



P.O. Box 1749
Halifax, Nova Scotia
B3J 3A5 Canada

Info item No. 2
Transportation Standing Committee
February 25, 2019

TO: Chair and Members of Transportation Standing Committee

Original Signed

SUBMITTED BY:

Brad Anguish, P.Eng., Director, Transportation and Public Works

Original Signed

Jacques Dubé, Chief Administrative Officer

DATE: January 10, 2019

SUBJECT: Issues with New LED Streetlights

INFORMATION REPORT

ORIGIN

Item 14.4.3 of the October 16, 2018 meeting of Halifax Regional Council:

MOVED by Councillor Adams, seconded by Councillor Hendsbee THAT Halifax Regional Council request a staff report with respect to the delays encountered in regard to the replacement of LED streetlights and the availability of backlight shields and further that in the interim, the lights that are identified through 311 and other means be replaced within the month.

MOTION PUT AND PASSED UNANIMOUSLY

LEGISLATIVE AUTHORITY

Halifax Regional Municipality Charter, Part XII, subsection 322(1), "The Council may design, lay out, open, expand, construct, maintain, improve, alter, repair, light, water, clean, and clear streets in the Municipality."

BACKGROUND

The LED Street Light Conversion Project, which began in 2014, resulted in HRM now being responsible for the operation and maintenance of approximately 43,000 street lights. The project also included the implementation of an adaptive system that allows for centralized monitoring and control of the streetlight network.

Conversion of all on-street infrastructure was completed in January of 2018. Final handover of the centralized monitoring and control system began in January of 2018 and the process is still on-going.

DISCUSSION

The motion, as put forward, identifies two separate issues:

1. Delays associated with street light maintenance
2. Availability of backlight shields

The following discussion will address each of these issues.

Maintenance Delays

LED lamps used for street lighting have a predicted 20-year useful lifespan. With the technology still evolving, it should be noted that this lifespan remains untested and LED lamps have a quoted 1% - 2% annual failure rate. Considering the approximately 43,000 LED fixtures owned by HRM, this would translate into a potential for 430 – 860 failed fixtures in any given year under normal circumstances.

Most of the fixtures in the HRM street light network are performing as expected and are below the anticipated failure rate. However, it has become evident; that there are issues with two types of fixtures that are failing at a rate higher than others and higher than the anticipated 1% - 2%. Staff has determined that the problem lies with the electronic control module (“driver”) used in 108-Watt and 158-Watt lamps. At the time of the request for this report, the 158-Watt fixtures were showing a failure rate of approximately 2.3%. Coincidentally, many of these fixtures are located on main roads in District 11, hence the high number of outages identified by the Councillor. At the time this report was written, all outages initially identified by the Councillor had been addressed.

With the high number of failures of a specific fixture, backlogs began to form because of a lack of available stock to replace existing fixtures. Many of the fixtures were under warranty; however, staff encountered delays related to vendor testing to determine failure cause and then receiving replacement equipment once testing was completed. Once the specific issue was identified, staff could send just the driver back to the vendor for replacement instead of the entire fixture which has resulted in reduced testing requirements and improved turnaround time for repairs/replacement equipment. Staff is continuing to work with the vendor to resolve the driver problem and improve processes to reduce turnaround time for warranty work.

Although there have been additional outages related to the equipment issue identified above, staff has been working internally and with the maintenance contractor to improve response times for addressing street light related work. The current standard is to have a service request picked up and assessed for action within three business days. Any work orders issued to the maintenance contractor resulting from a service request are then required to be completed within three business days of being issued. The overall process would result in a response time of up to six business days from the time a request is received to the completion of any necessary repairs. The table below identifies the number of street light related work orders and the associated percentage completed within the service standard for the period September – December 2018, inclusive, and shows an overall improvement in response times.

Month	Number of Work Orders	% Completed Within Standard
September	105	81
October	82	84
November	78	93
December	90	97

The current maintenance contract for streetlighting is a unit price contract that includes standard wording / conditions related to timely completion of assigned work. The contract also includes stipulations for penalties (liquidated damages) to deal with any unreasonable delays associated with completion of the work. Staff has implemented new processes and are leveraging the central system to improve response times when addressing streetlight outages.

The handover process for the monitoring and control system is in progress and staff is gaining a better understanding of its capabilities and is gaining more confidence in the use of the system to troubleshoot and identify various types of outages. Through the process, staff has also noted deficiencies with the system that, in addition to the delay related to equipment supply outlined above, contribute to delays experienced in servicing malfunctioning street lights, including:

- False Error Reporting – instances have been identified where the monitoring system is incorrectly reporting that a streetlight is not working. This results in lost time as personnel still need to troubleshoot and identify that the light is in fact not malfunctioning.
- Communication Errors – there are instances where the system is not reporting outages.
- Poor System Communication – there are some areas within the network where communication may be poor or intermittent. This can result in additional delay in the system reporting an outage.

Staff is working with the vendor to resolve the above noted deficiencies with the system. There is currently a firmware update scheduled for January, which staff hopes will resolve most of the outstanding items.

Backlight Shields

There have been some instances where residents have raised the concern that the LED street lights are resulting in excessive light “spillover” onto their property and shining in their windows at night. Requests have been received to have something done to block the light spillover behind the fixture.

Tests were previously conducted on a backlight shield in 2017 that could be attached to the fixture to help address light spillover behind the fixture. The device provided by the vendor was found to be ineffective. Since the 2017 test, the vendor has conducted additional research and development and has recently provided staff with an updated backlight shield for testing. Staff is currently in the process of testing the redesigned backlight shield to determine its effectiveness.

Depending on the effectiveness of the backlight shields in reducing / eliminating the light spillover behind the fixture, they may have limited application in areas with sidewalks. Where sidewalks are present, there are minimum lighting levels that need to be provided on the sidewalk as well as the roadway. If the sidewalk is located behind the street light, the use of an effective backlight shield is likely to result in an unacceptable reduction in the amount of light provided on the sidewalk.

FINANCIAL IMPLICATIONS

There are no financial implications associated with this report.

COMMUNITY ENGAGEMENT

Community engagement was not required as this report responds to a request by Council for information related to internal operations.

ATTACHMENTS

None

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

Report Prepared by: Roddy MacIntyre, P. Eng., Senior Traffic Operations Engineer, 902.490.8425
