ABSTRACT

In recent years, the Light Emitting Diodes (LEDs) traffic signal modules have been replacing the incandescent lamp modules in the United States. Approximately 260,000 signalized intersections exist in the United States and each intersection would have a minimum of 24 and on average 40 signal indicators. The incandescent lamps use 69, 135, or 150 watts of energy. The incandescent lamps are inexpensive; however, they consume a lot of power and require annual preventative lamp replacement. On the other hand, LED signal modules are more expensive but consume a fraction of the power (around 10 watts) consumed by incandescent lamps. Furthermore, LED modules, in general, are guaranteed by the manufacturers to last for five years. The Institute of Transportation Engineers (ITE) has developed specifications for traffic signal modules. However, there has been no research on the drivers’ preferences for LED traffic signal modules; specifically, what characteristics of the LED traffic signal modules are important for the drivers and their relative importance. For instance, uniformity of appearance is required by the current ITE specifications; however, there has been no research to evaluate if drivers consider uniformity or the lack of it as important for their comprehension of the traffic signal modules. This research presents the results from a survey of 120 drivers’ preferences for the LED traffic signal modules.

Key words: Light Emitting Diodes—signalized intersections—traffic signal modules