. Toll revenues and bonds are used to finance these projects.

A primary purpose of lighting a roadway at night is to increase the visibility of the roadway and its immediate environment to help drivers maneuver more efficiently and safely. Visibility or the ability to detect an object depends on several factors, such as the contrast between the object and the background, the adaptation of the eye, glare, and the visual acuity of the driver. Many factors must be taken into account when selecting road lighting fittings, such as shape, distribution of luminous intensity in relation to the surroundings, type of fitting, and the height of the fitting.

Road lighting contributes to light pollution and energy demand. Light pollution is excessive and inappropriate artificial light. Some studies link growing light pollution to negative impacts on human health and immune function, adverse behavioral changes in insect and animal populations, and a decrease of both ambient quality and safety at night. A significant amount of energy is dedicated to lighting along roads. To promote energy efficiency and reduce light pollution, road lighting is often adjusted to reduce the level of illumination.

House Joint Resolution 14 of 2001 created the Task Force to Study Lighting Efficiency and Light Pollution in Maryland. The purpose of the task force was to study the cost, extent, and consequences of inefficient public lighting and light pollution in the State, and the benefits of alternative improvements. The task force released a report in March 2002 that made numerous recommendations and provided the following general guidelines for State agencies:

- choose luminaires that distribute the light only where it is needed, minimizing light pollution and unnecessary energy consumption;
- choose appropriate lamp source color, efficient ballasts, and lamps with longer life ratings;
- choose lamp types to maximize visibility per lumen output, as well as maximizing lumen output per input watt of energy;
- design to appropriate lighting levels based on Illuminating Engineering Society of North America recommendations and to avoid over lighting; and
- locate lights to avoid spillover onto adjacent property and choose appropriate pole heights.

Several states, including California, Colorado, Maryland, New Mexico, and Texas, have adopted roadway lighting design laws and/or policies that require installation of lights that minimize light pollution. In Maryland, SHA advises that its highway lighting practices strive to minimize light pollution, trespass, and glare; maximize lighting efficiency; and enhance the safety of the traveling public. In addition, Montgomery County is installing only full cutoff lighting fixtures, that direct light down and out, for all noncentral business district roadway lighting.

**State Fiscal Effect:** Since SHA advises that it already abides by the lighting guidelines presented in the bill when installing or replacing highway light fixtures, the bill is expected to have a minimal impact on SHA finances. However, Legislative Services was not able to independently verify whether SHA's lighting policies and procedures are consistent with those in the bill.

MDTA advises that its highway lighting fixtures have a long life and are only replaced when they are destroyed (*e.g.*, when a pole is hit by a car) or as part of a major capital project that requires reengineering lighting systems. There are approximately 14,700 luminaires on MDTA facilities. MDTA notes that replacing its existing lighting fixtures with restricted upright luminaires may not always allow the authority to continue to meet designed and/or recommended lighting levels. Therefore, limiting lighting options to restricted upright luminaires may, in some cases, increase the total number of light fixtures required to light an area and potentially lead to higher energy use.

While cost cannot be a reason for granting a waiver, the bill provides significant authority to SHA, MDTA, and local jurisdictions to identify other reasons for granting a waiver from the bill's requirements. Nevertheless, nonbudgeted expenditures may increase to the extent MDTA must use restricted upright luminaires when replacing existing lighting or installing new lighting, to the extent restricted upright luminaires cost more or require installation of additional light fixtures. However, to the extent restricted upright luminaires cost less and are more energy efficient, the bill may result in lower costs. In addition, to the extent the bill results in less costly passive and reflective lighting systems, costs may decrease. Also, because SHA and MDTA are required to document in writing all waivers, the bill may result in operational delays.

**Local Fiscal Effect:** To the extent local jurisdictions are required to install and replace restricted upright luminaire units, expenditures may increase to the extent the individual units or lighting systems are more expensive, or decrease to the extent the units are less expensive and/or more energy efficient. Also, the bill requires local jurisdictions to document in writing all waivers, which may result in operational delays.

## **Additional Information**

**Prior Introductions:** HB 169 of 2010, which had similar provisions, received an unfavorable report from the House Environmental Matters Committee. Its cross file, SB 464, received an unfavorable report from the Senate Finance Committee. SB 891 of 2009, which had similar provisions, received an unfavorable report from the Senate Finance Committee. Its nonidentical cross file, HB 816, received a hearing in the House Environmental Matters Committee, but no further action was taken.

**Cross File:** None.

**Information Source(s):** Baltimore, Garrett, and Montgomery counties; City of Laurel; Office of People's Counsel; Public Service Commission; Maryland Department of Transportation; Department of Legislative Services

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