

## **M.R. 80 Corridor Review Study – Preliminary Report**

### **Background:**

At the September 24, 2019 City Council meeting, a motion was brought forward directing staff to conduct a review of the Municipal Road 80 (M.R. 80) corridor from Desmarais Road to Cote Boulevard in Hanmer. This review also included a safety review of the intersections of M.R. 80 and Notre Dame Avenue, as well as, Notre Dame Avenue and Cote Boulevard. At the time, Notre Dame Avenue from Dominion Drive to Oscar Street was scheduled for road rehabilitation during the 2020 construction season and any identified improvements to this section of the corridor were to be integrated into the project.

Staff retained a consultant to complete this review. During the initial discussions with the consultant, it was identified that additional traffic counts would be required through the M.R. 80 corridor in order to give the best understanding of the current traffic volumes as well as the volume trends. This section of M.R. 80, in addition to other municipal roads, acts as an alternate route to access Valley East for many motorists looking to avoid congestion along Lasalle Boulevard and Notre Dame Avenue (Sudbury). With the opening of the Maley Drive extension in late 2019, staff felt it would be appropriate to have new counts conducted in the spring of 2020 to identify what effect this would have on the corridor and to better provide recommendations for how the corridor should operate going forward.

The arrival of the COVID-19 pandemic provided a challenge to obtain meaningful traffic counts along the corridor. With the closure of schools, workplaces and with many people working from home and limiting trips out of the home to essential trips only, the traffic volumes and patterns along the M.R. 80 corridor and in the City as a whole were impacted.

Given the impact to traffic volumes brought on by the pandemic, staff paused the review of the M.R. 80 corridor and focused on identifying potential safety improvements that could be incorporated into the scheduled rehabilitation project along Notre Dame Avenue. Staff will resume work on the full review of the remaining portions of the M.R. 80 corridor when traffic patterns return to normal or stabilize at a “new normal”. Staff are continuing to monitor traffic volumes and the ongoing effect the pandemic is having as it relates to traffic within the City.

### **Recommended Corridor Improvements:**

#### **Intersection Controls**

The intersection of M.R. 80 and Notre Dame Avenue and the intersection of Notre Dame Avenue and Cote Boulevard are currently stop controlled and function in an unorthodox manner with traffic along the M.R. 80 corridor (M.R. 80 – Notre Dame Avenue – Cote Blvd.) having either the right-of-way at the intersection or being only yield controlled (Figure 1 & 2).



Figure 1 – M.R. 80 and Notre Dame Avenue – Existing Intersection Control



Figure 2 – Notre Dame Avenue and Cote Boulevard – Existing Intersection Control

Originally, M.R. 80 was under the jurisdiction of the Ontario Ministry of Transportation (MTO) and traffic control at the intersections along the corridor has remained relatively unchanged since the corridor was part of Highway 69. Staff have been updating the traffic control along this corridor as the need arises, with the most notable example being the elimination of the west bound stop control at the intersection of Cote Boulevard and M.R. 84 in 2012.

The current configuration at the intersections is due to the majority of the traffic volumes following the M.R. 80 corridor (M.R. 80 – Notre Dame Avenue – Cote Boulevard). However, this configuration represents challenges for motorists who are accessing the intersection from the less predominate approaches as the free flow of vehicles can lead to extended periods of time without a safe gap. In addition, pedestrians looking to cross the main flow of traffic can experience long wait times and the free flow nature of traffic can lead to a higher risk of conflict with drivers not expecting a pedestrian to be crossing their path. Also, with the unusual traffic control configuration, motorists who are unfamiliar with the area can find it difficult to determine which approaches have the right-of-way at the two intersections.

A combined total of 14 reported collisions occurred at the two intersections over the five year period from 2015 to 2019, with five collisions occurring at M.R. 80 and Notre Dame Avenue and nine occurring at Notre Dame Avenue and Cote Boulevard. No fatal collisions were reported and three collisions resulted in injuries. No collisions involving pedestrians were reported. Of the 14 collisions, 57% were either angle or turning movement type collisions, while another 29% were single motor vehicle and the remaining 14% were rear end type collisions.

As part of the study, the intersections of M.R. 80 at Notre Dame Avenue and Notre Dame Avenue at Cote Boulevard were analyzed for all-way stop controls, traffic signals, as well as roundabout control. Using traffic volume data, the justifications of each type of traffic control and their effectiveness at moving both vehicles and pedestrians through the corridor were compared.

## All-Way Stop Control

City staff applied the traffic volume data to the City's All-Way Stop policy and determined that all-way stop control is warranted at these two locations due to their volumes. A summary of the all-way stop warrants for each intersection can be found below in Table 1.

<b>Intersection (Peak Hour)</b>	<b>Total Vehicles (must be &gt;500/hr)</b>	<b>Minor Street Volumes (must be &gt;200/hr)</b>	<b>Volume Spilt of Minor Street (must be &gt;30%)</b>
M.R. 80 & Notre Dame	692	308	44.5%
Notre Dame & Cote	688	311	45.2%
Warranted	YES	YES	YES

Table 1 – All-way Stop Warrant Summary

In order for an intersection to warrant an all-way stop due to its collision history, an average of five or more collisions need to occur per year, over a three year period, in which the collisions

were susceptible to correction with an all-way stop. M.R. 80 and Notre Dame Avenue has an average of only one correctable collision per year over a three year period and Notre Dame Avenue and Cote Boulevard has an average of 0.6 correctable collisions per year over a three year period. Neither intersection meets the threshold to warrant an all-way stop based on the collision history.

The installation of an all-way stop on arterial roads is generally undesirable due to the volume of traffic on these roads and the additional delay that is introduced to all vehicles traveling through the intersection. An additional analysis was completed to determine the amount of delay that would be introduced with the installation of an all-way stop.

Currently during the afternoon peak hour, each vehicle traveling through the intersection of M.R. 80 and Notre Dame Avenue and the intersection of Notre Dame Avenue and Cote Boulevard is delayed by an average of 8.6 seconds. Under all-way stop control, the average delay to each vehicle would increase to 14.9 seconds for M.R. 80 and Notre Dame Avenue and increase to 17.9 seconds for Notre Dame Avenue and Cote Boulevard. An increase to vehicle delay has a negative environmental impact as idling vehicles emit additional greenhouse gases and consume more fuel.

Multiple lane approaches at all-way stops are also not desirable as they create confusion over who has the right of way at the intersection. In order to implement an all-way stop, it would be recommended that each approach be reduced to a single lane in each direction with no dedicated left turn lane. This would further add to the delay that would be introduced by the installation of an all-way stop.

All-way stop control does however give the right-of-way at all times to crossing pedestrians, which would increase pedestrian safety.

## **Roundabout Control**

There is no formal warrant for roundabouts but they are considered when traffic signals are warranted. Roundabout control was analyzed at the two intersections. While providing semi-free flow operation for vehicles, pedestrian and cyclist access across these intersections would be more difficult. Roundabout control also has the potential to require property acquisition from adjacent properties due to the increased footprint required compared to stop controlled or traffic signal controlled intersections.

## **Traffic Signal Control**

City staff applied the traffic volume data to the warrant in Book 12 of the Ontario Traffic Manual. Table 2 below shows the percentage of the listed traffic signal justifications each intersection meets. For signals to be warranted due to traffic volume or vehicle delay, both criteria need to

be 100% for either justification. However, it should also be noted that if both criteria under both justifications meet or exceed 80% then the traffic signal will also be warranted.

Intersection	Justification 1	Justification 2	Justification 3
	Minimum Vehicle Volume	Delay to Cross Traffic	Combination Warrant
M.R. 80 & Notre Dame	64%	53%	66%
Notre Dame & Cote	71%	42%	53%
Warranted?	No	No	No

Table 2 – Traffic Signal Warrant Summary

In order for an intersection to warrant traffic signals due to its collision history, five or more collisions need to occur per year on average, over a three year period, in which the collisions were susceptible to correction with traffic signals. M.R. 80 and Notre Dame Avenue has an average of only one correctable collision per year over a three year period and Notre Dame Avenue and Cote Boulevard has an average of 0.6 correctable collisions per year over a three year period. Neither intersection meets the threshold to warrant a traffic signal based on the collision history.

At the M.R. 80 and Notre Dame Avenue intersection, concerns have been raised regarding errant vehicles travelling eastbound on M.R. 80 disobeying the stop sign and proceeding through the intersection and into a nearby residential property. These types of collisions are rare and have involved exceptional circumstances. Traffic signals do offer greater visibility to approaching motorists than a stop controlled intersection provides and may help prevent future collisions of this nature.

While installing traffic signals at either intersection is not warranted based on the traffic volumes or collision history, they offer the greatest benefit to all intersection users due to the non-standard operation of the intersection.

Traffic signals would allow vehicles traveling along the main corridor to have adequate green time to keep delays to these users to a minimum, while vehicles using the minor approaches will have actuated green phases to reduce their wait times at the intersection and further increase safety. Pedestrians will also have actuated walk phases across all approaches of the intersection, thereby reducing their wait times and increasing the safety of the crossings. During the afternoon peak hour, average vehicle delay at M.R. 80 and Notre Dame Avenue would be reduced to 7.4 seconds from the current 8.6 seconds. Similarly, during the afternoon peak hour, average vehicle delay at Notre Dame Avenue and Cote Boulevard would be reduced to 6.6 seconds from the current 8.6 seconds. Given the above considerations, traffic signals are recommended as the preferred control method for both intersections.

## **School Crossing Guards**

The school crossing guard at M.R. 80 and Dennie Street, as well as at Notre Dame Avenue and Cote Boulevard were recently removed due to safety concerns. The addition of traffic signals at these locations can provide a safer location to place a school crossing guard as they are not required to stop traffic, only to assist in pressing the crossing button and guiding students across. Staff consulted the Sudbury Student Services Consortium to determine what the impact of adding traffic signals at the intersections would be for students transportation to and from school. Grade 7 & 8 students are considered able to use a pedestrian crossing at a signalized intersection safely without the assistance of a school crossing guard. All grade 6 and lower students still require a school crossing guard to safely cross at a signalized intersection. This means all grade 6 and lower students would continue to be bussed to school unless a school crossing guard was present.

Should the recommendations of this report be adopted as part of the upcoming road rehabilitation of Notre Dame Avenue, transit staff will conduct a review of the removed school crossing guard locations to determine if the safety concerns that were part of the decision to remove the school crossing guard have been remedied.

## **Traffic Lane Configuration**

In 2016, City Council adopted a sustainability-focused Transportation Master Plan which aims to find a balance between expanding our road network and ensuring that we are making the best use of our existing network. The Transportation Master Plan is also guided by the three main principles of healthy communities, sustainability and economic vitality.

In July 2018, City Council approved a Complete Streets Policy for the City of Greater Sudbury. This policy guides current and future transportation infrastructure planning and delivery to ensure citizens, of all ages and abilities, using all modes of transportation are best accommodated during the planning, design, construction and maintenance of City infrastructure.

The Infrastructure Capital Planning division is responsible for the implementation of the Transportation Master Plan, associated policies and programs. Over the last four years, significant strides have been made to deliver on the recommendations of the Transportation Master Plan and staff are continuing to develop new policies and programs to serve the transportation needs of all Greater Sudbury residents.

Staff completed a preliminary analysis of past vehicle traffic volumes along M.R. 80, Notre Dame Avenue and Cote Boulevard and have identified that the area indicated on Figure 3 can be reconfigured from the existing four lane cross section to a three lane cross section. The reconfiguration of these roadways would include a two-way centre left turn lane, one general purpose vehicle travel lane in each direction and on-road bike lanes on both sides of the street. Public consultation will be held to gather feedback from the area residents regarding the



proposed road diet prior to staff giving their recommendation and it being added to part of the planned capital work.

The average daily traffic volume on these roadways range between 7,500 and 10,500 vehicles per day. A three lane cross section will be sufficient to handle these traffic volumes. As a comparison, these traffic volumes are similar to those of other two and three lane roadways within the city such as Bancroft Drive, College Street, and Elm Street.

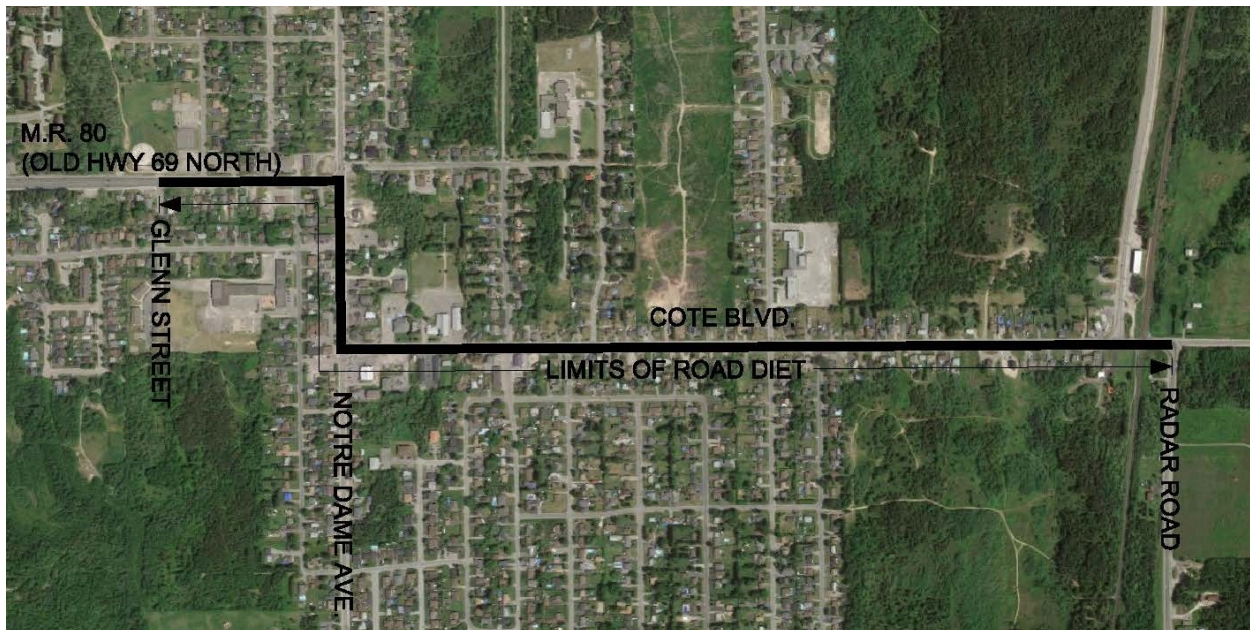


Figure 3 – Limits of Road Diet

Figure 4 below illustrates the conceptual traffic lane configuration along M.R. 80, Notre Dame Avenue and Cote Boulevard.

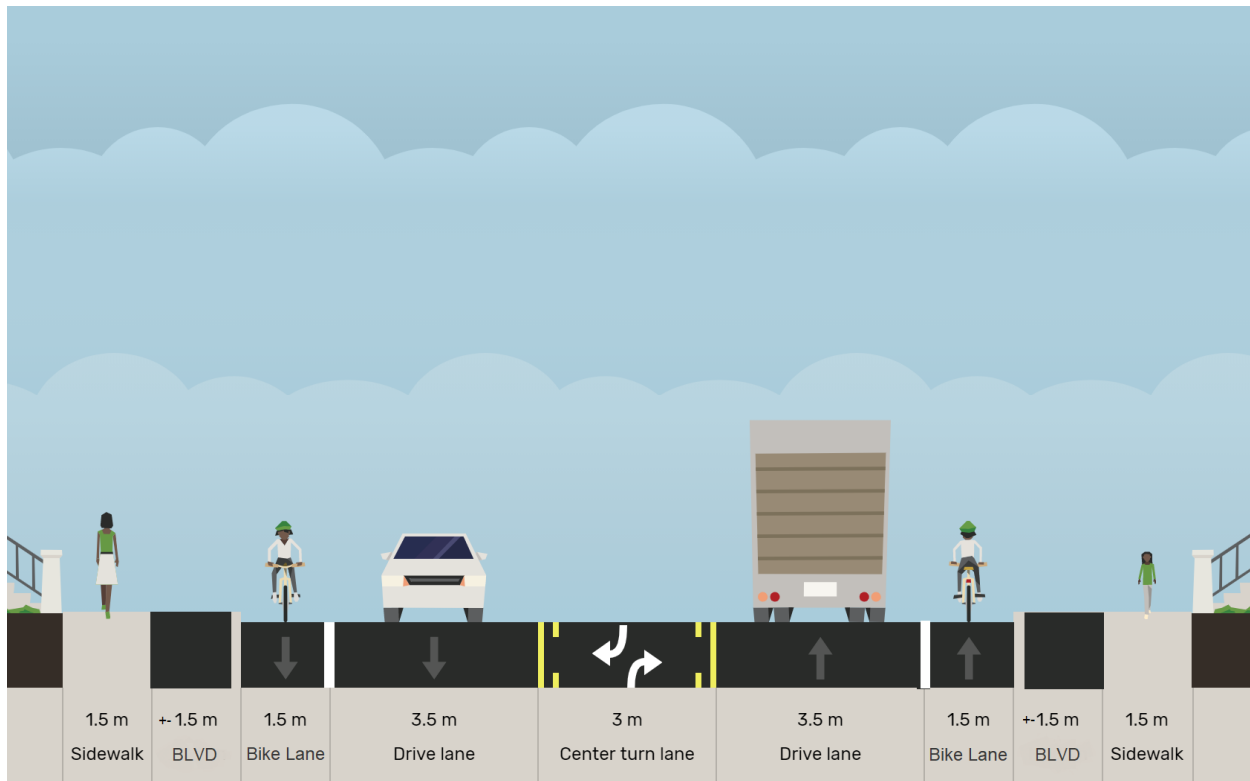


Figure 4 – Conceptual Cross Section

In addition to the construction of the new sidewalk on the south side of M.R. 80 between Glenn Street and Notre Dame Avenue, the addition of cycling infrastructure in this area will provide new opportunities for area residents to participate in active transportation.

It is also recommended as part of the upgrade to traffic signal control, that the right turn channels be removed at both intersections. The removal of the right turn channels will reduce the operating speeds of vehicles traveling through this area and have positive impact on safety for vulnerable road users.

### Next Steps:

Based on the review completed by staff in conjunction with the consultant, staff recommend that as part of the upcoming road rehabilitation project, traffic signals be installed at the intersections of M.R. 80 at Notre Dame Avenue and Notre Dame Avenue at Cote Boulevard control and that the right turn channels also be removed. Staff will also complete public consultation regarding the proposed implementation of a road diet on M.R. 80, Notre Dame Avenue, and Cote Boulevard which will reduce the number of general purpose travel lanes to a single lane in each direction, a two-way continuous centre left turn lane and on-road bike lanes on both sides of the



roadway. Staff will return to the committee with a report at a future date prior to the end of the third quarter outlining the results of the public consultation and the recommended lane configuration. Staff will also work with transit staff if the proposed roadway improvements have sufficiently reduced the safety concerns that lead to the removal of the school crossing guards.

## **Resources Cited:**

City of Greater Sudbury, *Complete Streets Policy 2018*, Accessed online:  
<https://www.greatersudbury.ca/live/transportation-parking-and-roads/complete-streets/>

City of Greater Sudbury, Crossing Guard Location Review, June 2020, Accessed online:  
<https://agendasonline.greatersudbury.ca/index.cfm?pg=agenda&action=navigator&id=1499&itemid=18455&lang=en>

City of Greater Sudbury, *Transportation Master Plan 2016*, Accessed online:  
<http://www.greatersudbury.ca/living/roads/draft-transportation-master-plan1/>