Protected Left Turn Phase – Lasalle Boulevard at 901 Lasalle Boulevard/Lasalle Court Mall Westbound

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Report Summary

This report provides an update regarding resolution OP2023-27, submitted by Councillor Landry-Altmann at the August 14th, 2023 Operations Committee that asks for a westbound protected left turn phase at the intersection of Lasalle Boulevard and the entrance to 901 Lasalle Boulevard and the Lasalle Court Mall.

Relationship to the Strategic Plan, Health Impact Assessment and Community Energy & Emissions Plan (CEEP)

This report refers to operational matters.

Financial Implications

The are no financial implications associated with this report.

Background

At the August 14th, 2023 Operations Committee resolution OP2023-27 was passed stating that the City of Greater Sudbury directs staff to conduct a traffic study of the intersection at 901 Lasalle Boulevard, and present the results of that study, together with an option for the installation of an advanced green traffic light for the westbound left turning lane at 901 Lasalle Boulevard, to the Operations Committee by November of 2023.

Separate left turn phases are not provided at all traffic signals. The need for a left turn phase depends on several factors including vehicle volume, number of left turns, collisions, delay, signal timing and intersection geometry.

The Ontario Ministry of Transportation has provided a method to calculate the number of vehicles that can turn left during the green and amber phase. This method incorporates the opposing traffic volume, number of lanes that must be crossed and the signal timing of the intersection. For westbound traffic at this intersection approximately 60 vehicles will be able to make a left turn during the peak hour of traffic.

City staff completed a traffic count on September 13th, 2023 to determine how many westbound vehicles

were turning left during the afternoon peak hour. During this time, a total of 11 westbound vehicles turned left. As a comparison, during the same peak hour a total of 86 eastbound vehicles turned left at the same intersection. City staff conducted a traffic study in 2015 at this intersection and at that time there was 10 westbound left turning vehicles in the PM peak hour. The volume of westbound left turning vehicles has remained nearly identical since 2015.

A review of the City's collision information from 2018 to 2022 revealed that there were no collisions that involved westbound left turning vehicles at this intersection.

Based on the traffic volumes and collision history, a westbound protected left turn phase is not warranted at this intersection.

Installation Option/Other Considerations

To facilitate a westbound protected left turn phase on Lasalle Boulevard new traffic equipment would be required. A new signal head, which includes the green and amber left turn arrows, would need to be installed to replace the existing median island signal head. The vehicle detection loop to detect westbound left turning vehicles was already installed in the asphalt during the last intersection upgrade. Lastly, there is associated staff time required to reprogram the traffic signals to add the protected left turn phase, as well as attend the site to confirm the protected turn signal is functioning properly.

The total estimated cost to add a protected left turn phase for westbound vehicles at the Lasalle Court Mall intersection is approximately $5,000.

The associated equipment and installation costs are not the only consideration however, there is an associated impact to the corridor anytime a protected left turn phase is added. Since left turning vehicles are given a protected phase (or advanced phase), the opposing vehicles traveling through the intersection must wait until the left turn phase is over before they can start to proceed through the intersection. As well, pedestrians wishing to cross the road must also wait for the left turn phase to be completed prior to getting a walk light. The addition of the protected phase results in an increase to vehicle delays and queue lengths.

Staff used traffic modeling software to determine what the anticipated impact to eastbound traffic on Lasalle Boulevard would be should the protected left turn phase be added.

Under the current configuration (no protected left turn phase) the eastbound through movement experiences a vehicle delay of 8.4 seconds, a 95th percentile queue length of 64.4 metres and has a Level of Service (LOS) of 'A'.

Adding a protected left turn phase increases the eastbound through movement vehicle delay to 17.3 seconds, increases the 95th percentile queue length to 100.4 metres and lowers the LOS to 'B'. Adding the protected left turn phase would on average add an additional 8.9 seconds of delay to every eastbound vehicle on Lasalle Boulevard traveling through this intersection.

These impacts are significant and will result in a noticeable perceived increase in congestion to the motorists on Lasalle Boulevard. As well, the increase in vehicle delay results in increased travel times along the Lasalle Boulevard corridor which has negative economic impacts such as increased transportation costs and an increase in lost productivity. Increased travel times also increases the amount of fuel used by vehicles to travel the same distance which increases greenhouse gas emissions.

Conclusion

As noted in the report, the vehicle volumes and collision history do not meet the provincially used warrant for the installation of a protected left turn phase. In addition, installing a protected left turn phase will more than double the vehicle delay experienced at this intersection, increase travel times on the corridor as a whole and increase the amount of greenhouse gas emissions. Based on all these considerations, staff do not recommend installing a protected left turn phase for westbound vehicles at the intersection. Staff will continue to monitor traffic volumes at this intersection to determine if an advanced left turn phase for westbound traffic becomes warranted in the future.