Appendix N

Traffic Impact Assessment

City of Sault Ste. Marie

Sault Ste. Marie Solid Waste Environmental Assessment
Traffic Impact Assessment
FINAL

Prepared by:

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Project Number:

60117627

Date:

March, 2020

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March 20, 2020

Ms. Catherine Taddo, P. Eng.
Engineering Department
City of Sault Ste. Marie
99 Foster Drive, 5th Floor
Sault Ste. Marie, ON P6A 5N1

Dear Ms. Taddo:

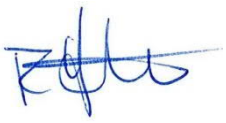
Project No: **60117627**

Regarding: **Sault Ste. Marie Solid Waste Environmental Assessment**
Traffic Impact Assessment

We are pleased to submit our FINAL Traffic Impact Assessment Report which has been prepared to support a proposed expansion of the existing municipal landfill located on Fifth Line.

The traffic impact assessment examines and evaluates the potential impacts on transportation infrastructure/networks associated with the landfill expansion.

Sincerely,
AECOM Canada Ltd.



Rick Talvitie, P. Eng.
Manager, Northern Ontario

RT:nm

Encl.

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Revision Log

Revision #	Revised By	Date	Issue / Revision Description
0	Rick Talvitie	May 4, 2015	DRAFT for City staff review
1	Rick Talvitie	October 5, 2015	Revised DRAFT
2	Rick Talvitie	December 8, 2015	Revised DRAFT
3	Rick Talvitie	March 20, 2020	FINAL Report

AECOM Signatures

Report Prepared By:

Rick Talvitie, P. Eng.
Manager, Northern Ontario

Report Reviewed By:

Darrell Maahs, C. Tech.
Project Manager

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Appendices

1. Introduction

This document presents the findings of the traffic impact assessment as part of the Environmental Assessment (EA) of the proposed expansion of the City of Sault Ste. Marie's landfill located on Fifth Line. The proposed project includes an expansion of the disposal boundaries to the north and west. Landfill mining is also proposed within the western portion of the existing disposal footprint to facilitate the construction of a liner to enhance environmental management at the site. The mining process involves excavation of waste within the existing disposal footprint, removing fines and recyclables, transferring the residual waste to a new lined cell and lining the mined area to accommodate future waste disposal. The City has owned and successfully operated this site for 30+ years and the proposed expansion incorporates operational and site development enhancements to further build on the historical success. The planned expansion will be accommodated within existing City-owned lands.

The traffic impact assessment examines and evaluates the potential for impacts on transportation infrastructure/networks associated with the landfill expansion. The assessment was completed with consideration of existing and historical traffic volumes, projected traffic growth related to future landfill operations, traffic growth related to landfill site development activities and the most recent update to the City's Transportation Master Plan. The potential disruption effect on local residents and businesses is evaluated as part of the socio-economic assessment.

Following on from this introductory section the report takes on the following format:

- Description of the study area and potentially affected transportation network;
- Historical and projected future traffic operations;
- Evaluation of potential transportation network/infrastructure impacts;
- Proposed Mitigation; and
- Net Effects and Monitoring.

2. Description of the Study Area and Potentially Affected Transportation Network

For the purposes of the detailed impact assessment, the "on-site study area" is defined as lands within the preferred landfill footprint (existing and expansion areas).

The "site vicinity study area" extends along Fifth Line to Old Goulais Bay Road to the west and Highway 17 north to the east. The site vicinity study area includes the Fifth Line intersections with Highway 17 north and Old Goulais Bay Road.

In addition, historical traffic volumes have been characterized outside of the site vicinity study area to provide an understanding of the area surrounding the landfill site.

2.1 Transportation Network within the Site Vicinity Study Area

Access to the municipal landfill site is provided via Fifth Line, an east-west traffic corridor near the City's northern Municipal boundary with intersections at Old Goulais Bay Road and Highway 17 North. Fifth Line is a Class B truck route and classified as a local road. It provides limited mobility as a thoroughfare as it terminates at a "T-intersection" to the west of the landfill at Old Goulais Bay Road. Old Goulais Bay Road, to the north of Fifth Line, dead ends and transitions to a trail some 1.6 km north of Fifth Line. In addition to the landfill site, Fifth Line also services area residents along Fifth Line and Old Goulais Bay Road, several local businesses, KOA campground and

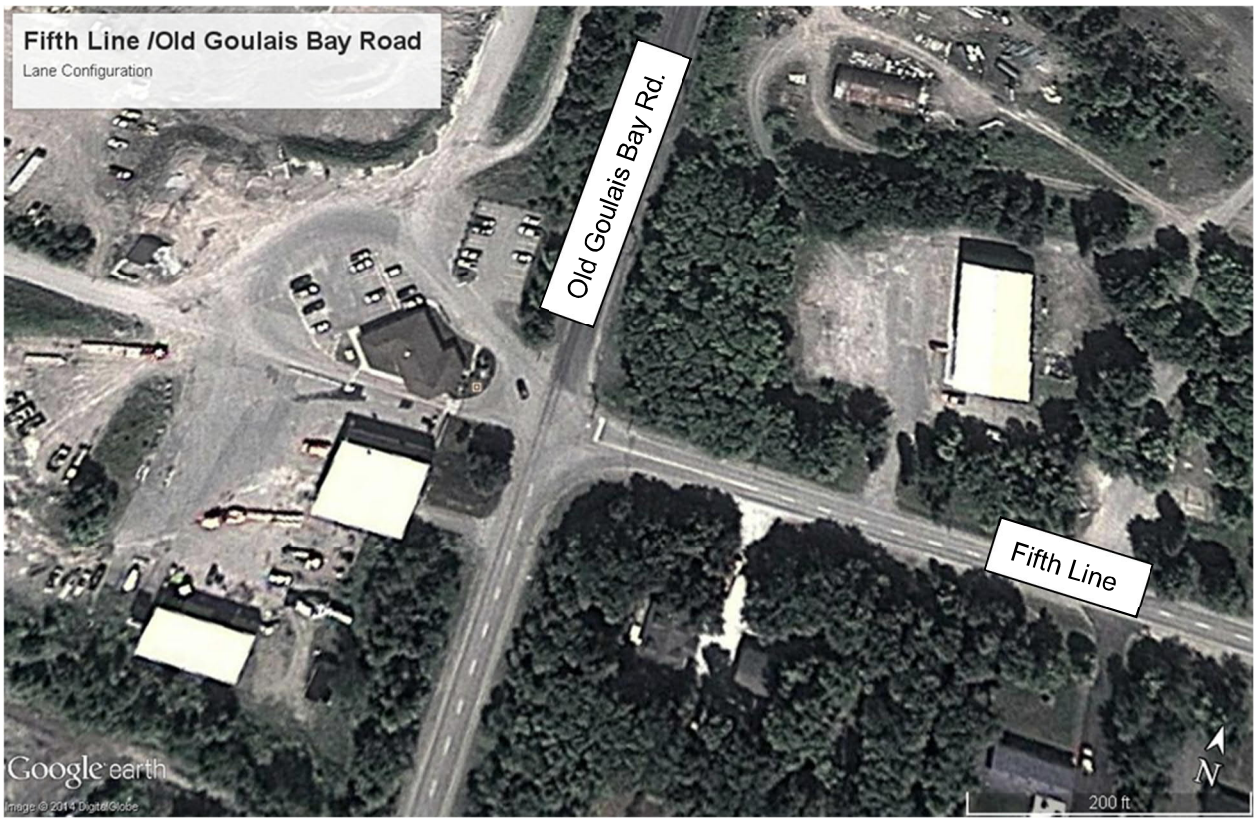
it is an important truck route for Contractor's yards and aggregate extraction operations in the Fifth Line/Old Goulais Bay Road area. The image below highlights the transportation corridors in the vicinity of the landfill.

Both intersections in the site vicinity study area operate with free flow in the north-south direction and stop control along Fifth Line. The lane configurations at each intersection are summarized in Table 1 and illustrated in the images following Table 1.

Table 1. Site Vicinity Study Area Intersection Configurations

Location	North Approach	South Approach	West Approach	East Approach
Fifth Line/ Highway 17N	One through lane southbound, two through lanes northbound plus dedicated left and right turn lanes	One through lane southbound, two through lanes northbound plus dedicated left and right turn lanes	One through lane in each direction (Note: although not specifically painted there is adequate space at the stop block to accommodate a right turning vehicle and a left turning or through vehicle)	One through lane in each direction.
Fifth Line/Old Goulais Bay Road	One through lane in each direction.	One through lane in each direction.	N/A	One through lane in each direction.


Fifth Line /Highway 17N
Lane Configuration
Highway 17 North
Fifth Line
Google earth
Image © 2014 DigitalGlobe
© 2014 Google
N
300 ft


Fifth Line /Old Goulais Bay Road
Lane Configuration
Old Goulais Bay Rd.
Fifth Line
Google earth
Image © 2014 DigitalGlobe
N
200 ft

3. Historical and Projected Future Traffic Operations

Within each of the following subsections we have characterized the historical and projected future traffic operations within and beyond the site vicinity study area.

3.1 Posted Speeds and Road Geometrics

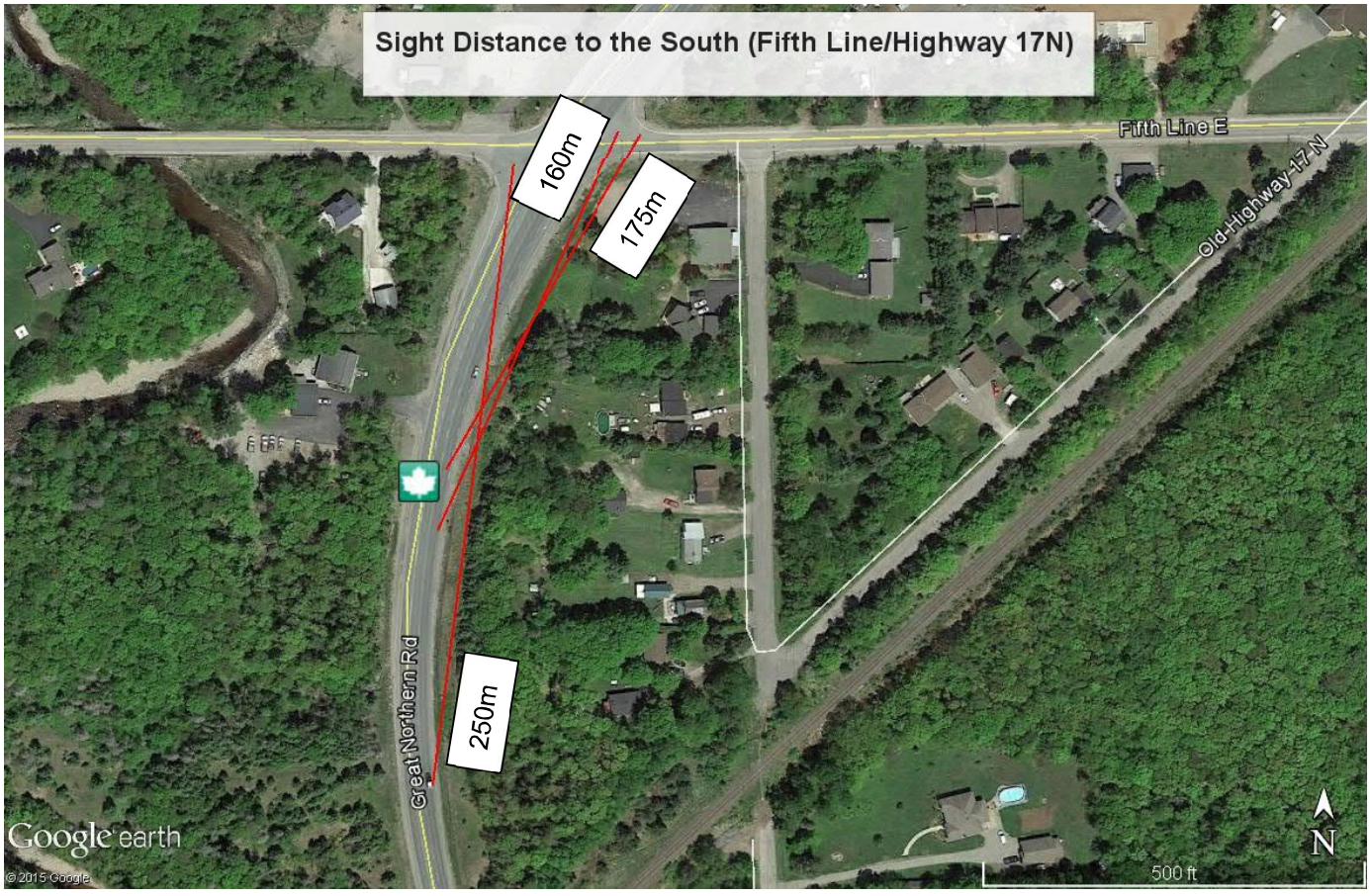
The posted speeds on Old Goulais Bay Road, Fifth Line and Highway 17 in the site vicinity study area are 50 km/h, 60km/h and 70 km/h respectively. The speed limit on Highway 17 on the approaches to Fifth Line was reduced from 80 km/h to 70 km/h in the spring of 2018 specifically to enhance intersection safety and to address comments received from area residents during the conduct of this EA.

The grades on Old Goulais Bay Road and Fifth Line are modest and generally flat on the approaches to the Old Goulais Bay Road/Fifth Line intersection. Fifth Line road grades generally remain flat with modest grades from Old Goulais Bay Road easterly to east of the landfill entrance. Fifth Line dips to cross over the Root River between the landfill entrance and Highway 17. The maximum road grades to the west and east of Root River are in the range of 6% and 8% respectively. The Fifth Line horizontal alignment is tangential throughout its length from Old Goulais Bay Road to Highway 17.

The Highway 17 grades on the approaches to Fifth Line are modest at approximately 3% and fall from north to south. In addition the Fifth Line west approach grade immediately adjacent to Highway 17 is 4% which matches the Highway super elevation. Residents in the area have reported that there have been a number of near misses at the Highway 17/Fifth Line intersection which they believe may be attributable to vehicle speeds and the Highway 17 alignment which consists of a 400m radius curve on the approaches to and through the intersection area.

The estimated available sight distances from the west approach and looking to the north and south are in the range of 380m and 250m respectively. The sight distances from the east approach are more constrained and are approximately 170m and 160m looking to the north and south respectively. The stop block is however set back on the east approach and vehicles typically proceed ahead of the stop block prior to initiating departures from the intersection. The sight distances are somewhat enhanced from a position ahead of the stop block and are in the range of 225m and 175m to the north and south respectively. These sight distances are shown graphically in the following images.


Sight Distance to the North (Fifth Line/Highway 17N)
380m
225m
170m
Fifth Line E
Google earth
© 2015 Google
400 ft
N


Sight Distance to the South (Fifth Line/Highway 17N)
160m
175m
250m
Fifth Line E
Old Highway 17 N
Great Northern Rd
Google earth
© 2015 Google
500 ft
N

3.2 Historical Traffic Volumes

The “local” road classification is reflected in the historical traffic volumes presented in Table 2. The Fifth Line traffic volumes have historically been in the range of 900 to 2,300 vpd. Peak hourly two way traffic volumes have slightly exceeded 200 vph.

Table 2. Fifth Line Historical Traffic Counts

Location	2020	2014	2009	2002	1998
Between Landfill and Highway 17 N	981 to 1010 over 2 days Avg. = 996	831 to 1515 over 6 days Avg. = 1212	N/A	1816	2039
Between Landfill and old Goulais Bay Rd	889 to 925 over 2 days Avg. = 907	799 to 1370 over 6 days Avg. = 1066	2302	N/A	1368

Data obtained from the City of Sault Ste. Marie 15 Year Historical Traffic Counts

An eight hour intersection traffic count was completed at the Fifth Line/Highway 17 intersection on Tuesday September 15, 2015 (refer to Appendix A for details). The hourly two way traffic volumes on Fifth Line west of Highway 17 ranged from 111 to 137 vph. During the same period the number of hourly left turns from Highway 17 to Fifth Line ranged from 18 to 41 vph and the right turns from Fifth Line to Highway 17 ranged from 24 to 49 vph (ie. very similar to the left turn movements from Highway 17 to Fifth Line). Other turning movements to and from Highway 17 were much less significant as the majority of vehicle trips are to and from the City center located to the south.

For comparison purposes and to demonstrate the consistency over time, an eight hour intersection count was also completed on Wednesday October 28,1998 (refer to Appendix A for details). The hourly two way traffic volumes on Fifth Line west of Highway 17 ranged from 118 to 171 vph. During the same period the number of hourly left turns from Highway 17 to Fifth Line ranged from 32 to 61 vph and the right turns from Fifth Line to Highway 17 ranged from 33 to 63 vph (ie. once again virtually the same as the left turn movements from Highway 17 to Fifth Line). The volumes in 1998 were moderately higher relative to the volumes presented in the preceding paragraph for 2015 which is consistent with the AADT’s presented in Table 2.

We have also included in Appendix A, historical counts on some of the area roadways outside of the site vicinity study area to provide some context on the use of the area transportation corridors. There has been no meaningful change in the traffic volumes from 2015 to 2020 and the data presented herein remains relevant.

3.3 Accident History

The accident history within the site vicinity study area is summarized in Table 3 for the period spanning from January 1, 2008 to March 30, 2013 (ie. 5 ¼ years) and from January 1, 2015 to December 31, 2019 (ie. 5 years). A comparison of the more recent 5 year period to the prior 5 year period suggests the accident rate has remained stable historically.

Table 3. Accident History in Site Vicinity Study Area

Location	2015-2019 Total Number of Accidents	2008-2013 Total Number of Accidents	Average Annual Accident Rate
Fifth Line/Highway 17 N intersection	13	11	2.3
Fifth Line (Fifth Line to Old Goulais Bay Road)	0	1	0.1
Fifth Line/Old Goulais Bay Road intersection	1	3	0.4

3.4 Pedestrian and Cyclists

There is anecdotal evidence of modest pedestrian/cyclist traffic along this route. A total of zero and seven pedestrian crossings were recorded during the Fifth Line/Highway 17 N eight hour intersection traffic counts undertaken in 2015 and 1998 respectively. Pedestrians are currently accommodated on shoulders adjacent to the roadway and cyclists are either accommodated within the travel lane or along the partially paved shoulders.

The accommodation of pedestrians along shoulders is consistent with the City's approach along other rural road corridors in the City and in this instance the traffic volumes are modest relative to other traffic corridors with a similar road cross section. For example, Fourth Line has a similar road cross section but accommodates two to three times the traffic volumes that are present on Fifth Line in the site vicinity study area (refer to Appendix A).

Furthermore, there are no identified cycling destinations within the site vicinity study area and Fifth Line is not identified as a significant cycling corridor (ie. Part of Hub Trail or spoke route) within the 2007 Cycling Master Plan Update.

3.5 Projected Traffic Volumes

Based on the values presented in Table 2, historical traffic volumes have remained stable at relatively low volumes for an extended period of time. Future increases in traffic on Fifth Line associated with the proposed landfill expansion will generally be limited to additional site visits as the City's population increases over time and construction related traffic associated with future site development activities.

No significant increase in traffic is anticipated with land development in the vicinity of the site. The City has developed mapping illustrating potential residential and Industrial, Commercial & Institutional (IC&I) growth areas over the next 20 years and no potential development sites have been identified in the vicinity of the landfill site.

The City has also recently completed an update to their Transportation Master Plan. There are no references to any significant changes in traffic patterns/volumes in the site vicinity study area nor are there any specific upgrades or improvements referenced for the Fifth Line corridor within the site vicinity study area.

Traffic Growth as Population Increases

Population projections have been developed in conjunction with the Environmental Assessment process. The projections include consideration of previous work completed by or on behalf of the City's Planning Division. The projections are reproduced below.

Table 4.Service Area (City of Sault Ste. Marie, Prince Township, and Rankin Reserve) Population Projections

	2006	2011	2016	2021	2026	2031	2036	2041	2046	2048
Sault Ste. Marie	74948[1]	75140[1]	73368[1]	74527[2]	75686[2]	79931[2]	83270[2]	85969[3]	88755[3]	89895[3]
Prince Township	971[1]	1031[1]	1010[1]	1021[4]	1032[4]	1043[4]	1054[4]	1065[4]	1076[4]	1081[4]
Rankin Reserve	566[1]	623[5]	662[5]	722[5]	883[5]	894[4]	905[4]	916[4]	927[4]	931[4]
Total (Service Area)	76485	76794	75040	76270	77601	81868	85229	87950	90758	91907

Notes: *1. Census Data.*

2. The City of Sault Ste. Marie Population, Housing and Employment Projections – Commercial and Industrial Land Needs Analysis Report – September 2018 .

3. Extrapolated from The City of Sault Ste. Marie Population, Housing and Employment Projections – Commercial and Industrial Land Needs Analysis Report – September 2018 .

4. Estimated 1 new household per year with an occupancy of 2.2 persons.

5. Provided by Batchewana First Nations.

Based on these projections, it is anticipated that the population within the service area could increase to 91,907 by 2048.

Based on the landfill weigh scale records for the period from 2015 to 2019 inclusive the estimated average annual number of trips to the site is in the range of 58,300 to 66,200 with an average of 62,100 over the 5 year period. This translates into an AADT of approximately 450 vpd.

Assuming that the number of visits to the site will grow in proportion to the population increases there may be in the order of 100 additional vpd on Fifth Line by 2048. This represents a modest overall increase in traffic in the range of approximately 4% relative to the highest recorded AADT in Table 2.

Construction Traffic Attributable to Site Development Activities

In addition to an increase in customers visiting the site, there are a total of eight development sequences for the proposed expansion which will require construction activity. Typically the construction activity will be undertaken in the spring through fall periods and the level of construction traffic accessing the site will vary considerably during this period. It is anticipated that the activity that will generate the most traffic to and from the site will be the delivery of granular materials for the cell liner construction. The maximum estimated rate of deliveries is five round trips per hour over an 8 hour period. This may increase the AADT in the range of 80 vpd. The impact may be reduced if existing trucks that currently haul granular materials from nearby aggregate extraction operations are routed to the landfill site in lieu of other projects.

4. Evaluation of Potential Transportation Network/Infrastructure Impacts

4.1 Corridor Capacity

With the relatively low historical traffic volumes on Fifth Line coupled with the modest projected increase in traffic (ie. in the range of 200 vpd), the existing traffic corridors serving the landfill site have adequate capacity to service the existing and future vehicular traffic demands. A standard two lane roadway can typically accommodate AADT volumes in the range of 15,000. In this case, the projected traffic volumes are expected to remain below 3,000 vpd along Fifth Line. No significant impacts are anticipated.

4.2 Intersection Operations

Design Standards for Provincial highways include guidelines to assess the need for supplementary turn lanes at intersections. The Highway 17/Fifth Line intersection already includes both left and right turn lanes on the Highway 17 approaches and no additional lanes are warranted. The most significant movement on the west approach to the Fifth Line/Highway 17 intersection is a right turn which represents approximately 70% of the movements from this approach. The maximum historic and projected future right turning movements from Fifth Line to Highway 17 are in the range of 60-70 vph which can be accommodated with the current lane configuration.

The intersections within the site vicinity study area are operating effectively with acceptable levels of service. No significant impacts are anticipated with the projected modest increased traffic volumes.

4.3 Road Structure Integrity

Fifth Line was last upgraded in 1990 and its condition is typically assessed bi-annually by the City. Based on the most recent assessment, Fifth Line is classified as Category B which suggests a timeline of 6 to 10 years for rehabilitation or reconstruction. The roadway has been designed to accommodate heavy truck traffic and includes 80 mm of asphalt.

No significant impacts are anticipated to the road structure integrity as a result of the modest increase in traffic volumes that will be routed along Fifth Line to access the expanded landfill site.

4.4 Road Geometrics

The existing posted speeds and road geometrics within the site vicinity study area were summarized in Section 3.1 of this report. The Highway 17/Fifth Line intersection was highlighted as a potential area of concern based on near misses observed by area residents. At the time that comments were received from area residents the posted speed on Highway 17 at this location was 80 km/h. However, in May 2018 City Council approved a reduction in the posted speed from 80 km/h to 70 km/h on the approaches to the Fifth Line intersection. This action was taken to address concerns voiced by area residents and to enhance intersection safety.

Although the historical accident rate within the site vicinity does not specifically highlight a significant problem it was considered prudent to review the existing horizontal and vertical road geometrics on the approaches to this intersection relative to design guidelines to assist in assessing the severity of the potential problem or perceived problem.

For the purposes of establishing relevant design criteria for Highway 17, a design speed of 80km/h (i.e. 10km/h over the posted speed) was selected and the Geometric Design Standards for Ontario Highways ("GDSOH") was referenced to obtain suitable design criteria.

Table C3-2 of the GDSOH prescribes minimum radii for curves on roads based on design speed. The minimum radius identified for a 80km/h design speed is 250m. The existing 400m radius exceeds the minimum requirement. In addition the GDSOH also prescribes maximum road grades based on road type and design speed. Table C4-1 suggests maximum grades should not exceed 6-8% for Highway 17 and 6-12% for Fifth Line. The existing Highway 17 and Fifth Line grades on the approaches to the intersection are within these guideline values.

In addition to reviewing the existing road geometrics relative to the design guidelines, consideration was also given to sight distances to the north and south from Fifth Line.

A sightline assessment was conducted based on the GDSOH. The required Stopping Sight Distance was calculated for Highway 17vehicles approaching the intersection. Furthermore, the vehicles stopped at the STOP sign on Fifth Line should have adequate time to cross or to complete a turning movement onto Highway 17 without significantly interfering with the through traffic stream on the Highway. Therefore, the required Crossing Sight Distance and Turning Sight Distance were also assessed.

Subsequently, the desired sight distances were compared with the available sight distances to evaluate the adequacy of available sightlines at the intersection. **Table 5** presents the GDSOH desirable sight distances and compares them to the available sight distances.

Table 5. Desirable and Available Sight Distances

Description	Desirable Sight Distance (m)	Available Sight Distance (m) West Approach		Available Sight Distance (m) East Approach	
		To the North	To the South	To the North	To the South
Stopping sight distance	135	380	250	170 225 (from ahead of stop block)	160 175 (from ahead of stop block)
Crossing sight distance	220 for passenger car 270 for single unit truck	380	250	170 225 (from ahead of stop block)	160 175 (from ahead of stop block)
Turning (left-turn across Highway traffic approaching from the north)	180 for passenger car	380	250	170 225 (from ahead of stop block)	160 175 (from ahead of stop block)
Turning (left-turn accelerating in front of Highway traffic approaching from the south)	270 for passenger car (allows turning vehicle to attain same operating speed without being overtaken)	380	250	170 225 (from ahead of stop block)	160 175 (from ahead of stop block)
Turning (right-turn accelerating in front of Highway traffic approaching from the north)	270 for passenger car (allows turning vehicle to attain same operating speed without being overtaken)	380	250	170 225 (from ahead of stop block)	160 175 (from ahead of stop block)

The minimum required stopping sight distance is available along the Highway from both Fifth Line approaches. However, the crossing and turning sight distances are less than desirable for most approaches. Mitigation strategies are included in Section 5 of this report.

4.5 Accidents

The average annual number of accidents within the site vicinity study area is modest (i.e. 3 accidents per year within the entire site vicinity study area). Although the City is working to develop a specific accident rate threshold that can

be used to identify high risk traffic corridors or intersections, the Fifth Line corridor within the site vicinity study area is not considered high risk in comparison to accident rates experienced elsewhere in the community. Furthermore, despite the low incidence of accidents the City proactively reduced the speed limit along Highway 17 on the approaches to Fifth Line from 80 km/h to 70 km/h to enhance safety and address the “near misses” reported by area residents.

Based on the foregoing there are no specific traffic safety concerns within the site vicinity study area. Furthermore, with the projected modest growth in traffic associated with construction activities and increased site visits the accident rate is not expected to be significantly impacted. No significant impacts are anticipated.

4.6 Pedestrians and Cyclists

Fifth Line currently provides access to a number of aggregate extraction operations and Contractors yards in addition to the landfill site. Truck traffic represents a significant proportion of the total traffic within this corridor (ie. estimated to be in the range of 30-40%). The projected modest increase in truck traffic coupled with the modest increase in passenger car traffic is not anticipated to have a significant impact on pedestrian and cyclist safety and mobility relative to current conditions.

5. Proposed Mitigation

The proposed landfill expansion is not expected to have any significant impacts on the transportation infrastructure/networks.

Near misses have been observed by area residents at the Highway 17/Fifth Line intersection. A review of the road geometrics on the approaches to this intersection indicates that the geometrics are aligned with relevant design guidelines and minimum stopping sight distance is available along the Highway to the north and the south. However the desirable crossing and turning sight distances which would allow crossing and turning movements to be completed without significantly interfering with the through movements along the Highway are less than desirable for most approaches.

The following mitigation measures have already been implemented or are proposed to further mitigate the less than desirable sight distance:

- Reduce the posted speed limit from 80 km/h to 70 km/h along Highway 17 on the approaches to the Fifth Line intersection (implemented).
- Complete clearing within the right-of-way to the full extent possible to maximize sight lines (implemented and ongoing as needed);
- Remove or relocate signage that may be obstructing sight lines (implemented);
- Maintain or enhance the existing flashing amber lights (triggered by vehicles at the Fifth Line stop blocks) and the reduce speed signage on the north and south approaches to the intersection (implemented);
- Maintain existing truck and bus prohibited straight through and left turn movements from the Fifth Line approaches (implemented);
- Complete a detailed review of the intersection to assess the existing mitigation and identify possible signage enhancements prior to initiating the expansion (to be completed).

In addition to the foregoing the City will also consider improvements to geometrics on the north and south approaches to this intersection in conjunction with the next capital improvement project along this stretch of Highway.

Monitoring is also proposed to ensure the predicted effects are not exceeded. The monitoring activities are included in Section 6.

6. Net Effects and Monitoring

A thorough assessment of potential impacts on the transportation network was completed considering both existing and anticipated future vehicular, pedestrian and cyclist activity. Although there are no adverse net effects anticipated a monitoring program has been developed to identify potential impacts that were not foreseen and could develop in the future.

Traffic volumes and accident rates will continue to be monitored periodically by the City over time. Counts will be undertaken once every five years and more frequently if a need or problem arises. The counts will include volume counts on Fifth Line to the east and west of the landfill entrance and will also include an 8 hour intersection traffic count if the Fifth Line counts reflect meaningful changes. These counts will be reviewed in conjunction with the accident rates within the site vicinity study area to assess and confirm the adequacy of the basic lane and intersection configurations and controls relative to the standards of the day.

The road structure and riding surface will continue to be assessed by the City every two years±. Based on the most recent assessment consideration will be given to rehabilitating or reconstructing the road within a 6 to 10 year timeframe.

The existing partially paved shoulders are used to accommodate pedestrian activity in the site vicinity study area and are consistent with other similar road corridors in the City. Although limited if any pedestrian/cyclist impacts are anticipated along Fifth Line as a result of the proposed expansion, the City will consider the need for alternative or enhanced means of accommodating pedestrians and cyclists in conjunction with future upgrades within this corridor (eg. wider and possibly fully paved shoulders).

The City will review the need for clearing activities in the vicinity of the Fifth Line/Highway 17 intersection on an as needed basis to ensure sight lines are maintained.

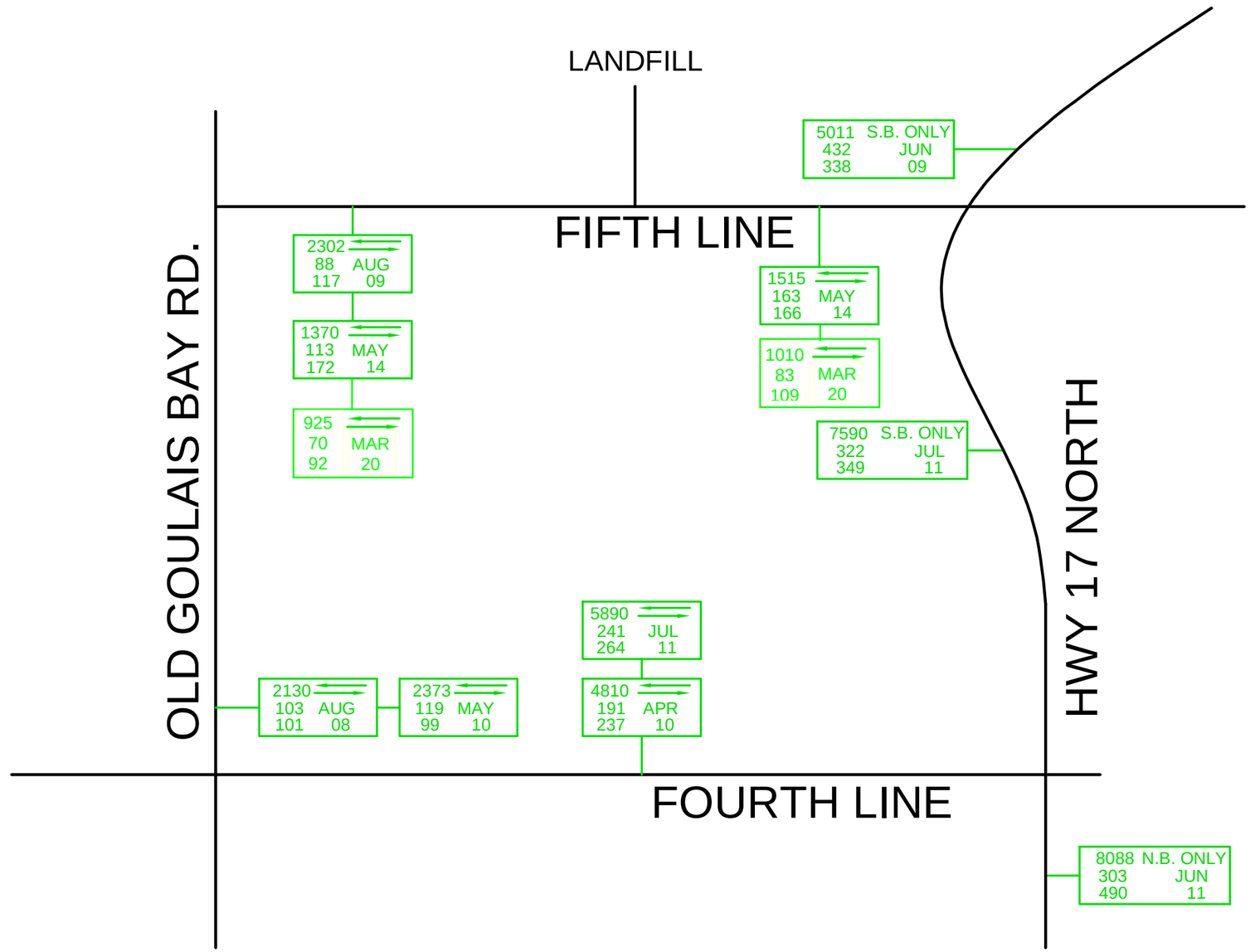
The proposed monitoring plan is summarized in Table 6.

Table 6. Monitoring Plan

Description	Frequency
Conduct 24 hour traffic counts over a period of several days along Fifth Line to the east and west of the landfill entrance and confirm adequacy of the lane configuration.	5 years
Conduct 8 hour intersection traffic count at the Fifth Line/Hwy 17N intersection to confirm adequacy of the level of service, lane configuration and intersection controls.	As needed based on changes in the Fifth Line traffic volumes
Review 5 year accident history and identify high risk road segments or intersections.	5 years
Continue to complete road condition assessments and schedule maintenance/repairs/upgrades in accordance with the City's Road Management Plan.	In accordance with Road Management guidelines
Monitor vegetation within the right-of-way at the Fifth Line/Highway 17 intersection to maintain maximum sight lines.	As required.

Appendix A

Historical Counts in the Study Area



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P6A2M4 T705.942.2612 F705.942.3642

LEGEND

AADT
A.M. PEAK JUNE
P.M. PEAK 11

— LANES IN COUNT
— DATE OF COUNT (MONTH & YEAR)

TRAFFIC IMPACT ASSESSMENT

HISTORICAL TRAFFIC COUNTS
IN THE STUDY AREA

Project 60117627
Mar 2020

Figure 1

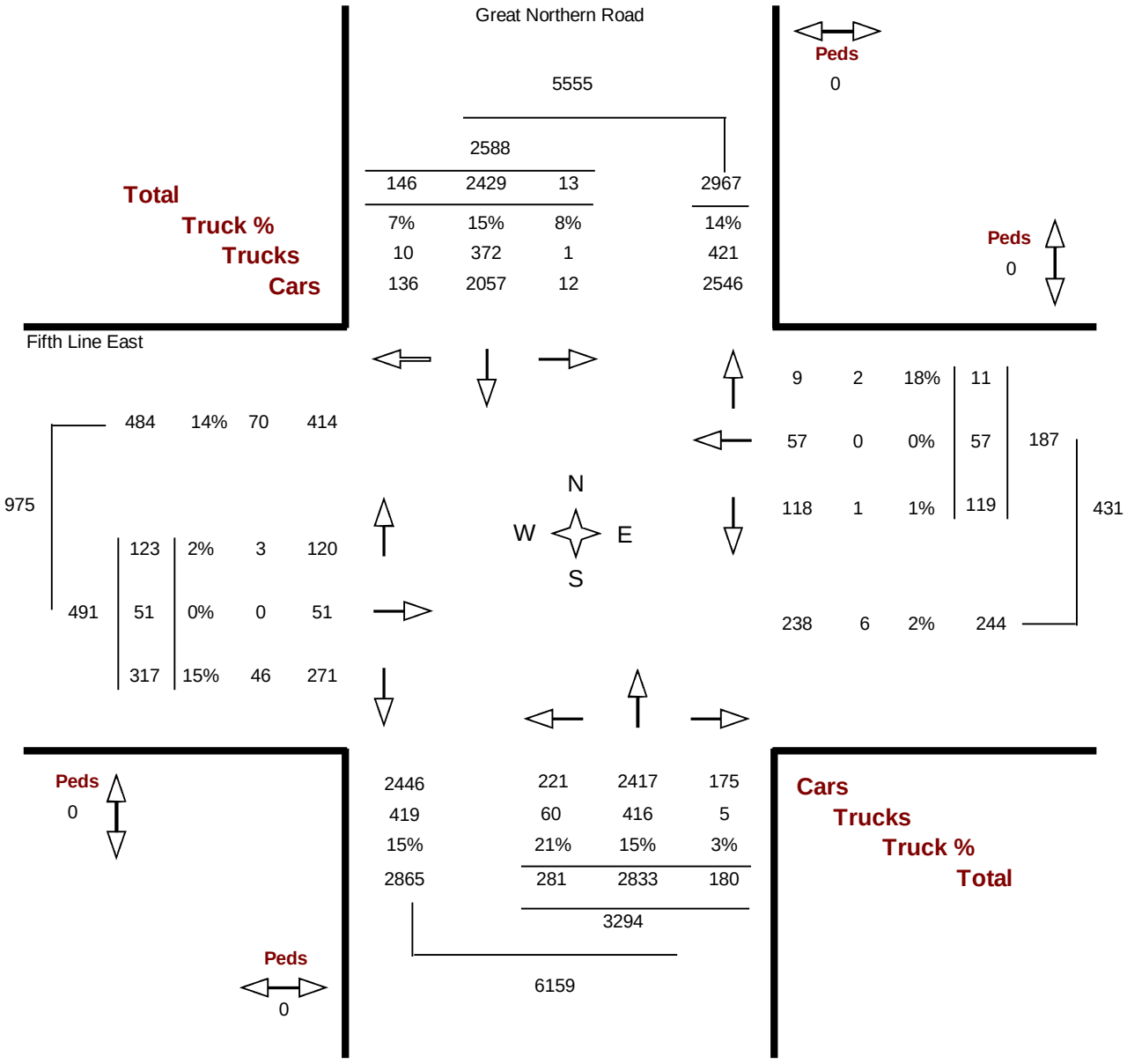
Turning Movements Count - Full Study Report

Location..... Fifth Line East @ Great Northern Road

Municipality..... Sault Ste. Marie

GeoID..... 9604

Count Date..... Tuesday, 15 September, 2015



Corporation of the City of Sault Ste. Marie
Public Works & Transportation
128 Sackville Road
Traffic Division

File Name : 98FifthLine-Gt.Northern
Site Code : 00000000
Start Date : 10/28/1998
Page No : 1

Groups Printed- Cars - Trucks - HvyTrucks&Buses

	Gt.Northern Rd From North					Fifth Line E. From East					Gt.Northern Rd From South					Fifth Line E. From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	22	339	1	0	362	0	4	8	0	12	5	153	46	0	204	33	0	14	0	47	625
08:00 AM	19	354	0	1	374	0	3	16	0	19	10	158	32	0	200	42	0	22	0	64	657
11:00 AM	20	229	3	0	252	1	2	12	1	16	12	229	50	0	291	38	6	13	0	57	616
12:00 PM	19	234	1	0	254	0	6	17	0	23	18	304	51	0	373	52	7	14	0	73	723
02:00 PM	27	253	0	0	280	2	9	10	0	21	16	273	43	0	332	53	8	10	0	71	704
03:00 PM	31	303	3	2	339	1	6	16	0	23	18	353	61	1	433	46	6	13	0	65	860
04:00 PM	17	281	3	1	302	3	4	19	0	26	31	424	60	0	515	63	7	20	0	90	933
05:00 PM	19	246	2	1	268	1	4	18	0	23	19	340	35	0	394	47	2	16	0	65	750
Grand Total	174	2239	13	5	2431	8	38	116	1	163	129	2234	378	1	2742	374	36	122	0	532	5868
Apprch %	7.2	92.1	0.5	0.2		4.9	23.3	71.2	0.6		4.7	81.5	13.8	0		70.3	6.8	22.9	0		
Total %	3	38.2	0.2	0.1	41.4	0.1	0.6	2	0	2.8	2.2	38.1	6.4	0	46.7	6.4	0.6	2.1	0	9.1	
Cars	148	1957	11	5	2121	8	36	101	1	146	116	1915	248	1	2280	250	31	95	0	376	4923
% Cars	85.1	87.4	84.6	100	87.2	100	94.7	87.1	100	89.6	89.9	85.7	65.6	100	83.2	66.8	86.1	77.9	0	70.7	83.9
Trucks	21	114	0	0	135	0	2	14	0	16	5	113	125	0	243	119	4	22	0	145	539
% Trucks	12.1	5.1	0	0	5.6	0	5.3	12.1	0	9.8	3.9	5.1	33.1	0	8.9	31.8	11.1	18	0	27.3	9.2
HvyTrucks&Buses	5	168	2	0	175	0	0	1	0	1	8	206	5	0	219	5	1	5	0	11	406
% HvyTrucks&Buses	2.9	7.5	15.4	0	7.2	0	0	0.9	0	0.6	6.2	9.2	1.3	0	8	1.3	2.8	4.1	0	2.1	6.9