

Traffic Study – Intersection of Barry Downe Road and the Kingsway and the Entrance to Costco Parking Lot

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Report Summary

This report provides an update regarding the results of the traffic study conducted for the intersection of Barry Downe Road and the Kingsway and the Entrance to the Costco Parking Lot.

Relationship to the Strategic Plan, Health Impact Assessment and Climate Action Plans

This report refers to initiatives that support goal 6.1 - Advance Population Health of the Strategic Plan by further advancing the Healthy Streets goal by improving road safety for all users.

Financial Implications

There are no financial implications associated with this report.

Background

On May 14th, 2024, Operations Committee resolution OP2024-07 was passed stating that the City of Greater Sudbury directs staff to conduct a traffic study at the Barry Downe Road and Kingsway intersection and the entrance to the Costco parking lot, and to present a report to the Operations Committee outlining the results of that study, together with information as to how the City manages private entrances to commercial properties, who is responsible for paid duty officers when required for traffic control during peak shopping periods, and whether there are opportunities to enhance this intersection or relocate it to improve traffic flow.

The New Sudbury area has experienced considerable residential and commercial development in recent years, with further growth anticipated. This expansion has contributed to a noticeable increase in traffic volumes, particularly at the entrance to the Costco parking lot on Barry Downe Road. The issue intensifies during peak shopping periods, when motorists frequently encounter delays and challenges exiting the lot, especially when

turning toward the Kingsway.

This report addresses traffic control concerns and potential improvements at the Barry Downe Road entrance to Costco. It focuses on the following key areas:

1. Traffic Control Procedures: Review of current traffic control measures, including the use of paid duty police officers, and the City's approach to managing private commercial entrances.
2. Traffic Signal Assessment: Evaluation of the feasibility of installing a traffic signal at the Costco entrance on Barry Downe Road.
3. Entrance Relocation Opportunities: Exploring the possibility of relocating the Costco entrance on Barry Downe Road to improve traffic flow and reduce congestion.

Overview of the Study Area

The Costco site is located within the RioCan Centre, positioned south of the Kingsway and east of Silver Hills Drive. The site features two primary access points: one from the east via Barry Downe Road, and another from the west via Silver Hills Drive. The site is also directly adjacent to the Kingsway and Barry Downe Road intersection to the north, which is one of the City of Greater Sudbury's major arterial intersections, carrying substantial daily traffic volumes. Additionally, to the west, the site borders the Kingsway and Silver Hills Drive intersection, another key intersection in the City's transportation network.

Although the primary focus of this report is the intersection of Barry Downe Road and the Costco parking lot entrance, a comprehensive and reliable traffic assessment necessitated the inclusion of surrounding intersections. These include the Kingsway and Barry Downe Road, the Kingsway and Silver Hills Drive, Barry Downe Road and the Costco parking lot, and Silver Hills Drive and Chapters parking lot.

Figure 1 provides a detailed satellite view illustrating the study area, its surrounding roadways and commercial establishments.

Figure 1 – Detailed satellite view of the study area





Traffic Study

Traffic Control Procedures

The City manages private entrances to commercial properties through the site plan control agreement review process. During this process, staff assess development drawings and any required Traffic Impact Studies (TIS) prepared by the property owner, to ensure that traffic operations and safety standards are met.

Currently, the Costco entrance is controlled by a stop sign for vehicles exiting the site onto Barry Downe Road. The design includes dedicated left and right-turn lanes, allowing left-turn movements on Barry Downe Road to proceed without obstructing vehicles turning right. This configuration helps mitigate congestion during regular traffic conditions.

To manage traffic during peak shopping periods and holidays, the property owner employs paid duty police officers to assist with traffic control. The entrance to the Costco parking lot on Barry Downe Road is a privately owned access point, and as such, traffic control measures at this location fall under the responsibility of the property owner. The City of Greater Sudbury does not fund or coordinate these traffic control measures. The responsibility for hiring and compensating paid duty officers lies entirely with the property owner. This arrangement aligns with municipal best practices, where traffic control at private commercial accesses is managed by the property owner, particularly when additional measures are needed beyond standard infrastructure. This practice is consistent with approaches used in other Ontario municipalities.

Entrance Relocation Opportunities

The potential to relocate the existing Costco entrance on Barry Downe Road is significantly constrained by the site's physical and environmental conditions. The entrance is situated near a steep grade change, as Barry Downe Road slopes upward from the Kingsway toward the Costco site. This elevation difference poses challenges for redesigning access points, particularly in maintaining safe sightlines and vehicle maneuverability. Additionally, adjacent to the Kingsway and Barry Downe Road intersection is the site's stormwater management pond. This pond serves as a critical drainage feature for the surrounding commercial area and restricts available space for reconfiguring or expanding the entrance. Environmental regulations and the need to preserve stormwater infrastructure further limit the feasibility of relocating the access point. Given these constraints, opportunities to alter the entrance configuration are minimal, and any proposed changes would require substantial engineering interventions. As the entrance is privately owned,

any relocation efforts fall under the responsibility of the property owner. The City of Greater Sudbury does not provide funding or take part in coordinating such modifications.

Traffic Signal Assessment

The decision to install a traffic signal is guided by the Ontario Traffic Manual (OTM), Book 12 – Traffic Control Signals, which outlines specific warrants that must be met. These warrants are based on criteria such as vehicle volumes, pedestrian activity, and collision history. To proceed with a signal installation, at least one of these criteria must be satisfied to ensure that they are both necessary and beneficial.

In May 2012, City staff prepared a presentation titled Traffic Control Signals, which provides a comprehensive overview of these warrants and their application within the City of Greater Sudbury. The report emphasizes that if none of the signal warrants are met, installing a traffic signal may not be advisable. In such cases, signals could lead to increased overall delay, reduced operational efficiency, and potentially negative impacts on intersection safety, such as higher rear-end collision rates.

As part of this assessment, City staff conducted comprehensive Turning Movement Count (TMC) data collection across the study area. This included the intersections of:

- Kingsway and Barry Downe Road
- Kingsway and Silver Hills Drive
- Barry Downe Road and Costco parking lot entrance
- Silver Hills Drive and Chapters parking lot entrance

Data was collected during the eight busiest hours across three high-demand days, from Friday, July 25, to Saturday, July 27, 2025, to capture peak traffic conditions. Following a review of the collected data, the eight peak hours on Friday, July 25th, 2025, were identified as the most critical period for further analysis. The traffic volumes from this period were applied to the signal warrant criteria (see Appendix A).

The findings show that four out of six signal warrants were met at the Barry Downe Road and Costco entrance, technically supporting the installation of a traffic signal at this location, should the property owner be interested in exploring this option.

In contrast, one of the primary issues regarding the installation of a traffic signal at the Barry Downe Road and Costco parking lot is its proximity to the Kingsway and Barry Downe Road intersection, which is one of the busiest and most critical intersections in the City of Greater Sudbury. According to OTM Book 12, the recommended minimum spacing between adjacent signalized intersections on roads with speed limits of 60 km/h or less is 215 metres. This spacing is critical for ensuring smooth traffic flow and reducing possible safety issues. However, the actual spacing between the intersection of the Kingsway and Barry Downe Road and the intersection of Barry Downe Road and Costco entrance is approximately 120 metres, significantly below the recommended threshold. This limited separation raises concerns regarding queue spillback, which might disrupt traffic flow across the study area.

Given the importance of the Kingsway and Barry Downe Road intersection, further analysis of the traffic patterns around this site would be required to ensure queues do not impact this key intersection, should the property owner move forward with a development submission for these traffic signals.

Conclusion and Next Steps

The signal warrant analysis confirms that a traffic signal is justified at the intersection near the Costco entrance. However, City staff have identified concerns regarding the risk of queue spillback during holiday traffic surges,

negatively affecting traffic flow and safety across the broader network. This concern is compounded by the fact that the spacing between the Costco entrance and Barry Downe Road intersection and the Kingsway and Barry Downe Road intersection is approximately 120 metres, which is significantly below the Ontario Traffic Manual (OTM) Book 12 recommended minimum of 215 metres for roads with speed limits of 60 km/h or less.

The property owner is responsible for traffic control at private entrances, and it has been determined that most of the congestion that is being experienced is on the private property side of the intersection. Given the concerns staff have regarding signal spacing, the current mitigation method of paid duty police officers by the property owner during peak shopping times of the year is a best practice and sufficient in addressing congestion.

Should the property owner wish to pursue this option either now or in the future, staff would engage with them for further discussion and analysis.

Resources Cited

Ontario Transportation Manual Book 12, Traffic Signals, 2012.

Operation Committee Report dated May 14, 2012, titled "Traffic Control Signals":
<https://pub-greatersudbury.escribemeetings.com/filestream.ashx?documentid=21018>

Ontario Transportation Manual Book 15, Pedestrian Crossing Facilities, 2016.