

Maley Drive Extension Project Update

Presented To:	Operations Committee
Meeting Date:	July 10, 2023
Туре:	Presentations
Prepared by:	David Shelsted Engineering Services
Recommended by:	General Manager of Growth and Infrastructure

Report Summary

This report and presentation provides an update on the Maley Drive Extension Project, including a summary of benefits, predicted traffic volumes compared to actuals, the current status of the project and next steps.

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

The project will alleviate traffic congestion and generate time savings of about 457,000 vehicle hours per year for auto drivers and 50,778 vehicle hours per year for truck drivers. Greenhouse gas emissions will be reduced by 2,459 metric tons of CO2 equivalent.

Financial Implications

There are no financial implications associated with this report.

Background

The Maley Drive Extension has been part of the community's road network planning since the Regional Trucking Action Plan in 1991. And the proposed alignment was established in the 1995 Class Environmental Assessment.

In 2008 and 2009, Council approved updating the Class Environmental Assessment and beginning the detailed design of the Maley Drive Extension to bring it to a shovel ready status. In addition, Council directed staff to apply for funding from senior levels of government.

Maley Drive remained a priority for funding programs and several supporting documents were prepared, including a comprehensive Business Case that was presented to Council in March 2016. This business case included predictions and modeling of the benefits of the Maley Drive Extension and forms the basis for the comparisons to actual traffic count data that follow in this report.

The City received approval from the Province of Ontario and the Government of Canada to proceed with Phase I of the Maley Drive Extension Project at a cost of \$80.1M. The total cost is to be split between the three parties, with each contributing \$26.7M. A Financial Plan for Phase I of the Maley Drive Extension Project was approved by Council in May 2016.

Construction of Maley Drive has been ongoing since 2016, with the four-lane connection from Barry Downe Road to Lasalle Boulevard, complete with an interchange at MR 80 opening in November 2019. This included expanding the scope with surplus funds to include four lanes between Barry Downe Road and Lansing Avenue. Council approved funding in 2022 to construct a two-lane roundabout at the intersection of Frood Road and Lasalle Boulevard instead of conventional traffic signals. This represents the completion of Phase I of the Maley Drive Extension and Widening.

Phase II of the Maley Drive Extension will be the expansion of Lasalle Boulevard to four lanes from Frood Road to MR 35, and the expansion of Maley Drive to four lanes from Lansing Avenue to Falconbridge Highway including a grade separated crossing of the railway tracks. Phase III is the easterly extension of Maley Drive to Highway 17 at the bypass.



Benefits

The 2016 Business Case quantified and monetized the cost-benefit analysis and the results indicated that:

- The project will alleviate traffic congestion and generate time savings of about 457,000 vehicle hours per year for auto drivers and 50,778 vehicle hours per year for truck drivers. In monetary terms, this represents a saving of \$11.1 million per year.
- Auto drivers will save \$1.15 million annually while truck drivers will save approximately \$360,000 per year in vehicle operating costs.
- Greenhouse gas emissions will be reduced by 2,459 metric tons of CO2 equivalent which amounted to a monetized saving of about \$218,000 per year.
- A 2.75 cost/benefit ratio suggests that costs are largely surpassed by benefits.
- The project creates a net economic value of \$135.6 million in present value terms and its economic rate of return is 13.6%.

The results of the analysis were deemed to be conservative as additional potential benefits have been identified but have not been quantified.

These values are higher in today's dollars. For example, the \$1.15 million saved annually by auto drivers includes fuel, maintenance, and tire wear. It was estimated that auto drivers would save approximately 800,000 L of fuel per year, and at the current rate of \$1.60 per L, this equates to \$1.28 million. The cost of fuel was \$0.697 per L in February 2016 in Toronto.

The financial benefits would only be fully realized if the project was delivered on budget. The travel saving benefits were calculated based on the predicted traffic volume of Maley Drive and will only be fully realized if the actual traffic volume meets the predictions. There were many concerns raised in the public about the ability to deliver the project within budget and to realize the predicted traffic volume, and the 2016 Business Case included a section with a sensitivity analysis to address these concerns.

Predictions Compared to Actuals

The project was completed within budget and completed a month earlier than the December 2019 completion date indicated in the 2016 Business Case. The project was tracking for a budget surplus, and Council took the opportunity to expand the scope and constructed an additional two lanes between Barry Downe and Lansing.

The travel savings benefits are calculated based on the predicted traffic volume of Maley Drive. A comparison of predicted and actual traffic volumes is listed in the table below, however the following should be noted for the traffic volumes:

- Traffic volumes from 2020 were taken at the beginning of the year shortly after Maley Drive had opened at the end of November 2019 and the traffic patterns had not normalized, but prior to the pandemic in March 2020.
- Traffic volumes from 2023 were taken in May, however construction had started on the Kingsway so traffic volumes for the Kingsway and Lasalle were not updated.

Table 1: Business Case predicted daily traffic volumes per section of Maley Drive shown with actual traffic counts:

Road Section	Projected Daily Traffic	2020 Actual Daily Traffic	2023 Actual Daily Traffic
	Volume	Volume	Volume
Maley Drive between Frood and College	16,000	20,400	25,100
Boreal			
Maley Drive between Barry Downe and	21,000	15,000	19,500
MR 80			
Maley Drive between Barry Downe and	13,000	9,000	14,700
Falconbridge			

The actual traffic volume varies between the predicted results and is generally in line with expectations.

Table 2: Business Case predicted reduction	ns in daily traffic volume	s for sections of Lasalle	Boulevard and
the Kingsway and the actual traffic counts:			

Road Section	Predicted Daily Traffic Volume	2020 Actual Daily Traffic Volume
Lasalle between Notre Dame and Somers	-10,000	-8,600
Lasalle between Gary and Falconbridge	-4,200	-5,700
Kingsway	-4,000	-4,400

The predicted reduction in traffic volumes were met, with some variances.

The changes in traffic volumes predicted for adjacent area roads were also realized. This included increased traffic volumes on Lansing Avenue, and Barry Downe Road north section, with decreased traffic volumes on Montrose Avenue, Woodbine Avenue, and Bancroft Drive.

The 1991 Regional Trucking Action Plan was initiated to create a bypass for trucks, especially large trucks, for the developed sections of the City along Lasalle Boulevard and the Kingsway. Shown in the following table is the reduction in daily trucks and articulating trucks (the large trucks that have a trailer, such as an ore truck or a transport truck).

Road Section	2019 Daily Total Trucks	2019 Daily Articulating Trucks	2020 Daily Total Trucks	2020 Daily Articulating Trucks	
Lasalle between Notre	950	350	550	(90
Lasalle between Gary and Falconbridge	1,075	375	750	9	90

Table 3: Truck Volumes on Sections of Lasalle Boulevard

Overall, the total truck volumes on Lasalle Boulevard are reduced by 30% to 40%, with the volume of articulating trucks being reduced by 75%.

It was predicted that Maley Drive would carry 1,000 to 1,500 trucks per day, and the actual volume is 1,400 per day, at the high range of the estimate.

In summary:

- The project was delivered under budget (the excess budget was used to construct an additional two lanes between Barry Down and Lansing).
- The project was delivered ahead of schedule (opened in November 2019, one month ahead of schedule).
- The predicted traffic volumes have generally been realized.
- The predicted rerouting of truck traffic, especially large truck traffic, has been realized.

Therefore, the benefits identified in the 2016 Business Case are being realized by the community.

Current Status

The following major contracts have been tendered for the Maley Drive Extension Project:

Contract Year and Number	Contract Description
Contract 2016-35	Maley Interchange and MR 80 Realignment
Contract 2017-35	Maley Drive Four Lanes from Frood Road to Barry Downe Road
Contract 2018-35	Maley Drive from Barry Downe to Falconbridge Highway
Contract 2023-35	Intersection Improvements Lasalle Boulevard at Frood Road

The contract to remove the signalized intersection and construct a two-lane roundabout at the intersection of Lasalle and Frood has recently started. Council approved a budget of \$4.5M for the roundabout construction. These intersections improvements will remove a source of congestion for the Maley Drive corridor as the queuing at this location regularly extended to the west past the snow dump entrance and to the east past the College Boreal roundabout. As noted in the traffic volumes, approximately 25,000 vehicles are using this intersection a day. It is also the main entrance to Vale's Frood/Stobie Mine Site.

The original scope for this project was to extend the existing culvert under the intersection as it is obstructed with blast rock and was identified as a hydraulic risk. As the detailed design progressed there were several issues that were identified that were increasing the cost estimate, impact of construction, and risk, as the culvert is approximately 18m deep. The following issues were identified:

- Given the depth, traffic could not be maintained on either Lasalle, Frood, or Vale's entrance for a construction season.
- Given the width of the excavation, all utilities in corridor will have to be relocated prior to construction, adding expense and a year to construction.
- Given the volume of the excavation approximately 50,000 cu. m. of material would have to removed off site and brought back as there is insufficient storage for this volume of material on site adding to the cost.

Given the issues, a review of alternatives was considered, and the following analysis and observations were noted:

- During 2022 a drone inspected the existing concrete culvert and it was determined that the culvert was in good condition and that flow was being conveyed. There was no evidence of blockages other than the blast rock or flooding.
- There were no observations by operational staff or engineering staff of any ponding upstream for over a decade.
- The existing culvert had likely been operating under this condition for decades.
- A hydraulic analysis indicated that even if the culvert were blocked, the Timmins storm or the 100 year storm can be stored upstream of the culvert.
- If the culvert were blocked, the drainage would still flow through the rock fill used to construct the road.
- Discussions with the upstream property owner, Vale, indicated that there are no future plans for developing their property immediately upstream of the culvert.

The Engineering Consultant recommended that the culvert not be extended due to the high cost, construction impacts, and limited risk of keeping the status quo. To further reduce the risk, it is recommended to remove the areas of debris and sediment in the culvert.

With this recommendation, rock removal for the roundabout started in the fall of 2022. The two-lane roundabout will be opened in 2023, with construction completed in 2024.

Next Steps

Employment Land Strategy

In the 2023 budget, Council approved funding for the detailed design of servicing the lands to the east of Maley Drive and Falconbridge Highway. Staff are in the process of procuring an Engineering Consultant to complete the detailed design and bringing the project to a shovel-ready status.

Class Environmental Assessment Amendment

Phase II of the Maley Drive Extension is the expansion of Maley Drive to four lanes from Lansing Avenue to Falconbridge Highway including a grade separated crossing of the railway tracks and expansion of Lasalle Boulevard to four lanes from Frood Road to MR 35. These were identified as short and medium term in the Transportation Master Plan. Typically, expansion to four lanes is considered when daily traffic volume exceeds 12,000 vehicles per day, which both these sections currently exceed. A Class Environmental Assessment Amendment is required to update the 2008 Class Environmental Assessment to review alternatives to construct a grade separated crossing at Maley Drive. This will be included in a future capital budget request.

Phase III of the Maley Drive Extension being an extension eastward to Highway 17 is identified as a long term priority in the Transportation Master Plan (11+ years).

Resources Cited

- City of Greater Sudbury, City Council Meeting, Report titled "Maley Drive Extension and Widening Project – Building Canada Application", April 29, 2009 <u>https://pub-greatersudbury.escribemeetings.com/filestream.ashx?documentid=27279</u>
- City of Greater Sudbury, City Council Meeting, Report titled "Maley Drive Extension Project", March 1, 2016 https://pub-greatersudbury.escribemeetings.com/filestream.ashx?documentid=11749
- City of Greater Sudbury, City Council Meeting, Report titled "Maley Drive Financial Plan", May 10, 2016 <u>https://pub-greatersudbury.escribemeetings.com/filestream.ashx?documentid=11281</u>
- City of Greater Sudbury, City Council Meeting, Report titled "Maley Drive Scope Extension", January 29, 2019 <u>https://pub-greatersudbury.escribemeetings.com/filestream.ashx?documentid=4158</u>