

Request for Decision

All-Way Stop Control - (1) Whittaker Street at Isabel Street, Sudbury (2) Irving Street at Clemow Avenue, Sudbury (3) Gold Street at Zinc Street, Sudbury (4) Moonrock Avenue at Arnold Street, Sudbury (5) Niemi Road at Sugarbush Drive, Lively (6) Morin Avenue at King Street, Sudbury

Presented To: Operations Committee

Presented: Monday, Jan 20, 2014

Report Date Wednesday, Jan 08, 2014

Type: Managers' Reports

Recommendation

THAT the City of Greater Sudbury maintain the current traffic control at the intersections of Whittaker Street at Isabel Street, Irving Street at Clemow Avenue, Gold Street at Zinc Street, Moonrock Avenue at Arnold Street, Niemi Road at Sugarbush Drive and Morin Avenue at King Street, all in accordance with the report from the General Manager of Infrastructure Services, dated January 8, 2014.

Background

All-way stops are often requested by residents in response to concerns on their street such as vehicle speeding, traffic volume and safety for pedestrians, children and cyclists. Road authorities take guidance from the Ontario Traffic Manual when determining when and where to install stop signs. "The purpose of the Ontario Traffic Manual (OTM) is to provide information and guidance for transportation practitioners and to promote uniformity of treatment in the design, application and operation of traffic control devices and systems across Ontario. The objective is safe driving behaviour, achieved by a predictable roadway environment through the consistent, appropriate application of traffic control devices. Further purposes of the OTM are to provide a set of guidelines consistent with the intent of the Highway Traffic Act and to provide a basis for road authorities to generate or update their own guidelines and standards".

The City has adopted a revised warrant for the installation of all-way stop signs, which reduces the thresholds required to meet the requirements for all-way stop approval. The reduced warrant does not change the purpose of a stop sign. "The purpose of the stop sign is to clearly assign the right-of-way between vehicles approaching an intersection from different directions when traffic signals are not warranted or not yet installed and it has been determined that a yield sign is inadequate". All-way stops

Signed By

Report Prepared By

Dave Kivi
Co-ordinator of Transportation & Traffic
Engineering Services
Digitally Signed Jan 8, 14

Division Review

David Shelsted
Director of Roads & Transportation
Services
Digitally Signed Jan 8, 14

Recommended by the Department

Tony Cecutti
General Manager of Infrastructure
Services
Digitally Signed Jan 8, 14

Recommended by the C.A.O.

Doug Nadorozny
Chief Administrative Officer
Digitally Signed Jan 8, 14

should only be installed at busy intersections of two relatively equal roadways having similar traffic volumes. The unwarranted installation of an all-way stop will increase fuel consumption, vehicle emissions and noise.

As approved for study by the Operations Committee, staff has reviewed the need for all-way stops at the following intersections:

(1) Whittaker Street at Isabel Street, Sudbury

City staff was directed at the May 2013 Operations Committee meeting “to investigate the intersection of Isabel and Whittaker Streets for a possible four-way stop”.

Whittaker Street at Isabel Street is a cross intersection located west of Regent Street within Ward 1 (see Exhibit ‘A’). Currently this intersection is controlled with “Stop” signs facing eastbound and westbound traffic on Isabel Street. Whittaker Street is designated as a local road.

Applying the data from the turning movement count that was conducted on September 17, 2013, to the City’s new Minimum Volume Warrant indicates that the total vehicle volume meets only 33 percent of the minimum volume requirements (see Exhibit ‘B’). There were a total of 44 pedestrians who crossed Whittaker Street during the four peak hours.

A review of the City’s collision information from October 2010 to October 2013 revealed that there was one collision that may be susceptible to relief through an all-way stop during this three year period. For a Local roadway, the Collision Warrant requires a minimum of two collisions per year over a three year period.

In addition, the southbound grade on Whittaker Street is relatively steep at 6 percent. The installation of an all-way stop may create a hazard and operational issues. Stop bars were painted at the existing stop signs on Isabel Street to highlight the need to stop.

Based on the traffic volumes, pedestrian volume, southbound grade on Whittaker Street and collision history, staff does not recommend installing an all-way stop at the intersection of Whittaker Street at Isabel Street.

(2) Irving Street at Clemow Street, Sudbury

The Operations Committee requested that City staff review whether an all-way stop was warranted at the intersection of Irving Street and Clemow Street to address safety concerns raised by an area resident.

Irving Street at Clemow Street is a cross intersection located north of Lorne Street in the community of Gatchell within Ward 1 (see Exhibit ‘C’). Currently this intersection is controlled with “Stop” signs facing northbound and southbound traffic from Clemow Avenue. Irving Street is designated as local road.

Applying the data from the turning movement count that was conducted on October 1, 2013 to the City’s new Minimum Volume Warrant indicates that the total vehicle volume from all approaches meets only 39 percent of the minimum volume requirements (see Exhibit ‘D’). There were a total of 20 pedestrians who crossed Irving Street during the four peak hours.

A review of the City’s collision information from October 2010 to October 2013 revealed that there were two collisions that may be susceptible to relief through an all-way stop during this three year period. For a Local roadway, the Collision Warrant requires a minimum of two collisions per year over a three year period. An analysis of the collision information revealed that in both collisions, vehicles travelling in both directions of

Clemow Avenue failed to stop at the stop sign and struck a vehicle already within the intersection. Staff issued a work order to have stop bars painted and stop ahead signs installed in both directions. These measures should help make drivers aware of an upcoming stop sign and should help reduce the frequency of drivers failing to stop at the stop signs.

Based on the traffic volumes, pedestrian volume and collision history, staff does not recommend installing an all-way stop at the intersection of Irving Street at Clemow Avenue.

(3) Gold Street at Zinc Street, Sudbury

The Operations Committee has requested that City staff review whether an all-way stop was warranted at the intersection of Gold Street at Zinc Street to address safety concerns raised by an area resident.

Gold Street at Zinc Street is a “T” intersection located east of Copper Street within Ward 1 (see Exhibit ‘E’). Currently this intersection is controlled with a “stop” sign facing eastbound traffic on Zinc Street.

Applying the data from the turning movement count that was conducted on October 1, 2013 to the City’s new Minimum Volume Warrant indicates that the total vehicle volume from all approaches meets only 34 percent of the volume requirements (see Exhibit ‘F’). There were a total of eight pedestrians who crossed Gold Street and ten who crossed Zinc Street during the four peak hours.

A review of the City’s collision data from October 2010 to October 2013 revealed there were no collisions in the three year period. For a Local roadway, the Collision Warrant requires a minimum of two collisions per year over a three year period.

The area resident expressed concerns with northbound vehicles on Gold Street making left hand turns into the oncoming lane of traffic on Zinc Street. An all-way stop is not recommended to try and correct this common type of poor driving behavior. Instead, staff recommends having a white stop bar and a yellow center line painted on the Zinc Street approach to define the centre of the road.

Based on the traffic volumes, pedestrian volume and collision history, staff does not recommend installing an all-way stop at the intersection of Gold Street and Zinc Street.

(4) Moonrock Avenue at Arnold Street, Sudbury

The Operations Committee has requested that City staff review whether an all-way stop was warranted at the intersection of Moonrock Avenue at Arnold Street.

Moonrock Avenue at Arnold Street is a cross intersection located one block west of Telstar Avenue within Ward 1 (see Exhibit ‘G’). Currently this intersection is controlled with a “stop” sign facing eastbound and westbound traffic on Moonrock Avenue.

Applying the data from the turning movement count that was conducted on October 2, 2013 to the City’s new Minimum Volume Warrant indicates that the total vehicle volume from all approaches meets only 25 percent of the volume requirements (see Exhibit ‘H’). There were a total of 22 pedestrians who crossed Arnold Street during the four peak hours. This intersection was also reviewed for an all-way stop in March 2011. At the time, the total vehicle volume from all approaches met only 16 percent of the volume requirements.

A review of the City's collision data from October 2010 to October 2013 revealed there were no collisions in the three year period. For a Local roadway, the Collision Warrant requires a minimum of two collisions per year over a three year period.

Based on the traffic volumes, pedestrian volume and collision history, staff does not recommend installing an all-way stop at the intersection of Moonrock Avenue at Arnold Street.

(5) Niemi Road at Sugarbush Drive, Lively

The City received a petition from residents of Niemi Road and Sugarbush Drive requesting an all-way stop be installed at the intersection of Niemi Road and Sugarbush Drive as an additional measure for traffic calming (see Exhibit "I").

Niemi Road at Sugarbush Drive is a "T" intersection located west of Municipal Road 24 within Ward 2 (see Exhibit 'J'). Currently this intersection is controlled with a "Stop" sign facing southbound traffic on Sugarbush Drive. Also, as part of the reconstruction of Niemi Road, traffic calming features were installed. These include, edge lines, a raised median island and two radar speed signs.

Applying the data from the turning movement count that was conducted on August 15, 2013 to the City's new Minimum Volume Warrant indicates that the total vehicle volume from all approaches meets only 25 percent of the volume required for an all-way stop. The vehicle and pedestrian volume from Sugarbush Drive is only 13 percent of the minimum requirements (see Exhibit 'K'). Also, there was only one pedestrian who crossed Niemi Road during the four peak hours.

A review of the City's collision data from October 2010 to October 2013 revealed there were no collisions in the three year period. For a Minor Collector roadway, the Collision Warrant requires a minimum of three collisions per year over a three year period.

Based on the traffic volumes, pedestrian volume and collision history, staff does not recommend installing an all-way stop at the intersection of Niemi Road and Sugarbush Drive.

(6) Morin Avenue at King Street, Sudbury

The City received a letter from Sudbury Better Beginnings Better Futures requesting an all-way stop be installed at the intersection of Morin Avenue and King Street as a method to slow down traffic on Morin Avenue (see Exhibit "L").

Morin Avenue at King Street is a "T" intersection located west of Notre Dame Avenue within Ward 12 (see Exhibit 'M'). Currently this intersection is controlled with a "Stop" sign facing westbound traffic on King Street. Morin Avenue is designated as a minor collector road for the purpose of the all-way stop warrant.

Applying the data from the turning movement count that was conducted on June 29, 2011 to the City's new Minimum Volume Warrant indicates that the total vehicle volume from all approaches meets only 62 percent of the volume requirements and while the vehicle and pedestrian volume from King Street meets only 26 percent of the volume requirements (see Exhibit 'N'). There were a total of 12 pedestrian who crossed Morin Avenue during the four peak hours.

A review of the City's collision data from October 2010 to October 2013 revealed there was one collision that may be susceptible to relief through an all-way stop during this three year period. For a Minor Collector

roadway, the Collision Warrant requires a minimum of three collisions per year over a three year period.

Based on the traffic volumes, pedestrian volume and collision history, staff does not recommend installing an all-way stop at the intersection of Morin Avenue and King Street.

Morin Avenue was also reviewed under the City's Traffic Calming Policy in 2011. It has qualified for traffic calming and currently ranks 13th on priority list.

EXHIBIT A

All-way Stop Control
Whittaker Street at Isabel Street
2013-12-19

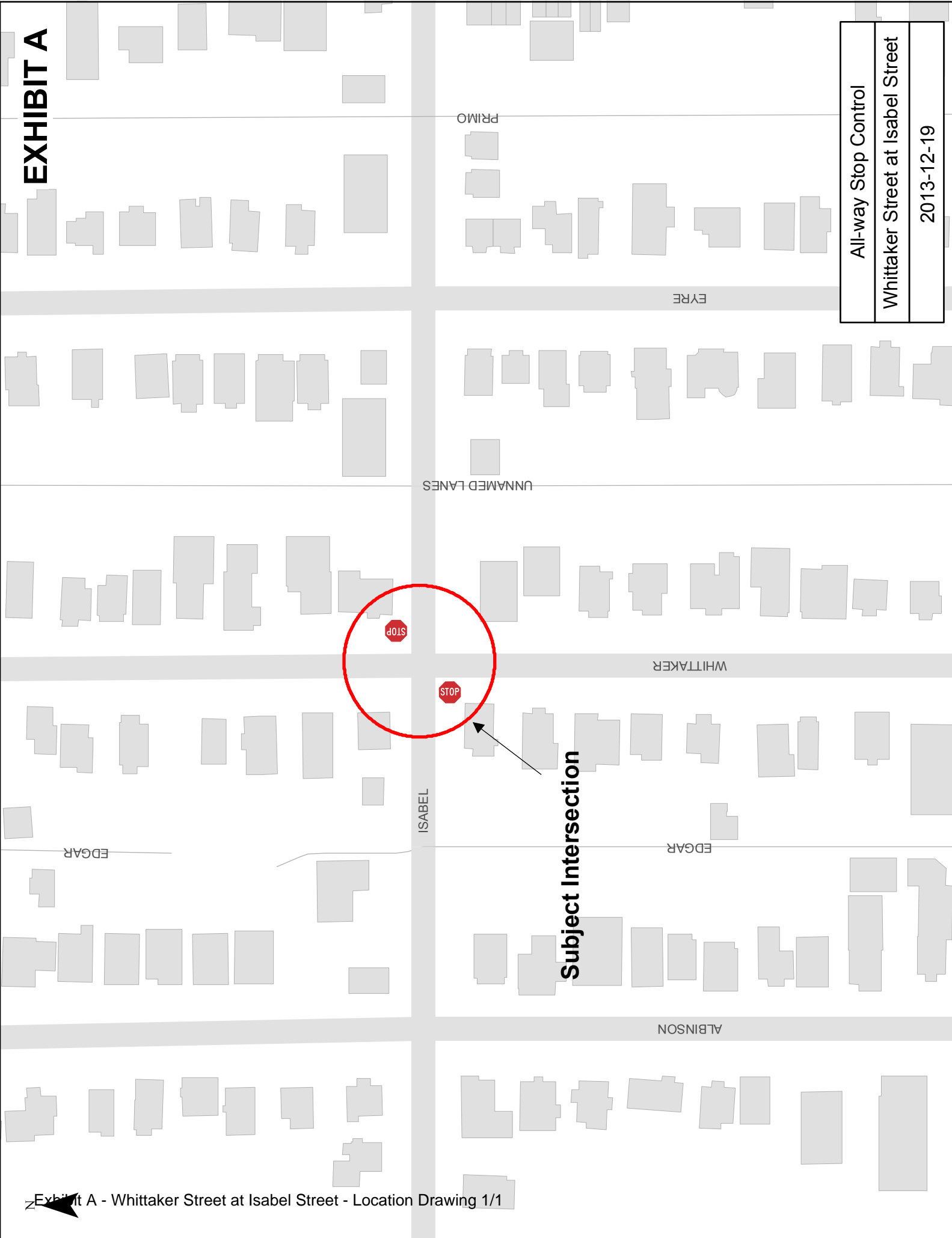




EXHIBIT: B

CITY OF GREATER SUDBURY ALL-WAY STOP WARRANTS

Location: Whittaker Street at Isabel Street Date: December 4, 2013
 Date of TM Count: September 17, 2013 Analyst: JR
 Type of Intersection: Cross
 Roadway Type: Local
 AADT of Main Road: 500

All-Way Stop Warrant Summary

Warrant #1	Minimum Vehicle Volume	33	%
Warrant #2	Collision History	17	%
Warrant #3	Traffic Control Signals	No	Y/N

All-Way Stop Warranted? **No** Y/N

Warrant #1 - Minimum Vehicle Volume

Roadway Type	Arterial/Major Collector	Minor Collector	Local	Vehicles per hour	Percent Compliance
AADT	> 5000	1000 - 5000	< 1000		
Count Period	7 hours	4 peak hours	4 peak hours		
Total vehicle volume from all approaches is ≥	500/hr	350/hr	250/hr	83	33%
Veh + Pedestrian volume from side street is ≥	200/hr	140/hr	N/A	N/A	N/A
Traffic Split	70/30	70/30	70/30	64/36	100%

Warrant #2 - Collision History

Roadway Type	Arterial/Major Collector	Minor Collector	Local	Total Number of Collisions	Percent Compliance
Total Collisions over a 3 year period	12*	9*	6*	1	17%

Warrant #3 **Traffic Control Signals are warranted and urgently needed, signs to be used as interim measures.** **No** Y/N

* Only those collisions susceptible to relief through multi-way stop control must be consider (i.e. right angle and turning types).

- If the intersection meets warrant # 1, then the all-way stop is recommended regardless of the remaining warrants.
- If the intersection does not meet warrant #1 and does not meet warrant #2, then the all-way stop is not recommended.
- If the intersection does not meet warrant #1 and does meet warrant #2, then the all-way stop is recommended.

EXHIBIT C

BULMER

UNNAMED LANES

IRVING

UNNAMED LANES

GUTCHER

CLEMOW

UNNAMED LANES

MORRISON

Subject Intersection

All-way Stop Control

Irving Street at Clemow Street

2013-12-19

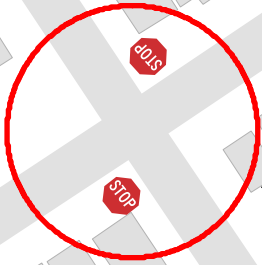


EXHIBIT: D



CITY OF GREATER SUDBURY ALL-WAY STOP WARRANTS

Location: Irving Street at Clemow Avenue Date: December 4, 2013
 Date of TM Count: October 1, 2013 Analyst: RP
 Type of Intersection: Cross
 Roadway Type: Local
 AADT of Main Road: 500

All-Way Stop Warrant Summary

Warrant #1	Minimum Vehicle Volume	<table border="1"><tr><td>39</td><td>%</td></tr></table>	39	%
39	%			
Warrant #2	Collision History	<table border="1"><tr><td>33</td><td>%</td></tr></table>	33	%
33	%			
Warrant #3	Traffic Control Signals	<table border="1"><tr><td>No</td><td>Y/N</td></tr></table>	No	Y/N
No	Y/N			

All-Way Stop Warranted?

No	Y/N
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Warrant #1 - Minimum Vehicle Volume

Roadway Type	Arterial/Major Collector	Minor Collector	Local	Vehicles per hour	Percent Compliance
AADT	> 5000	1000 - 5000	< 1000		
Count Period	7 hours	4 peak hours	4 peak hours		
Total vehicle volume from all approaches is ≥	500/hr	350/hr	250/hr	97	39%
Veh + Pedestrian volume from side street is ≥	200/hr	140/hr	N/A	42	N/A
Traffic Split	70/30	70/30	70/30	60/40	100%

Warrant #2 - Collision History

Roadway Type	Arterial/Major Collector	Minor Collector	Local	Total Number of Collisions	Percent Compliance
Total Collisions over a 3 year period	12*	9*	6*	2	33%

Warrant #3 **Traffic Control Signals are warranted and urgently needed, signs to be used as interim measures.**

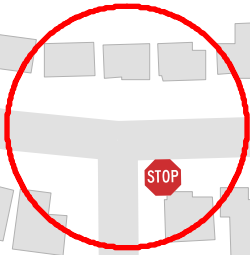
No	Y/N
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* Only those collisions susceptible to relief through multi-way stop control must be consider (i.e. right angle and turning types).

- If the intersection meets warrant # 1, then the all-way stop is recommended regardless of the remaining warrants.
- If the intersection does not meet warrant #1 and does not meet warrant #2, then the all-way stop is not recommended.
- If the intersection does not meet warrant #1 and does meet warrant #2, then the all-way stop is recommended.

EXHIBIT E

Subject Intersection



All-way Stop Control
Gold Street at Zinc Street
2013-12-19

EXHIBIT: F



CITY OF GREATER SUDBURY ALL-WAY STOP WARRANTS

Location: Gold Street at Zinc Street Date: December 4, 2013
 Date of TM Count: October 1, 2013 Analyst: RP
 Type of Intersection: T Intersection
 Roadway Type: Local
 AADT of Main Road: 500

All-Way Stop Warrant Summary

Warrant #1	Minimum Vehicle Volume	<table border="1"><tr><td>34</td><td>%</td></tr></table>	34	%
34	%			
Warrant #2	Collision History	<table border="1"><tr><td>0</td><td>%</td></tr></table>	0	%
0	%			
Warrant #3	Traffic Control Signals	<table border="1"><tr><td>No</td><td>Y/N</td></tr></table>	No	Y/N
No	Y/N			

All-Way Stop Warranted?

No	Y/N
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Warrant #1 - Minimum Vehicle Volume

Roadway Type	Arterial/Major Collector	Minor Collector	Local	Vehicles per hour	Percent Compliance
AADT	> 5000	1000 - 5000	< 1000		
Count Period	7 hours	4 peak hours	4 peak hours		
Total vehicle volume from all approaches is ≥	500/hr	350/hr	250/hr	85	34%
Veh + Pedestrian volume from side street is ≥	200/hr	140/hr	N/A	39	N/A
Traffic Split	70/30	70/30	70/30	58/42	100%

Warrant #2 - Collision History

Roadway Type	Arterial/Major Collector	Minor Collector	Local	Total Number of Collisions	Percent Compliance
Total Collisions over a 3 year period	12*	9*	6*	0	0%

Warrant #3 **Traffic Control Signals are warranted and urgently needed, signs to be used as interim measures.**

No	Y/N
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* Only those collisions susceptible to relief through multi-way stop control must be consider (i.e. right angle and turning types).

- If the intersection meets warrant # 1, then the all-way stop is recommended regardless of the remaining warrants.
- If the intersection does not meet warrant #1 and does not meet warrant #2, then the all-way stop is not recommended.
- If the intersection does not meet warrant #1 and does meet warrant #2, then the all-way stop is recommended.

EXHIBIT G

NEPTUNE

TELSTAR

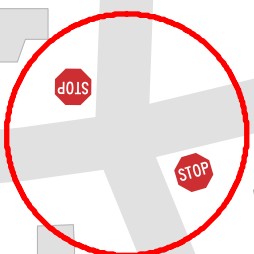
BRENDA

MOONROCK

ARNOLD

OBERON

SATURN



Subject Intersection

All-way Stop Control
Arnold Street at Moonrock Avenue
2013-12-19

EXHIBIT: H



CITY OF GREATER SUDBURY ALL-WAY STOP WARRANTS

Location: Moonrock Avenue at Arnold Street Date: December 4, 2013
 Date of TM Count: October 2, 2013 Analyst: RP
 Type of Intersection: Cross
 Roadway Type: Minor Collector
 AADT of Main Road: 1000

All-Way Stop Warrant Summary

Warrant #1	Minimum Vehicle Volume	<table border="1"><tr><td>25</td><td>%</td></tr></table>	25	%
25	%			
Warrant #2	Collision History	<table border="1"><tr><td>0</td><td>%</td></tr></table>	0	%
0	%			
Warrant #3	Traffic Control Signals	<table border="1"><tr><td>No</td><td>Y/N</td></tr></table>	No	Y/N
No	Y/N			

All-Way Stop Warranted?

No	Y/N
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Warrant #1 - Minimum Vehicle Volume

Roadway Type	Arterial/Major Collector	Minor Collector	Local	Vehicles per hour	Percent Compliance
AADT	> 5000	1000 - 5000	< 1000		
Count Period	7 hours	4 peak hours	4 peak hours		
Total vehicle volume from all approaches is ≥	500/hr	350/hr	250/hr	88	25%
Veh + Pedestrian volume from side street is ≥	200/hr	140/hr	N/A	41	29.3%
Traffic Split	70/30	70/30	70/30	63/37	100%

Warrant #2 - Collision History

Roadway Type	Arterial/Major Collector	Minor Collector	Local	Total Number of Collisions	Percent Compliance
Total Collisions over a 3 year period	12*	9*	6*	0	0%

Warrant #3 **Traffic Control Signals are warranted and urgently needed, signs to be used as interim measures.**

No	Y/N
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* Only those collisions susceptible to relief through multi-way stop control must be consider (i.e. right angle and turning types).

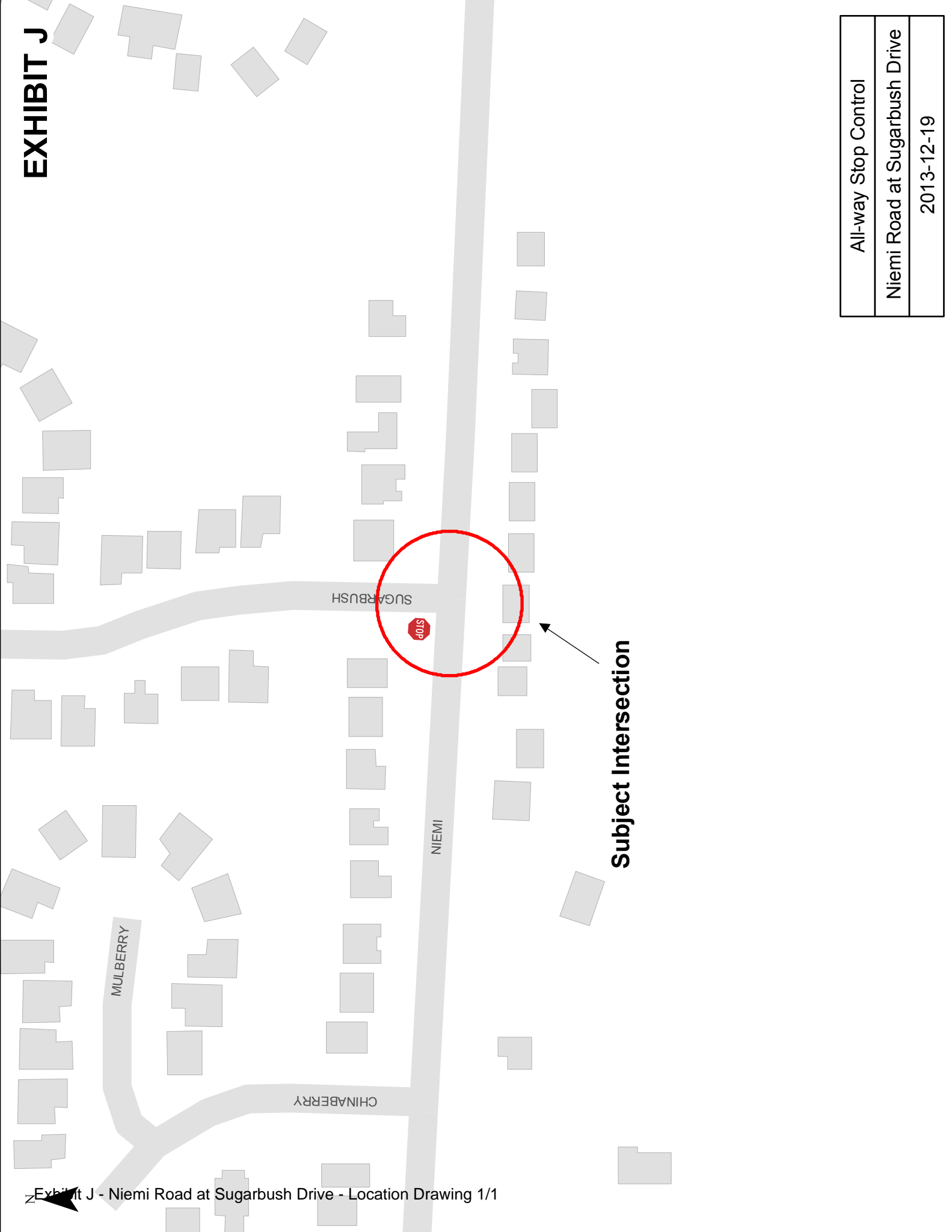
- If the intersection meets warrant # 1, then the all-way stop is recommended regardless of the remaining warrants.
- If the intersection does not meet warrant #1 and does not meet warrant #2, then the all-way stop is not recommended.
- If the intersection does not meet warrant #1 and does meet warrant #2, then the all-way stop is recommended.

EXHIBIT: I

On December 17, 2012 David Kalviainen, Roads Engineer of the City of Greater Sudbury and Jacques Barbeau, Councillor Ward 2, mailed a notice to residents of Niemi Road in Lively of potential traffic calming options including a median, 2 radar speed display signs, bike lanes/route over the new box culvert between house# 249-425. **We, the undersigned, subscribe to the opinion that additional traffic calming measures are required at the intersection of Niemi Road and Sugarbush Drive. With this in mind, we believe that an all-way stop sign must be posted at the above mentioned intersection (Niemi Road and Sugarbush Drive).** Although some might argue that all-way stops are not effective speed control devices distal to the signs, studies have shown that speed of motorists IS REDUCED within a close proximity to the signs. We argue that this section of Niemi Road is dangerous for the residents of this area and we contend that a 3-way stop sign is essential to slow traffic for the following 5 reasons: 1) this section of Niemi Road holds the only bus stop for elementary and secondary school children in the area, 2) there is reduced visibility when exiting Sugarbush Drive due to large cedar hedges adjacent to the road, 3) this area is densely inhabited with young families, 4) there has been numerous anecdotal accounts of motorists using excessive speed as they travel on this section of Niemi Road, and 5) a 3-way stop sign is feasible.

THE ORIGINAL PETITION WAS SIGNED BY FIVE (5) RESIDENTS.

EXHIBIT J



All-way Stop Control
Niemi Road at Sugarbush Drive
2013-12-19

Subject Intersection



EXHIBIT: K

CITY OF GREATER SUDBURY ALL-WAY STOP WARRANTS

Location:	<u>Niemi Road at Sugarbush Drive</u>	Date:	<u>December 04, 2013</u>
Date of TM Count:	<u>August 15, 2013</u>	Analyst:	<u>JR</u>
Type of Intersection:	<u>T</u>		
Roadway Type	<u>Minor Collector</u>		
AADT of Main Road:	<u>1000</u>		

All-Way Stop Warrant Summary

Warrant #1	Minimum Vehicle Volume	13	%
Warrant #2	Collision History	0	%
Warrant #3	Traffic Control Signals	No	Y/N

All-Way Stop Warranted? **No** Y/N

Warrant #1 - Minimum Vehicle Volume

Roadway Type	Arterial/Major Collector	Minor Collector	Local	Vehicles per hour	Percent Compliance
AADT	> 5000	1000 - 5000	< 1000		
Count Period	7 hours	4 peak hours	4 peak hours		
Total vehicle volume from all approaches is ≥	500/hr	350/hr	250/hr	87	25%
Veh + Pedestrian volume from side street is ≥	200/hr	140/hr	N/A	18	13%
Traffic Split	70/30	70/30	70/30	80/20	67%

Warrant #2 - Collision History

Roadway Type	Arterial/Major Collector	Minor Collector	Local	Number of Collisions per year	Percent Compliance
Collisions per Year over 3 year period	4*	3*	2*	0	0.0%

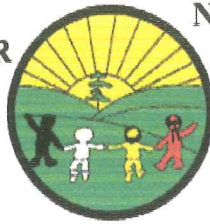
Warrant #3	Traffic Control Signals are warranted and urgently needed, signs to be used as interim measures.	No	Y/N
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* Only those collisions susceptible to relief through multi-way stop control must be consider (i.e. right angle and turning types).

- If the intersection meets warrant # 1, then the all-way stop is recommended regardless of the remaining warrants.
- If the intersection does not meet warrant #1 and does not meet warrant #2, then the all-way stop is not recommended.
- If the intersection does not meet warrant #1 and does meet warrant #2, then the all-way stop is recommended.

SUDBURY BETTER BEGINNINGS BETTER FUTURES

**PARTIR D'UN BON PAS
POUR UN AVENIR MEILLEUR**



**NISHIN AAGI MAAGITANG WII
NIIGAN BEMAADIZIDWIINA**

Dave Kivi
Coordinator of Transportation and Traffic Engineering Services
City of Greater Sudbury
1800 Frobisher Street
PO Box 5000, Stn A
Sudbury, ON P3A 5P3

May 12th, 2011


Dear Dave Kivi,

I would like to address the dangers that have been arising near the Better Beginnings Better Futures Community Centre by irresponsible drivers that drive along Morin Avenue, especially the corner of King Street and Morin Avenue. Within our immediate area, we have St-Joseph School, a Day Care within this school, Better Beginnings Better Futures Community Centre in which we have a wide variety of children's programs, O'Connor Park which accommodates an Afterschool Program and families who use the park recreationally.

To help you understand the traffic on these two streets, there is the to and from of speeding vehicles, despite the signage of 40km/hr, in which overgrown trees cover this sign, vehicles failing to stop despite buses upper red lights flashing and, the pedestrian traffic of children, families and employees that use these various establishments in our immediate neighbourhood. We also have buses that come from other schools to our centre to drop off other children from other neighbourhoods, either in front of our building or at the corner of King Street and Morin Avenue. Also, Morin Avenue is utilized as a short cut that links the West End to Notre-Dame Avenue which increases traffic.

This creates an increased risk to our children who live, learn and play in our neighbourhood and there have been many near misses, especially when children are being dropped off from buses despite their upper red flashing signals or when crossing the street. We are responsible for our children's health and safety and we would like your support where it concerns traffic calming measures to take place on these specific city streets. We would like to have a three way stop imposed at these specific streets preferable with a flashing red light. This may slow down traffic. I ask that you consider these solutions that would calm traffic in our neighbourhood. Thank you for your prompt attention in this matter.

I remain,


Johanne Thompson
Program Manager
Better Beginnings Better Futures

Greater Sudbury
Roads/Transportation

MAY 30 2011

Director's Office

EXHIBIT M

DELL

BOVIN

BRUCE

ST GEORGE

ST LAWRENCE

TEDMAN

MELVIN

KEHOE

UNNAMED LANES

KING

ETHEL

UNNAMED LANES

UNNAMED LANES

BRUYERE

STOP

MORIN

Subject Intersection

Sudbury Better Beginnings
Better Futures

All-way Stop Control

Morin Avenue at King Street

2013-12-19

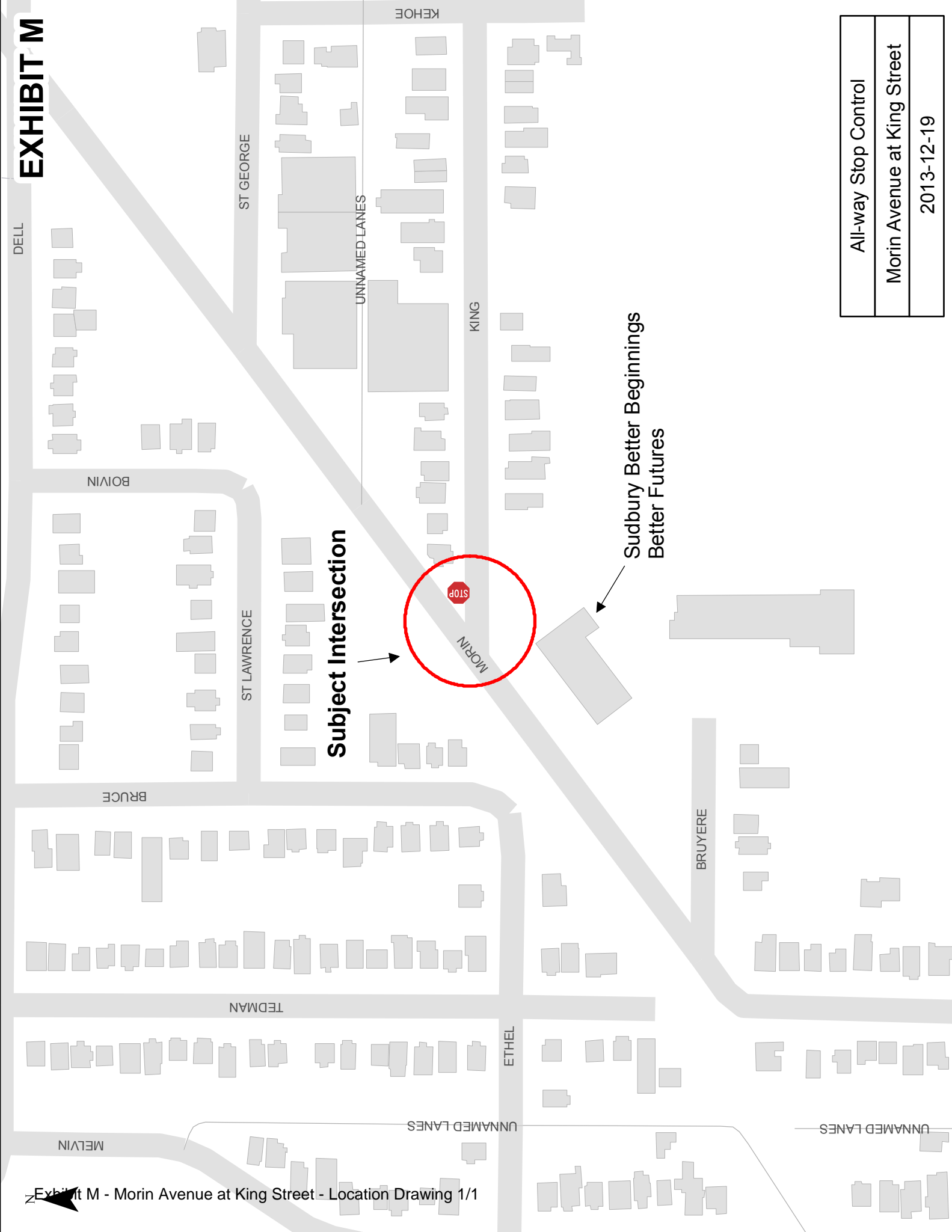


EXHIBIT: N



CITY OF GREATER SUDBURY ALL-WAY STOP WARRANTS

Location: Morin Avenue at King Street Date: September 12, 2011
 Date of TM Count: Wednesday, June 29, 2011 Analyst: JR
 Type of Intersection: T
 Roadway Type: Minor Collector
 AADT of Main Road: 2700

All-Way Stop Warrant Summary

Warrant #1	Minimum Vehicle Volume	26	%
Warrant #2	Collision History	0	%
Warrant #3	Traffic Control Signals	No	Y/N

All-Way Stop Warranted? **No** Y/N

Warrant #1 - Minimum Vehicle Volume

Roadway Type	Arterial/Major Collector	Minor Collector	Local	Vehicles per hour	Percent Compliance
AADT	> 5000	1000 - 5000	< 1000		
Count Period	7 hours	4 peak hours	4 peak hours		
Total vehicle volume from all approaches is ≥	500/hr	350/hr	250/hr	215	61%
Veh + Pedestrian volume from side street is ≥	200/hr	140/hr	N/A	36	26%
Traffic Split	70/30	70/30	70/30	83/17	57%

Warrant #2 - Collision History

Roadway Type	Arterial/Major Collector	Minor Collector	Local	Number of Collisions per year	Percent Compliance
Collisions per Year over 3 year period	4*	3*	2*	0	0%

Warrant #3 **Traffic Control Signals are warranted and urgently needed, signs to be used as interim measures.** **No** Y/N

* Only those collisions susceptible to relief through multi-way stop control must be consider (i.e. right angle and turning types).

- If the intersection meets warrant # 1, then the all-way stop is recommended regardless of the remaining warrants.
- If the intersection does not meet warrant #1 and does not meet warrant #2, then the all-way stop is not recommended.
- If the intersection does not meet warrant #1 and does meet warrant #2, then the all-way stop is recommended.