Administration and Operations Committee Report

To: The Chair and Members of the Administration and Operations Committee

From: Greg Demers, Director of Roads

Date: July 15, 2025

Report #: RPT-0188-25

Subject: Highland Estates Solar Streetlight Update

Purpose: For Information and Direction

Recommendation

Whereas the County of Brant (the County) has received concerns regarding the recent solar streetlight initiative installed August 2023 in the Royal Highland Estates Subdivision.

And Whereas staff were directed by Committee to investigate possible options to address concerns brought forward at the March 18, 2025, Administration and Operations Committee meeting.

That staff move forward with option three (3) as outlined in this report

Strategic Plan Priority

Strategic Priority 5 - Environmental Sustainability and Climate Action

Impacts and Mitigation

Social Impacts

Option three (3) as outlined in this report should have a positive impact by addressing some of the residents' concerns related to lighting issues during peak times of road use.

Environmental Impacts

On November 26, 2019, Council declared through a resolution that a climate emergency threatens our County, province, nation, civilization, humanity and the natural world. That the County adopt a carbon reduction strategy target which would reasonably and effectively lead the County to become net carbon neutral by 2050. Continuing to use alternate energy options when possible is in line with Council adopted PRT-21-229 2024 Energy Conservation and Demand Management Plan.

Economic Impacts

No financial impact

Report

Background

During the Administration and Operations Committee meeting held March 18, 2025, staff were asked to review resident concerns related to lack of solar powered streetlight function during times of lowlight winter conditions located in Royal Highland Estates. Staff discussed with Brant Municipal Enterprises (BME) options for improving the streetlighting functions. County Staff and BME discussed the history/functionality of the solar streetlights, resident concerns and possible solutions to improve illumination during times of reduced sunlight. Through these discussions three (3) options were provided and are as follows;

Option 1: Grid-Tied Backup Charging System

Overview: Install underground wiring or direct-bore connections to allow each unit's battery to draw supplemental charge from the electrical grid via smart charge controllers. The lights would remain solar powered, but a grid connection would activate when battery levels fall below a critical threshold.

Pros:

- Increased lighting reliability during extended winter outages.
- Automatic grid charging during low-voltage events.
- Improved resident satisfaction during low-light seasons.

Cons:

- **High cost:** Estimated between **$150,000–$200,000**.
- Major landscape disruption due to trenching/bore.
- Introduction of ongoing electricity costs.
- Does not eliminate all outage risks (e.g., fixture or fuse failures).

Option 2: Adjusted Lighting Profile

Overview: Optimize the lighting schedule to reduce energy use during non-peak hours:

- Full brightness: **7:00 PM – 11:00 PM**
- Dimming to 10–20% output: **11:00 PM – 4:00 AM**
- Return to full brightness: **4:00 AM – dawn**

Pros:

- Extends battery runtime during low-sunlight days.
- No capital cost or construction required.

Cons:

- Lower light levels during late-night hours may not satisfy all residents.

Option 3: Continue with Current Configuration

Overview: Maintain the current setup and monitor performance through increased night inspections during the winter months, supplemented by the recommended snow removal solution.

Pros:

- No additional infrastructure cost.
- Snow tool has already shown promising results for winter performance.
- Allows continued observation to evaluate long-term trends.

Cons:

- Risk of ongoing resident dissatisfaction during occasional outages.

Analysis

Since installation, the system has generally met the expected performance targets. However, during winter months, periods of extended cloud cover and snow accumulation on solar panels have caused intermittent outages, leaving certain areas of the subdivision without lighting for three (3) to five (5) days. Early January of 2025 the County experienced an estimated 14 consecutive days without sunshine which depleted the batteries as an example.

Summary and Recommendations

Staff recommend option three (3) as this option was found to be effective in most situations during the 2024/2025 season. Staff will have an option to implement Option two (2) adjusting lighting profile if conditions are extreme like the experienced conditions of 2024/2025.

Attachments

1. RPT-21-305 – Street Lighting in Royal Highland Estates

Reviewed By

D. Mellor, General Manager of Operations

Copied To

R. Knap, Roads Technologist
J. DeMunck, Road Operations Manager
K. Seitz, Road Superintendent
S. Yacoub, Director of Energy – Bant Municipal Enterprises
L.L. Rouse, Purchaser

By-law and/or Agreement

By-law Required	No
Agreement(s) or other documents to be signed by Mayor and /or Clerk	No