



## Administration and Operations Committee Report

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**To:** The Chair and Members of the Administration and Operations Committee  
**From:** Greg Demers, Director of Roads  
**Date:** October 15, 2024  
**Report #:** RPT-0159-24  
**Subject:** Adaptive Intersection Technology  
**Purpose:** For Information

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### Recommendation

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Whereas staff have been asked by County of Brant Council members to provide an update on the Adaptive Traffic Signal upgrades;

And whereas the Traffic Signal Adaptive program has been in place for roughly one (1) year, staff can now report comparative data with certainty;

And whereas staff recommends this report be accepted as information and be used as a guide for future signalized upgrades.

### Executive Summary

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The County of Brant (the County) Adaptive Project Performance Evaluation Report (Attachment 1), dated September 25, 2024, presents a detailed analysis of the Miovision Adaptive deployment across three (3) key intersections in Brant County, Ontario. This executive summary highlights the deployment overview, project goals, special considerations for Brant County, evaluation methods, key findings, citizen impacts, environmental impacts and future recommendations.

### Strategic Plan Priority

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Strategic Priority 4 - Reliable Infrastructure

### Impacts and Mitigation

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#### Social Impacts

Outlined in the report

#### Environmental Impacts

Outlined in the report

## Economic Impacts

Outlined in the report

## **Report**

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### Background

In 2023, Council approved the Roads Department to investigate and implement measures to improve traffic flow at signalized intersections in the County. The County Roads Department teamed with Brant Municipal Enterprises (BME) to investigate and implement traffic signal upgrades. Staff looked at three (3) major intersections that were most problematic due to high traffic volumes. The suggested solution was to use a modern Artificial Intelligence also known as Adaptive Traffic Solutions to minimize congestion in real time. Implementation started late 2023 for three (3) locations throughout the County. The County chose to start with County Road 18 at Cockshutt Road, King Street at Bishopsgate Road and Grand River Street North at William Street. These intersections have high volume and as well Cockshutt Road, County Road 18, Bishopsgate Road and King Street are used as an (EDR) Emergency Detour Route for Provincial Highways, sometimes leading to unplanned increased traffic flow.

### Analysis

Data for this report was collected from June until July 2024 and compared to the historical data. The data for the three (3) intersections has been broken down as total vehicle, total truck, total pedestrians and AM and PM peak times below for reference. The attached report (Attachment 1) provides more in-depth information

#### **Paris Grand River Street North at William Street**

Average vehicles per day 19,908

Truck percentage per day 1.45%

Average of 139 bicycles per day

Average of 1269 Pedestrians per day

PM peak has the highest average amount of traffic with 1635 vehicles moving through the intersection 4:15 and 5:15 PM

#### **King Street at Bishopsgate Road**

Average vehicles per day 11,063

Truck percentage per day 8.37%

Average of 12 bicycles per day

Average of 3 Pedestrians per day

PM peak has the highest average amount of traffic with 1039 vehicles moving through the intersection 4:15 and 5:15 PM

## **County Road 18 at Cockshutt Road @ Phelps Road**

Average vehicles per day 19,380

Truck percentage per day 3.41%

Average of 9 bicycles per day

Average of 0 Pedestrians per day

PM peak has the highest average amount of traffic with 1765 vehicles moving through the intersection 4:15 and 5:15 PM

When Analyzing intersections for safety compliance it was noted that Grand River Street North had a high frequency of vehicle operators running red lights. Deep red-light violations are considered vehicles moving through the intersection after the red light has been activated for two (2) to ten (10) seconds, this is occurring on average by nine (9) vehicles per day. Staff will be looking into this further to understand why there is such a high frequency. Staff will also look at the other intersections with the Adaptive Technology to see if there are trends occurring. Action may be required through the Brant Safe Streets (BSS) program depending on the results. Furthermore, when looking at intersection capacity for Grand River Street North at William Street, it was noted the intersection is operating fairly well but has little to no room for more or increased traffic between the hours of 11:30 AM and 5:30 PM before the intersection starts to show signs of increased congestion.

### **Time and Environmental Savings**

Below is a chart that summarizes the time savings of road users by having Adaptive Technology making real time adjustments when the traffic flows change throughout the day.

<b>Intersection</b>	<b>Average simple delay per direction (s) "off"</b>	<b>Average simple delay per direction (s) "on"</b>	<b>Compound difference of 4 vehicles</b>
William Street and Grand River Street North	1:17 (77s)	59s	72s
King Street and Bishopsgate Road	27s	21s	24s
Phelps Road and Cockshutt Road	37s	31s	24s

When averaged over the year, road users will see an estimated savings of \$136,500 for the Grand River Street North at William Street intersection improvements alone. These savings are calculated by adding user cost, fuel consumption and CO2 emissions.

## Summary and Recommendations

There have been some challenges with the implementation of the Adaptive Traffic Light Technology as it was new technology for County Staff, as well Miovision had staffing and support issues through 2023 and early 2024 that have since been resolved. Staff feel there is further opportunities to implement this or similar technology in Brant County. Overall, this technology has improved traffic flow without inconveniencing residents through hard surface upgrades or improvements. This data can and will be shared with other County Departments for project planning and future infrastructure upgrades.

## **Attachments**

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Attachment 1 – Brant Municipal Enterprises Performance Evaluation

## **Reviewed By**

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R. Walton, General Manager of Operations

## **Copied To**

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J. DeMunck, Road Operations Manager

R. Knap, Roads Technologist

S. Yacoub, Director – Energy Brant Municipal Enterprises

## **By-law and/or Agreement**

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