



DIVISION SCOLAIRE
LOUIS RIEL
SCHOOL DIVISION

Safe Routes to School

Final Report



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ACKNOWLEDGEMENTS

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INTRODUCTION

Child pedestrians and bicyclists are the most vulnerable users of our transportation system.¹ In Manitoba, motor vehicle collisions are the leading cause of unintentional death and hospitalization for all Canadians and children age five to 19.² In Canada, about 10,000 children age 12 years and under are injured in traffic collisions and about 75 of these injured children die each year.³ The Louis Riel School Division (LRSD) is creating the Safe Routes to School Program in response to the issue of student safety.

In North America, there has been a rising interest in using Active Transportation to commute to work, school or shopping and it is likely to become a more common means of transportation to reduce carbon emission, noxious particulates and pollution from automobiles, improve people's physical fitness and an overall improvement in the quality of life⁴.

Children and youth deserve to feel safe in their neighbourhood and on their route to school, whether it be by walking, rolling or bicycling. Families, schools and communities are committed to the safe and efficient accommodation of vulnerable road users in their transportation infrastructure. Safe Routes to School Program will help to address safety concerns and make the environment safer for students walking and bicycling to school and beyond.

Research shows that educating children is only part of what needs to be done to reduce child pedestrian injuries. Improving road safety and enforcing policies and laws are equally necessary elements of an effective pedestrian safety initiative.⁵ Major progress could be achieved to reduce the number of child pedestrian injuries if child pedestrian safety is given high priority and proven measures are implemented.

PEDESTRIAN INJURIES

Over the past decade, there have been several changes in lifestyle, improvements in road safety and trauma care in Canada due to technological advancement, resulting in significant declines in deaths and injuries to pedestrians over the past decade. According to Transport Canada, deaths to pedestrians of all ages declined by 31% between 1991 and 2000 and non-fatal injuries decreased by 10%.⁴ Similar findings have been reported by Manitoba Public Insurance (MPI) in 2016 on the annual traffic collisions. The report presents annual statistics and historical trends related to traffic collisions. Some of the key highlights related to pedestrian injury can be found below.

¹ Tight, M., Timms, P., Banister, D., Bowmaker, J., Copas, J., Day, A., Drinkwater, D., Givoni, M., Guhnemann, A., Lawler, M., Macmillen, J., Miles, A., Moore, N., Newton, R., Ngoduy, D., Ormerod, M., O'Sullivan, M. & Watling, D. (2011). Visions for a Walking and Cycling Focussed Urban Transport System. *Journal of Transport Geography*, 19(6), 1580-1589.

² Health Canada. Canadian Injury Data: Leading Causes of Death and Hospitalization in Canada. Accessed September 15th, 2004 at www.hc-sc.gc.ca/pphb-dgsp/infirmary/injury-bles

³ <http://www.gov.mb.ca/healthyschools/topics/safety.html>

⁴ The City of Winnipeg Active Transportation Study: Final Report (2005).

<http://www.winnipeg.ca/publicworks/pedestriansCycling/activeTransportationNetwork/background/pdf/2005-AT-Study.pdf>

⁵ Safe Kids Canada and FedEx Express. Making It Happen Pedestrian Safety – A Guide for Communities.

<http://www.parachutecanada.org/downloads/research/reports/PedestrianSafety-CommunityGuide-Eng.pdf>

The annual traffic collision statistics report compiled by MPI for the year 2016 shows that pedestrian injuries resulting from traffic collisions have generally declined from 2006 to 2013, but have gradually increased since 2013 (Figure 1).

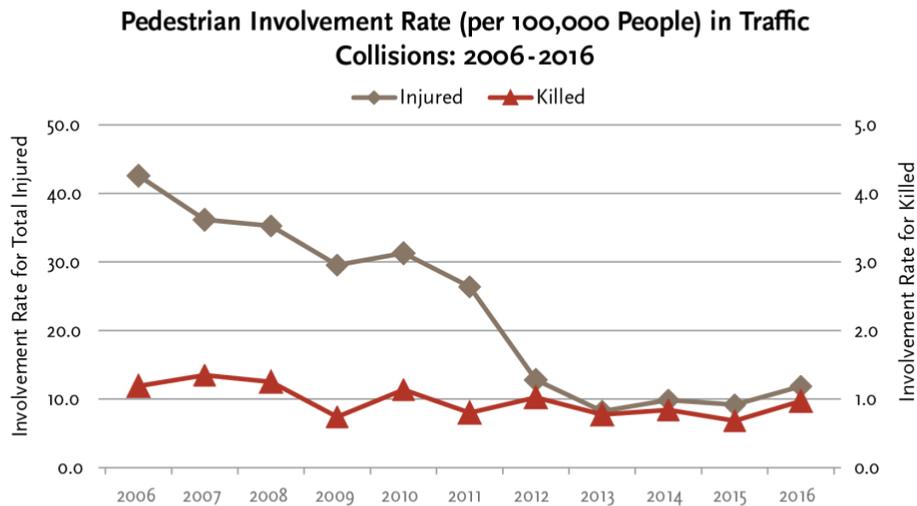


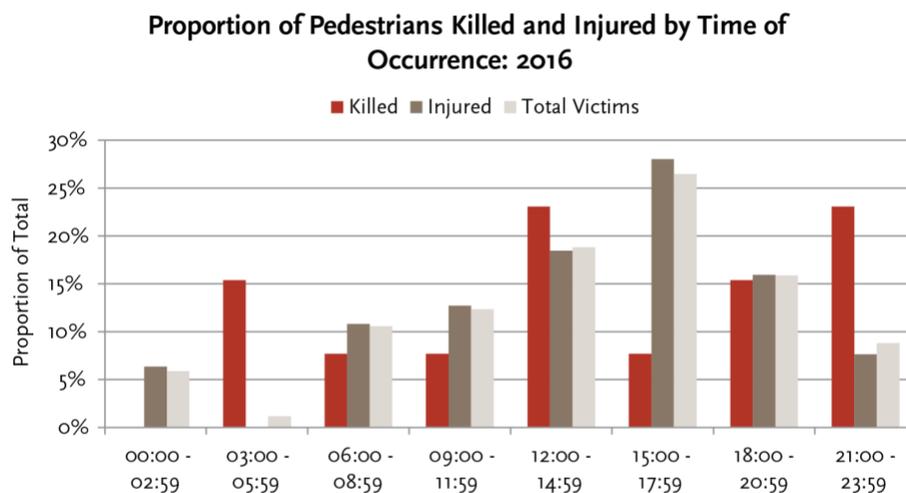
Figure 1: Pedestrian involvement rate (per 100,000 people) in traffic collisions for the period 2006-2016.

The counts of pedestrian involvement in traffic collisions could be negatively or positively impacted by changing population statistics; therefore, involvement rates per 100,000 people in the general population in Manitoba is examined to provide a standardized rate comparison.

Another interesting finding was that most pedestrian casualties occur when the pedestrian is:

- At an intersection, crossing with the right of way (47% of pedestrian casualties)
- Between intersections (9% of pedestrian casualties)
- At an intersection with no traffic control (nearly 6% of pedestrian casualties)

The report also provided data on the five-year (2011-2015) annual average pedestrian victims by time of occurrence: 21% of all pedestrian-involved in traffic collisions happened between 12:00 to 14:59 and 25% between 15:00 to 17:59 (Figure 2).



Note: Due to a small number of pedestrians killed, i.e. 13 deaths, caution is advised when interpreting those results.

Figure 2 Proportion of pedestrian victims killed and injured by time of occurrence (2016).

The most prevalent contributing factors recorded for traffic collisions where people are killed or seriously injured include the following:

- Impaired driving
- Speed
- Distracted driving
- Loss of control
- Slippery road surface
- Disobeying traffic control
- Failure to yield right-of-way
- Leaving stop sign before safe to do so
- Driving wrong way on roadway
- Pedestrian error/confusion
- Passing improperly
- Turning improperly
- Following too closely

The report also examined the distribution of pedestrian casualties by age. In the five-year period (2011-2015) annual average, 21% of pedestrian victims were under the age of 20, 30% were aged 20 to 34, 26% were aged 35 to 54 and 23% were aged 55 and older (Figure 3).

Annual Average of Pedestrian Victims by Known Age Group:

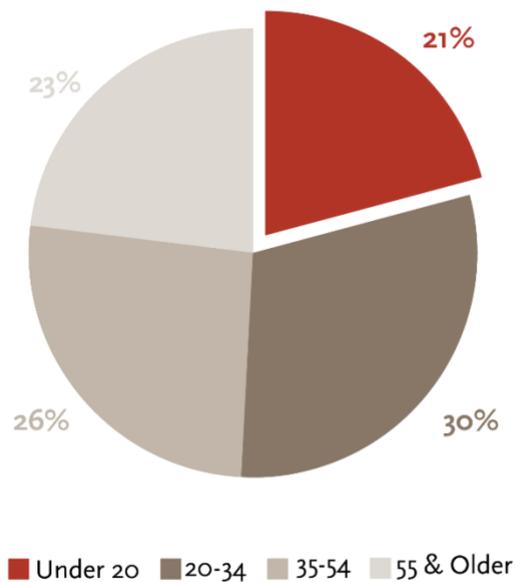


Figure 3: Annual average of pedestrian victims by known age group (2011-2015).

CHILD PEDESTRIAN INJURY RISK FACTORS

It is important to understand where, when and why child pedestrian injuries occur. Prevention programs can be properly planned and implemented once the relevant risk factors for pedestrian injuries are determined. Children and elderly have been identified to be most at risk.⁶ Most pedestrian injuries happen when pedestrians are crossing traffic lanes and can be due to both motorist and pedestrian errors.⁷ A comprehensive review of risk factors for child pedestrian injuries revealed four main categories of risk factors:

1. Child risk factors include age, sex, race, education, physical attributes (disability, sensory abilities, medical problems, agility), biopsychosocial development (physical, cognitive, perceptual, emotional, judgement, social), distraction, personality and habitual behaviour, emotional state, proximity to traffic, etc. Characteristics of children 9 years and younger are summarized here:⁸
 - Children see differently than adults. They have a narrower field of vision, two-thirds that of an adult. In addition, their eye level is lower than that of an adult and their view may be more easily blocked.
 - Children are smaller in stature and are not as easily seen by drivers. However, children believe “if I can see it – it can see me.”
 - Children hear differently; they cannot determine the source of sounds or direction of sounds.
 - Children cannot judge speed and distance of motor vehicles. Their lack of traffic experience limits their ability to perceive dangerous situations.
 - Children concentrate on one thing at a time and may not give street crossing their full attention.
 - Children are spontaneous and curious. Children will complete any motion they start. Once they begin crossing the street, they will tend to continue even if a car is approaching.
 - Children overestimate their abilities. They may believe that they can run faster or change direction faster than they physically can. This belief may cause them to take chances with oncoming traffic.
 - Children pattern their actions after others, both good and bad.
 - Children value near misses. They may dare to do something so that they can brag about it.
2. Driver risk factors include driver behaviour, attitude, sleep, fatigue, distraction, intoxication, medical problems, etc.

⁶ Killoran, A., Doyle, N., Waller, S., Wohlgemuth, C. & Crombie, H. (2006). Transport Interventions Promoting Safe Cycling and Walking: Evidence Briefing. London, UK: National Institute for Health and Clinical Excellence.

⁷ Guo, H., Wang, W., Guo, W., Jiang, X. & Bubb, H. (2012). Reliability Analysis of Pedestrian Safety Crossing in Urban Traffic Environment. *Safety Science*, 50, 968-973.

⁸ New Jersey School Crossing Guard Manual for Supervisors. (2013) Prepared by New Jersey Safe Routes to School Resource Center, Alan M., Voorhees Transportation Center http://www.saferoutesnj.org/wp-content/uploads/2013/07/Crossing-Guard-Training-Manual_Intro-Small-size.pdf

3. Social and cultural risk factors include socio-economic status, crowding, parents, family environment, family stress, adult supervision of child, enforcement of driving rules, etc.
4. Physical environment risk factors include time of the day, day and month, weather and lighting, road conditions, number of lanes, traffic control (crosswalks, traffic signals, stop signs, speed bumps, offset corners), sidewalks (continuous, both sides of street), intersection characteristics, location on the road, speed limit, volume of traffic, play areas, neighbourhood, curb-side parking or on-street parking, sign pollution, visibility obstruction, vehicle type, etc.

The top 10 child pedestrian injury risk factors are as follows:

- Driver behaviour (speed)
- Road environment (speed bumps, offset corners)
- Child behaviour
- Pedestrian proximity to traffic
- Intersection characteristics (traffic signals, length of time to cross)
- Crosswalk characteristics (traffic signals, location of crossings)
- Time of day and amount of daylight
- Enforcement of driving rules
- Adult supervision of child (appropriate to age)
- Sidewalks (continuous, both sides of street)

TRANSPORTATION CHOICE

The predominant mode of travel in the City of Winnipeg is by private automobile, since the 1960s, followed by other modes such as buses, walking, biking and rolling. Active transportation refers to all human powered forms of transportation, in particular walking and cycling. It is any trip made for the purposes of getting yourself, or others, to a destination – to work, to school, to the store or to visit friends. It includes the use of mobility aids such as wheelchairs and can also encompass other active transport variations such as in-line skating, skateboarding, cross-country skiing and even kayaking.⁹ The main interest in active transportation has been restricted to recreation and leisure. Skateboarding and in-line skating that have been previously considered exclusively recreational are growing in popularity as another form of transportation.

CANADA

One of the main reasons for the decline in child pedestrian injuries is that children are walking less. A comprehensive synthesis of the 2000 and 2010 Physical Activity Monitor studies from the Canadian Fitness and Lifestyle Research Institute and the 1992, 1998, 2005 and 2010 General Social Survey from Statistics Canada shows that the proportion of Canadian children and youth who used only inactive modes of transportation for school travel increased significantly from 51% to 62% over the last decade,

⁹Active transportation in Canada : a resource and planning guide / prepared for Transport Canada by EcoPlan International. http://publications.gc.ca/collections/collection_2011/tc/T22-201-2011-eng.pdf

i.e. from 2000 to 2010 (Figure 4). The proportion of children and youth who travelled to/from school using a combination of active and inactive modes decreased significantly over time.¹⁰

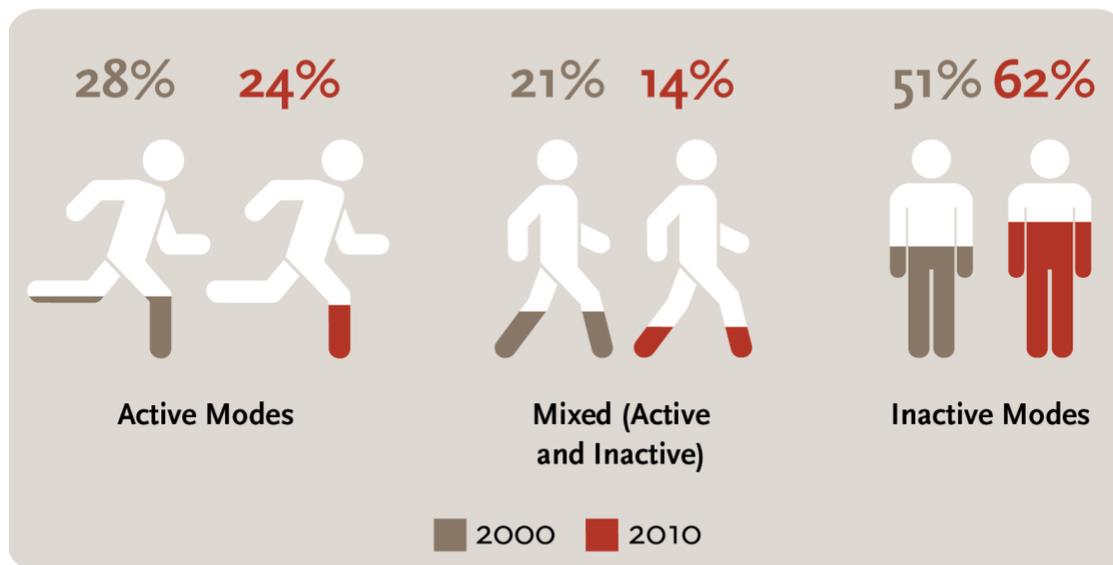


Figure 4: Usual modes of transportation among Canadian children and youth to/from school between 2000 and 2010.

A cross-national research study conducted on Health Behaviour in School-aged Children in collaboration with the World Health Organization internationally, and with the Public Health Agency of Canada (PHAC) nationally in 2014, shows that 26% to 31% of boys and 19% to 29% of girls reported that they used active transport (e.g., walking or bicycling) for the main part of their journey to school. Most boys (64% to 71%) and most girls (67% to 80%) used motorized transport such as a school bus or family vehicle for the main part of their journey to school as shown in Figure 5.

¹⁰ Gray, C. E., Larouche, R., Barnes, J. D., Colley, R. C., Cowie Bonne, J., Arthur, M., ... Tremblay, M. S. (2014). Are We Driving Our Kids to Unhealthy Habits? Results of the Active Healthy Kids Canada 2013 Report Card on Physical Activity for Children and Youth. *International Journal of Environmental Research and Public Health*, 11(6), 6009–6020. <http://doi.org/10.3390/ijerph110606009>

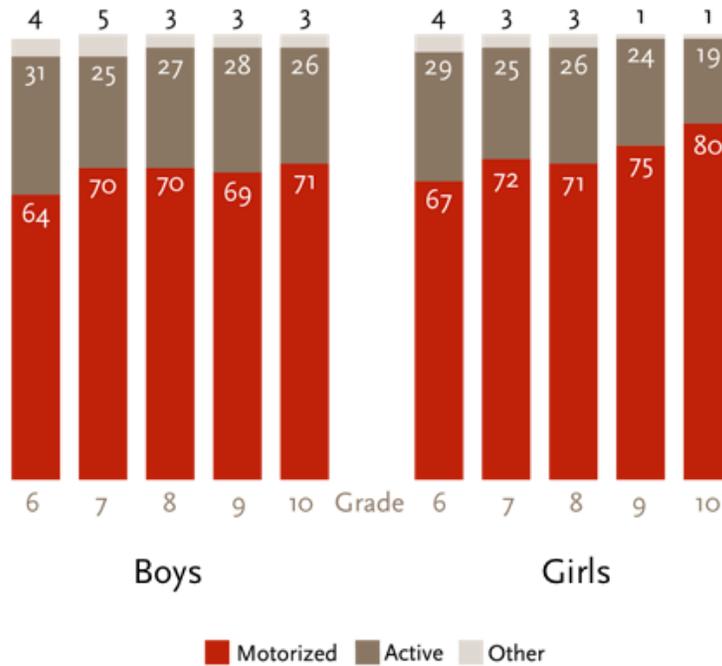
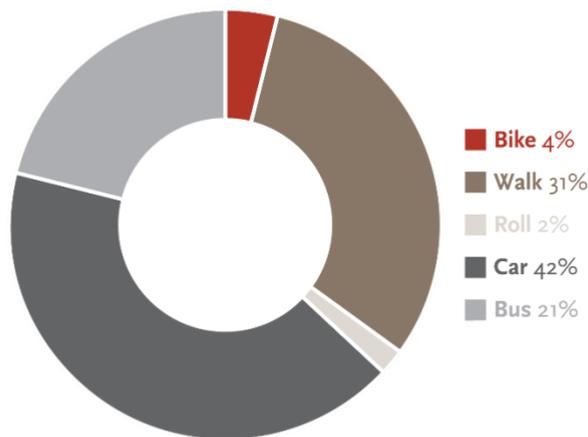


Figure 5: Primary mode of transportation to school reported by students, by grade and gender (%) in Canada for the year 2015.

MANITOBA

Green Action Centre conducted two studies (2015-2017) on 305 schools across Manitoba using an innovative tool BIKEWALKROLL and reported that in Manitoba, 42% of students get to school by car, followed by 31% by walking, 21% bused and the remaining either by bike or roll. Another significant finding was that two out three children in Manitoba are not active on the trip to school (Figure 6). Active school travel tends to be seasonal, with an extra 3% of students walking and cycling in May compared to October and 5% fewer students in February.

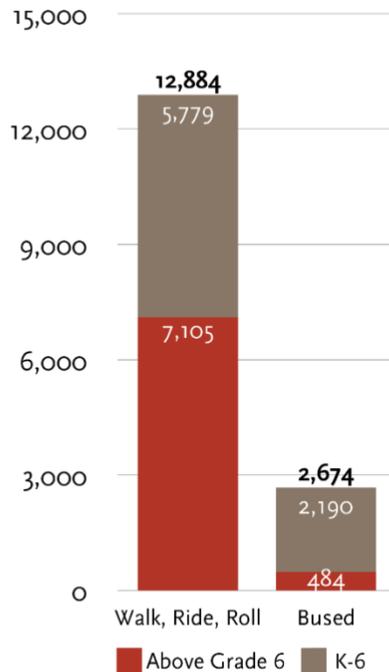


*Roll includes wheelchairs, skateboards, scooters and roller blades.

Figure 6: Transportation means used by students of 305 schools in Manitoba to travel to school (2015-2017).

LRSB

The enrollment data shows that there are 15,558 students enrolled for the school year 2017-2018 and school bus transportation is provided to only 2,674 students. The remaining students (12,884) use other modes of transportation, i.e. automobile, walk, bike or roll to school, as shown in Figure 7. Roll includes roller blades, skateboards, scooters, etc.



*Roll includes wheelchairs, skateboards, scooters and roller blades.

Figure 7: Transportation means used by students in LRSB to and from school.

As communities strive to encourage active transportation in order to combat obesity and its health complications, along with air pollution and traffic congestion, improving pedestrian safety and reducing the burden of injuries to children is highly important.

BARRIERS TO ACTIVE TRANSPORTATION

Despite the well-known benefits of active transportation, people still choose to drive rather than walk, cycle or combine active transportation with public transit. There exists a large body of literature exploring barriers to active transportation. Some of barriers that reduce and undermine choices for more active modes are listed below.¹¹

1. Safety and security:
 - a. Fear of personal safety and security has been found to be one of the top barriers to people participating in active transport, as vehicle collision is the second leading cause of death in Manitoban children. Reports on traffic infractions have a strong influence on

¹¹ Cheyne, C., Imran, M., Scott, M. and Tien, C. (2015). Barriers to active transport in Palmerston North. Massey University Living Labs, Palmerston North.

parents' decisions to allow their children to walk or cycle to school. Cars offer not only a greater level of personal security, but also comfort, personal space, sense of autonomy, driving pleasure, flexibility and reliability.

- b. Crime, abductions, bullying, gangs, personal violent crimes, etc.
 - c. Lack of Neighbourhood Watch programs.
 - d. Driver's attitude and behaviour toward pedestrians and bicyclists
2. Poor design of the neighbourhood:
 - a. Lack of surveillance
 - b. Poor visibility
 - c. Overgrown vegetation and disrepair
 - d. Lack of infrastructure such as designated bicycle lanes, sidewalks, crosswalks, Kiss 'N Ride facilities, etc.
 - e. Poor connectivity in areas with many cul-de-sacs
 - f. Inadequate transit services in the neighbourhood
 - g. Traffic movement – busy arterial roads without appropriate crossings, large volumes of fast-moving traffic poses significant risk to pedestrians and cyclists along travel routes
 3. Cold climate and difficult terrain:
 - a. Manitoba's long, cold and snowy winters along with windy stretches can make walking and cycling uncomfortable and inconvenient.
 - b. Inadequate maintenance of sidewalks, bicycle lanes and trails
 - c. Lack of knowledge (e.g. dressing for different types of weather, best equipment to use, etc.)
 - d. Fear of injury in winter or in other inclement weather conditions
 4. Community:
 - a. Lack of knowledge about safe, fast and convenient routes such as trails, bicycle paths, transit routes, etc.
 - b. Lack of education and public awareness programs that emphasize positive health outcomes from physical activity and reduced motorized transportation
 - c. Inadequate skills to use active transportation such as cycling, skateboards, rollerblades, etc.
 - d. Poorly maintained transportation infrastructure
 - e. Neighbourhood design
 - f. People living in lower density areas further from their workplace
 5. Legislation protection:
 - a. Lack of legislation for bicyclists and the lax enforcement of existing laws
 6. Personal:
 - a. Lack of parental awareness of short- and long-term health impacts of driving their children rather than supporting active transportation
 - b. Time pressures – multiple activities in multiple locations on any given day
 - c. Individual's attitudes and emotional responses
 - d. Health – physical disability due to injury or illness
 - e. Children of low or medium socioeconomic status are more likely to walk or cycle to school
 - f. Lack of bicycling skills and knowledge

- g. Lack of access to a car often necessitates an increase in walking
- 7. Social:
 - a. Peer attitudes – a sense of social exclusion
 - b. Public perception that engaging in walking or cycling may be a sign of lower economic status
 - c. Transit services not perceived as convenient mode of transportation

TRAFFIC CONDITIONS (CITY OF WINNIPEG)

It is important to gather local data and information to understand factors that could impact child pedestrian safety in our community. The City of Winnipeg Transportation Master Plan¹² confirms that there is high level of traffic congestion in specific areas during weekday peak periods, as shown in Figure 8, and significant gaps exists in the active transportation network which, makes it difficult for those who walk or bicycle to efficiently travel to their destination.

¹² The City of Winnipeg Transportation Master Plan (October 2011).
<http://winnipeg.ca/publicworks/transportation/pdf/transportationMasterPlan/2011-11-01-TTRWinnipegTMP-Final-Report.pdf>

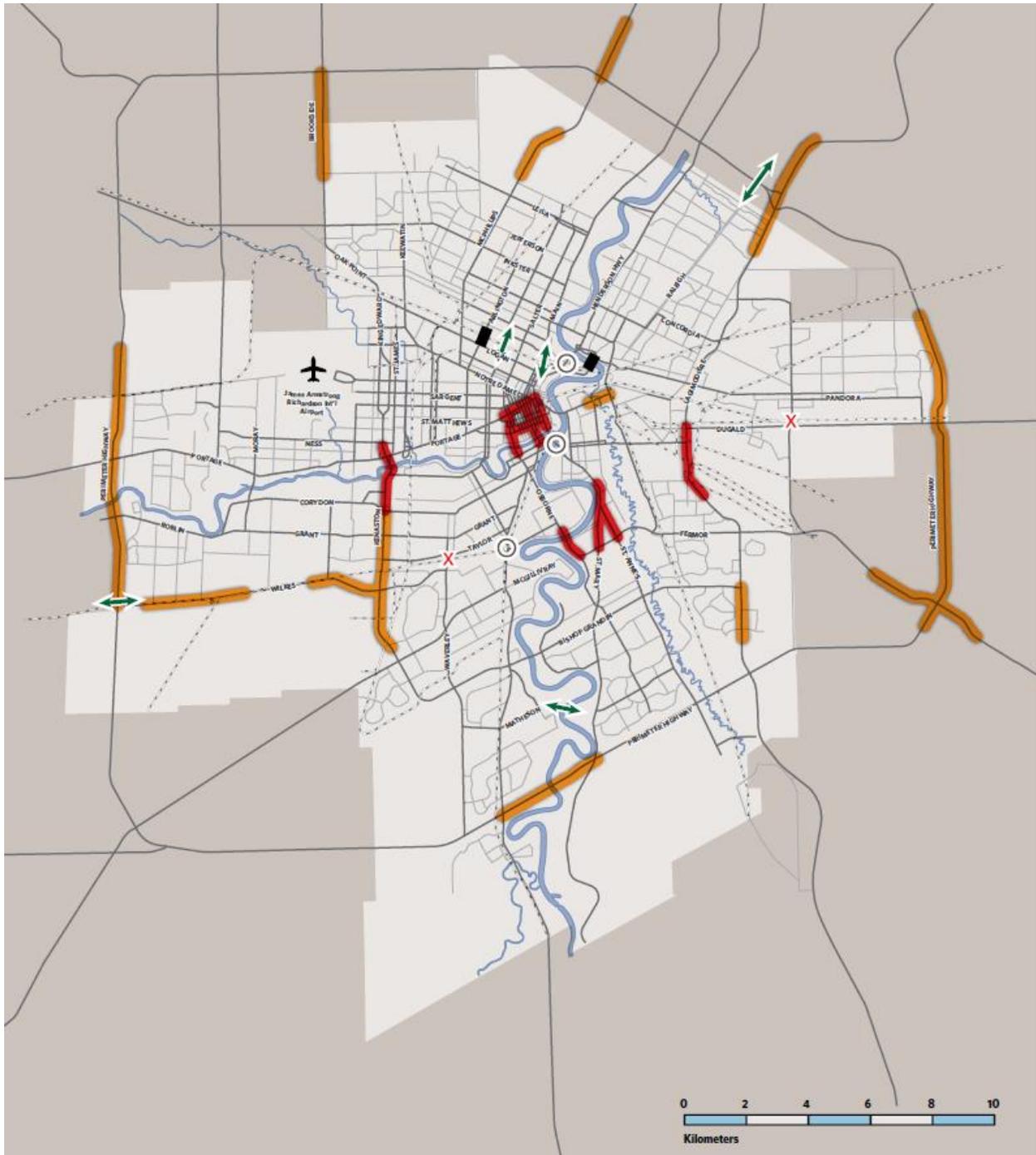


Figure 8: Network constraints map from Winnipeg Transportation Master Plan October 2011.

SCHOOL SAFETY ASSESSMENT REPORT

According to a study conducted by CAA Manitoba on annual school safety assessment in 2017, there has been an increase in risky behaviour by drivers.¹³ More than 1,100 incidents of risky and illegal behaviours were caught during an annual Winnipeg school zone safety test in 2017. Winnipeg Police Service found 352 motorists were exceeding the 30 kilometres an hour speed limit in marked school zones during the assessment. Other reported infractions in the report include 103 stopping violations, such as drivers failing to stop properly at crosswalk or stop signs and 218 lane-changing issues, such as not signalling and failing to follow correct protocol, for example, turning into the correct lane.

Winnipeg Police Service, in partnership with the Canadian Automobile Association (CAA), conducted a safety assessment at five locations with heavy traffic volumes and at different observation periods (morning and afternoon) prior to spring break 2018. It showed nearly 600 pedestrians using the crosswalks and 359 traffic violations. During this assessment, it was found that risky behaviours were being performed by both pedestrians and motorists. The breakdown of the safety assessment results is shown in Table 1.

Table 1: Snapshot of reported infractions by Winnipeg Police Service and CAA at five locations prior to spring break 2018.

RISKY PEDESTRIAN BEHAVIOURS	RISKY MOTORIST BEHAVIOURS
30 – Distracted while crossing (using phone)	88 – Didn't stop for activated lights
22 – Failure to activate lights	77 – Stopped within the crosswalk
7 – Lights activated, but pedestrian proceeded before traffic stopped completely	109 – Drove forward while pedestrian crossing
19 - Jaywalked	5 – Distracted driving through crosswalk
2 – Cyclist failed to dismount before crossing	> One – Bus drove through a crosswalk while the pedestrian was still crossing

CURRENT-STATE ANALYSIS OF SAFE ROUTES TO SCHOOL PROGRAM

The LRSD initiated a review of the Safe Routes to School Program in February 2018. The purpose of this review is to assess the current state of child pedestrian safety in the school division. Data was collected from various sources to understand risk factors that could impact child pedestrian safety in our community:

- Versatrans database- number of students crossing
- School administrators – school bell times, walking school buses, adult crossing guard, school patrols
- MPI - accident counts at crosswalks and intersection (62 locations)
- City of Winnipeg - traffic counts and traffic speed

¹³ Rollason, K. "CAA study shows spike in risky driving behaviour" (2017). Winnipeg Free Press. Retrieved from: <https://www.winnipegfreepress.com/local/caa-study-shows-spike-in-risky-driving-behaviour-445945633.html>.

- Public records – fatalities

WALKING SCHOOL BUS PROGRAM

A walking school bus is a group of children walking to school with one or more adults.¹⁴ It can be as informal as two families taking turns walking their children to school or as formal as a well-planned walking route with meeting points, a timetable and a regularly rotated schedule of trained volunteers. In the LRSD, six elementary schools offer walking school buses as listed in the Table 2. Similar to a regular school bus, the walking school bus follows an established route. Students are picked up and dropped off at planned stops. Pick-up and drop-off stops may be at the student’s home or at a designated spot nearby. Groups of approximately 8-10 students walk to school together under the supervision of trained adults. Most students who are not eligible for busing live within 1.6 km (1 mile) of their school. Using an average walking pace for children, a 1.6 km walk usually takes approximately 20 minutes. Walking school buses operate for the full school year. Many informal walking school buses already exist in the LRSD (Table 2), in which an educational assistant or community liaison worker supervises a walking group to school.

Table 2: List of current walking school buses in the school division.

SCHOOL NAME	COMMUNITY AREA	WALKING SCHOOL BUSES
Darwin School	Glen Meadow St.	1
Lavallee School	Marlene St. to school	1
Lavallee School	School to Marlene St.	1
Niakwa Place School	Weatherstone Complex at Weatherstone Pl.	1
Nordale School	Birchdale Ave.	1
St George School	Fernwood Ave. & St. Anne’s Rd.	1
Victor H.L. Wyatt School	St. Anne’s Rd. – Woodydell Ave. to Meadowood Dr.	1
TOTAL		7

CROSSING GUARD PROGRAM

Crossing guards are an essential part of the safety equation. Crossing guards are needed because the physical and cognitive abilities of children differ from the abilities of an adult and may negatively affect crossing behaviour. Crossing guards help children make safe street crossings, demonstrate safe crossing procedures and contribute to more children walking and biking to school because the presence of crossing guards reassures parents and children of the safety of the school route. Increased traffic in school zones, resulting from parents driving their children to and from school, makes walking and biking to school more hazardous.

Sixteen schools in the LRSD have 30 adult crossing guards at 21 intersections and crosswalks (Table 3). In general, pay-based adult guard programs are more successful than volunteer-based programs. Volunteers are often keen to participate at the beginning of a program but interest often wanes over

¹⁴The Walking School Bus Program: A Primer and First Steps. Created by the National Center for Safe Routes to School in partnership with PedNet Coalition, is available online at http://apps.saferoutesinfo.org/training/walking_school_bus/

time. Some schools have indicated that they struggle to recruit crossing guards due to difficult working conditions and low wages.

To ensure safe crosswalks at more points along the school journey, adult crossing guards are posted at locations further upstream from the schools to patrol crosswalks and intersections. Crossing guards use orange flag to signal drivers and facilitate the safe crossing of students along or across intersections going to or from school. In Manitoba, crossing guards are not allowed to use “STOP PADDLES” to signal drivers.

Table 3: List of schools with number of crossing guards, crossing locations and type of crossings.

SCHOOLS	CROSSING LOCATION	TYPE OF CROSSING	NUMBER OF CROSSING GUARDS
Archwood School	Archibald St. & Gareau St.	Traffic light	1
Archwood School	Parking lot entrance/exit	Parking lot	1
École George McDowell	Paddington Rd. & Longford Ave.	Crosswalk	1
H.S. Paul School	Ashworth St. S & Southglen Blvd.	4-way intersection	1
Island Lakes Com. School	Drop off loop	Drop-off loop	1
Island Lakes Com. School	Ebb Tide Dr.	3-way intersection	1
École Julie-Riel	Ashworth St. & Novavista Dr.	4-way intersection	1
Lavallee School	St. Anne's Rd. & Beliveau Rd. E	Crosswalk	1
Hastings School	Dunkirk Dr. & Hastings Blvd.	Crosswalk	1
École Marie-Anne-Gaboury	Weaver Bay & Pulberry St.	Crosswalk	1
École Sage Creek School	Sage Creek Blvd. & Ranville Rd.	Crosswalk	1
St. George School	Haverlock Ave. & St. George Rd.	4-way intersection	4
École St. Germain	John Forsyth Rd. & Thornewood Ave.	3-way intersection	1
École Van Belleghem	Lakewood Blvd.	4-way intersection	1
École Varennes	St. Mary's Rd.	Crosswalk	1
École Varennes	St. Anne's Rd.	Crosswalk	1
Victor H. L. Wyatt School	St. Anne's Rd. & Meadowood Dr.	Traffic light	3
Victor H. L. Wyatt School	Bishop Grandin Blvd. & St. Anne's Rd. DAY 1	Traffic light	1
Victor H. L. Wyatt School	Bishop Grandin Blvd. & St. Anne's Rd. DAY 2	Traffic light	1
Victor H. L. Wyatt School	Bishop Grandin Blvd. & St. Anne's Rd. DAY 4	Traffic light	1
Victor H. L. Wyatt School	Bishop Grandin Blvd. & St. Anne's Rd. DAY 5	Traffic light	1
Victor Mager School	Beliveau Rd.	Crosswalk	1
Victor Mager School	Dakota St. & Beliveau Rd.	Traffic light	1
Victor Mager School	St. Mary's Rd. & Bishop Grandin Blvd.	Traffic light	1
Windsor School	Cunnington Ave. & St. Mary's Rd.	Crosswalk	1
TOTAL			30

SCHOOL PATROLS PROGRAM

Since 1936 the Winnipeg Police Service has been involved in the School Safety Patrol Program. The School Safety Patrol Program is made up of member schools and their patrols, the Winnipeg Police Service and their partners, MPI, McDonalds, CAA Manitoba and the Winnipeg Free Press. In the City of Winnipeg, there are more than 8800 patrols in seven school divisions and numerous private institutions that participate in the School Safety Patrol Program.

TRAINING

CAA Manitoba, working co-operatively with MPI, provides free training materials in both English and French (Patrol Handbook¹⁵ and Signal Meanings¹⁶), guidance and equipment (vests and flags) to Patrols to ensure the job gets done safely and effectively. Schools can place order for training materials and equipment through online ordering system.¹⁷ Videos have been produced by the Winnipeg Police Service for training School Safety Patrols¹⁸. All schools in Winnipeg sign up for training with the Winnipeg Police Service. To sign up for School Safety Patrol® training to take place in September or October, an online form¹⁹ is available.

SCHOOL PATROL AWARDS

Each year, the Winnipeg Police Service hosts the School Safety Patrol Awards. Patrols are judged on their ability, professionalism and technique while on patrol by the School Education Section of the Winnipeg Police Service.

SCHOOL PATROL REWARDS

Patrols work hard to help keep their schoolmates safe and to thank the patrols for their hard work, all patrols receive the free rewards and Discounted Opportunities listed below.

- Patrols get free admission* to movies at SilverCity theatres on select dates
- Patrols receive McDonalds coupons for select menu items free. In addition to providing coupons, McDonalds also arranges a special visit for each school, bringing snacks and goodies.
- “PATROL WEDNESDAY’S” 6:30-9:00 pm free skate with patrol card at Wheelies, 1010 Logan

Of the 25 schools that participate in the school patrol program, it appears that only crosswalks closest to schools are patrolled. A total of 211 students have signed up to be school patrollers. Out of 211 students, 137 students are posted at 57 different locations to assist fellow students to cross roads close to their schools (Table 4). All school safety patrols wear a yellow vest and hold orange flags when on duty.

Table 4: List of schools with number of school patrols, crossing locations and type of crossings.

SCHOOLS	CROSSING LOCATION	TYPE OF CROSSING	NUMBER OF SCHOOL PATROLS
Archwood School	Archibald St. & Gareau St.	Traffic light	4
	Parking lot entrance/exit	Parking Lot	2

¹⁵ http://www.schoolpatrolmanitoba.com/sites/default/files/CAA_Safety_Patrol_2015_Handbook.pdf

¹⁶ http://www.schoolpatrolmanitoba.com/sites/default/files/CAA_Safety_Patrol_Signal_Meanings.pdf

¹⁷ <http://www.schoolpatrolmanitoba.com/ordering>

¹⁸ <http://www.schoolpatrolmanitoba.com/training>

¹⁹ http://www.schoolpatrolmanitoba.com/training_signup

Darwin School	Darwin St. & Riel Ave.	4-way intersection	4
	Darwin St. & Avalon Rd.	3-way intersection	2
Frontenac School	Front - west	Crosswalk	4
	Autumnwood Dr. & De Bourmont Bay	4-way intersection	4
	Parking lot	Crosswalk	2
General Vanier School	Patterson St. & Lomond Blvd.	4-way intersection	2
	Patterson St. & Lomond Blvd.	4-way intersection	2
	Lomond Blvd.	Mid-block	2
Glenwood School	Des Meurons St.	4-way intersection	2
	Blenheim Ave.	4-way intersection	2
École Guyot	Willowlake Cres. in front of school	Mid-block	2
	Bluewater Cres.	3iway intersection	2
H.S. Paul School	Southglen Blvd. & Hirt Cres.	Crosswalk	2
	Ashworth St. S & Southglen Blvd.	4-way intersection	6
	Ashworth St. S	Crosswalk	2
École Henri-Bergeron	Enfield Cres.	Crosswalk	2
Highbury School	Tiverton Bay & Highbury Rd.	Crosswalk	2
	Southfields Dr. & Highbury Rd.	Crosswalk	2
	John Forsyth Rd. & Highbury Rd.	Stop signs	2
École Howden	Howden Rd.	Crosswalk	2
	Speers Rd.	Crosswalk	2
Island Lakes Com. School	Parking lot	Mid-block	2
	Ebb Tide Dr.	3-way intersection	2
	Pamela Rd.	Crosswalk	2
École Julie-Riel	Ashworth St. & Novavista Dr.	4-way intersection	4
	Back lane of Novavista Dr.	Stop signs	2
Lavallee School	St. Anne's Rd. & Beliveau Rd. E	Crosswalk	2
Hastings School	Hastings Blvd.	Mid-block	2
Minnetonka School	Greendell Ave. & Minnetonka St.	4-way intersection	2
	Nicolett Ave. & River Rd.	Crosswalk	2
Niakwa Place School	Pebble Beach Rd. & Willow Point Rd.	Crosswalk	2
	Pebble Beach Rd. in front of school	Crosswalk	2
	Pebble Beach Rd. & Willowlake Cres.	Crosswalk	2
Nordale School	Pinedale Ave.	Stop signs	2
	Highfield St.	4-way intersection	2
	Coniston St.	3-way intersection	2
École Sage Creek School	Sage Creek Blvd. & Ranville Rd.	Crosswalk	2
	School parking lot- west	Crosswalk	2
	Sage Creek Blvd. & Ranville Rd.	Crosswalk	2
	Edward Turner Dr.	Crosswalk	2
	Ranville Rd.	Crosswalk	2
École St. Germain	John Forsyth Rd. & Ashford Dr.	Crosswalk	2

	John Forsyth Rd. & ThorneWood Ave.	3-way intersection	2
Samuel Burland School	Burland Ave. & Pately Cres.	Crosswalk	4
	Staff parking lot	Mid-block	2
	Burland Ave. & Healy Cres.	Crosswalk	4
Shamrock School	Beaverhill Blvd. & Shamrock Dr.	3-way intersection	2
	Beaverhill Blvd. & Shamrock Dr.	3-way intersection	2
	Beaverhill Blvd. & Shamrock Dr.	Crosswalk	2
École Van Belleghem	Lakewood Blvd. & Vermillion Rd.	4-way intersection	5
École Varennes	St. Mary's Rd.	Crosswalk	2
	St. Anne's Rd.	Crosswalk	2
Victor H. L. Wyatt School	Parking lot	Mid-block	2
	School crosswalk	Crosswalk	2
Windsor School	Cunnington Ave. & Killarney St.	4-way intersection	4
TOTAL			137

REPORTED ACCIDENTS/FATALITIES

MPI provided data on reported motor vehicle collisions resulting in a fatality, injury or property damage on 62 locations in the LRSD from the year 2013 to 2017 as shown in Figure 9. Areas highlighted in purple show geographic locations of the reported vehicle collisions. The intensity of purple colour has been used to show a comparative analysis of the number of reported vehicle collisions at different geographical locations in the School Division. The appearance of orange colour in the middle of the spot is an indication of a higher number of reported vehicle collisions.

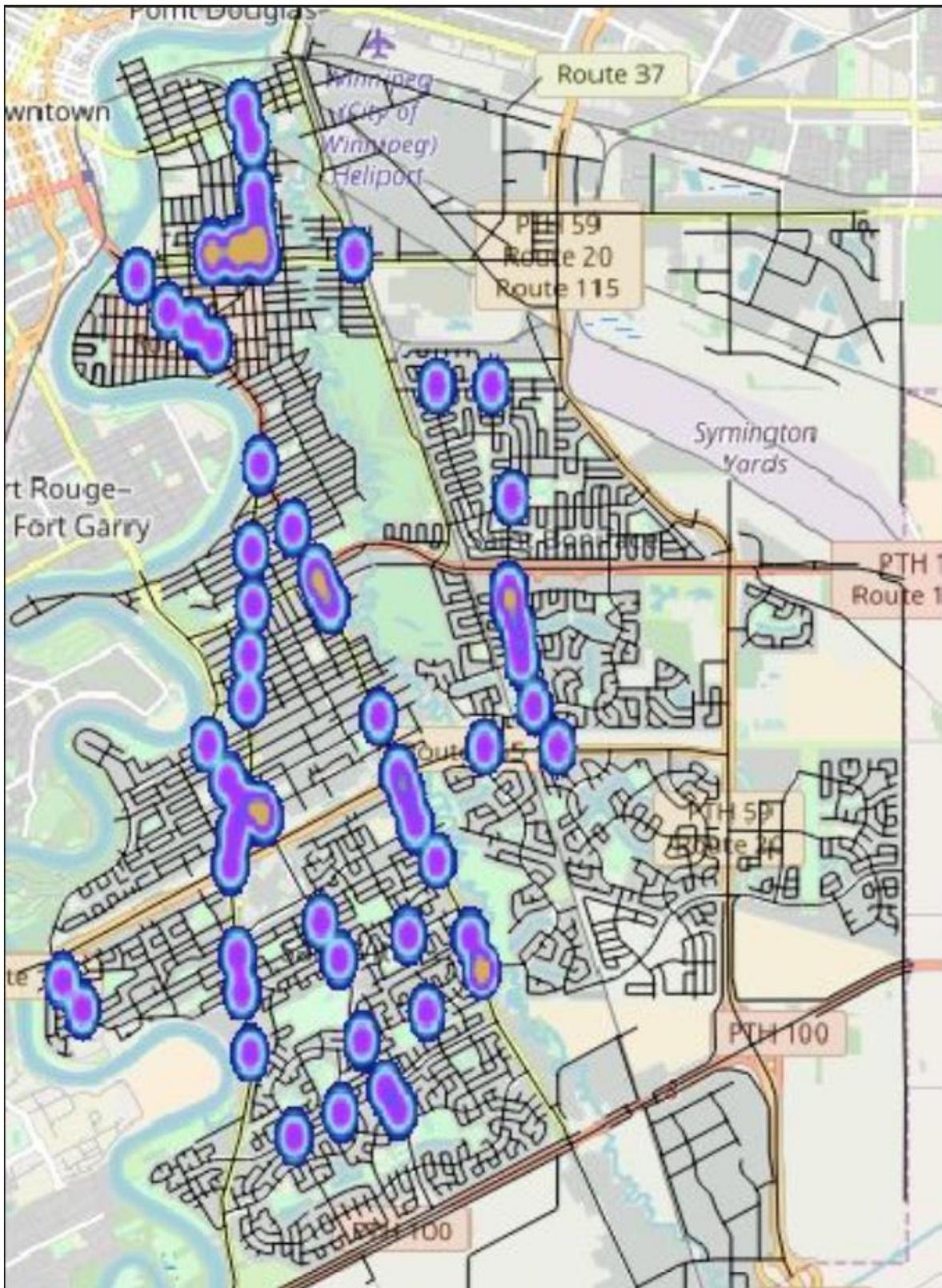


Figure 9: Comparative analysis of the number of reported vehicle collisions at different geographical locations in the school division.

A more detailed information on the trend of annual reported vehicle collisions over the five-year period for different areas in the LRSD is shown in Figure 10 (North St. Boniface area), Figure 11 (Windsor Park area), Figure 12 (St. Vital area), Figure 13 (Southdale area) and Figure 14 (South St. Vital area). The green and red dots show that the number of reported vehicles collisions in 2017 are lower or higher than the annual mean for five-year period (2013-2017), respectively.

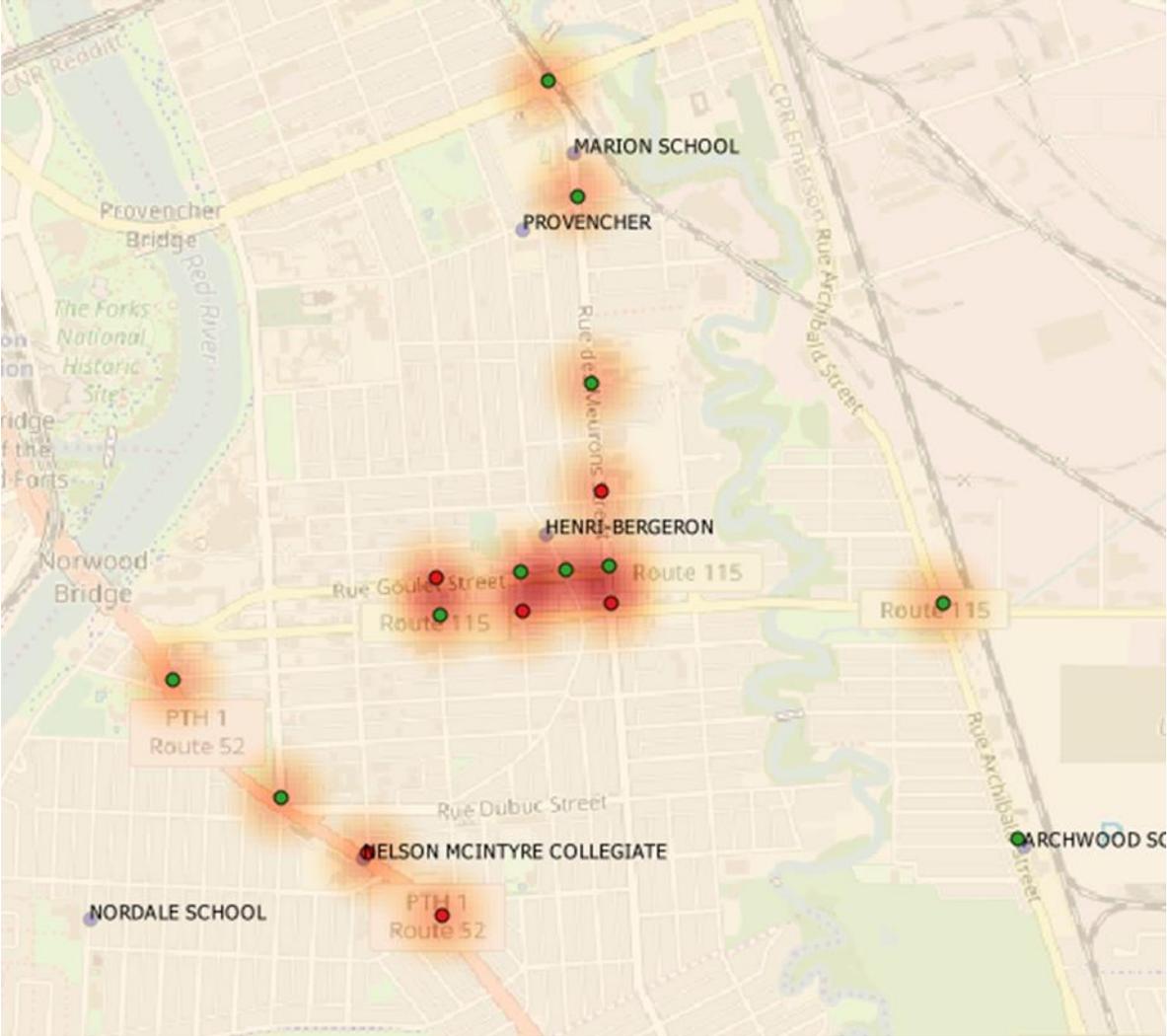


Figure 10: Trend of annual reported vehicle collisions over the five-year period in North St. Boniface area.

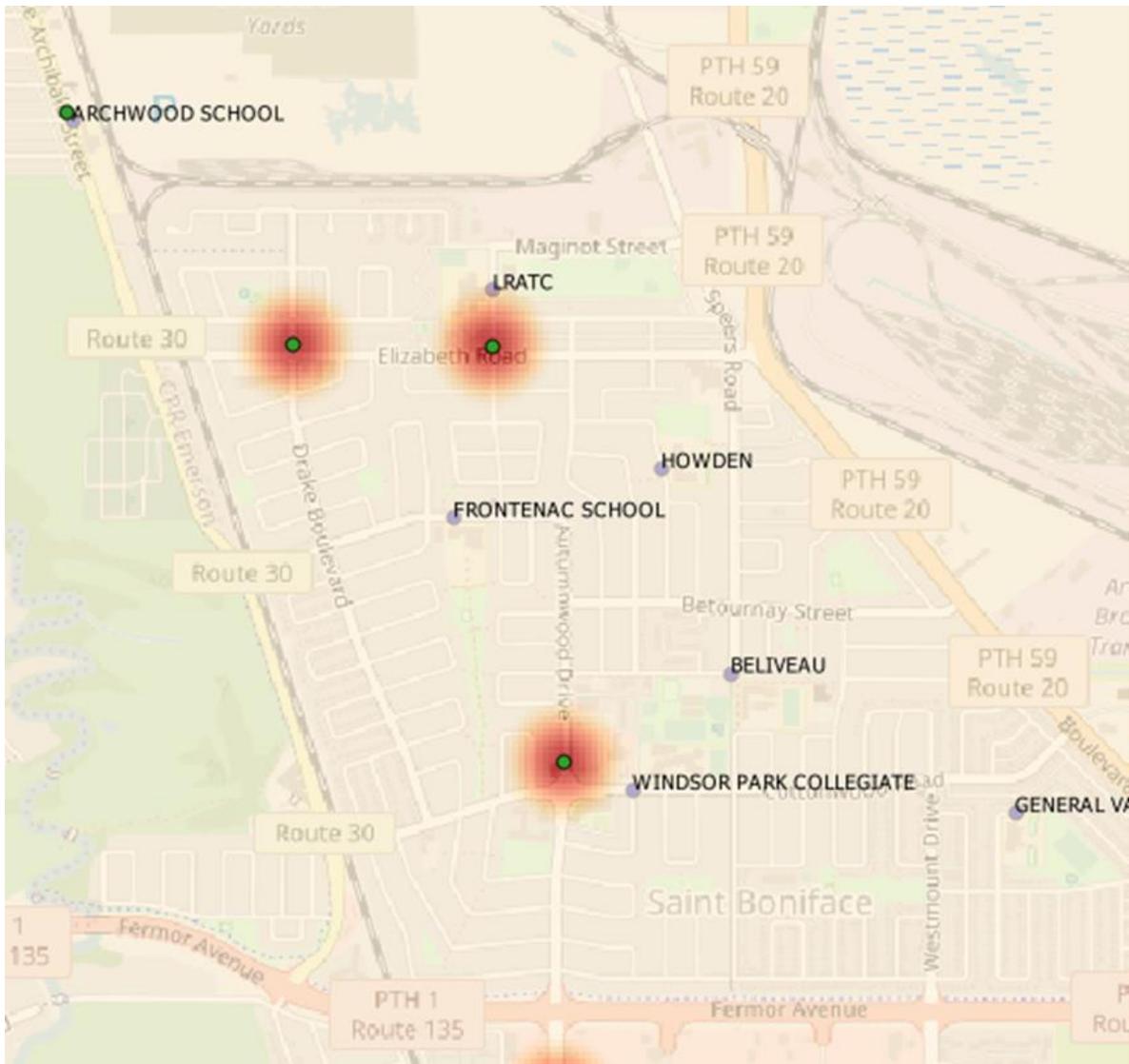


Figure 11: Trend of annual reported vehicle collisions over the five-year period in Windsor Park area.

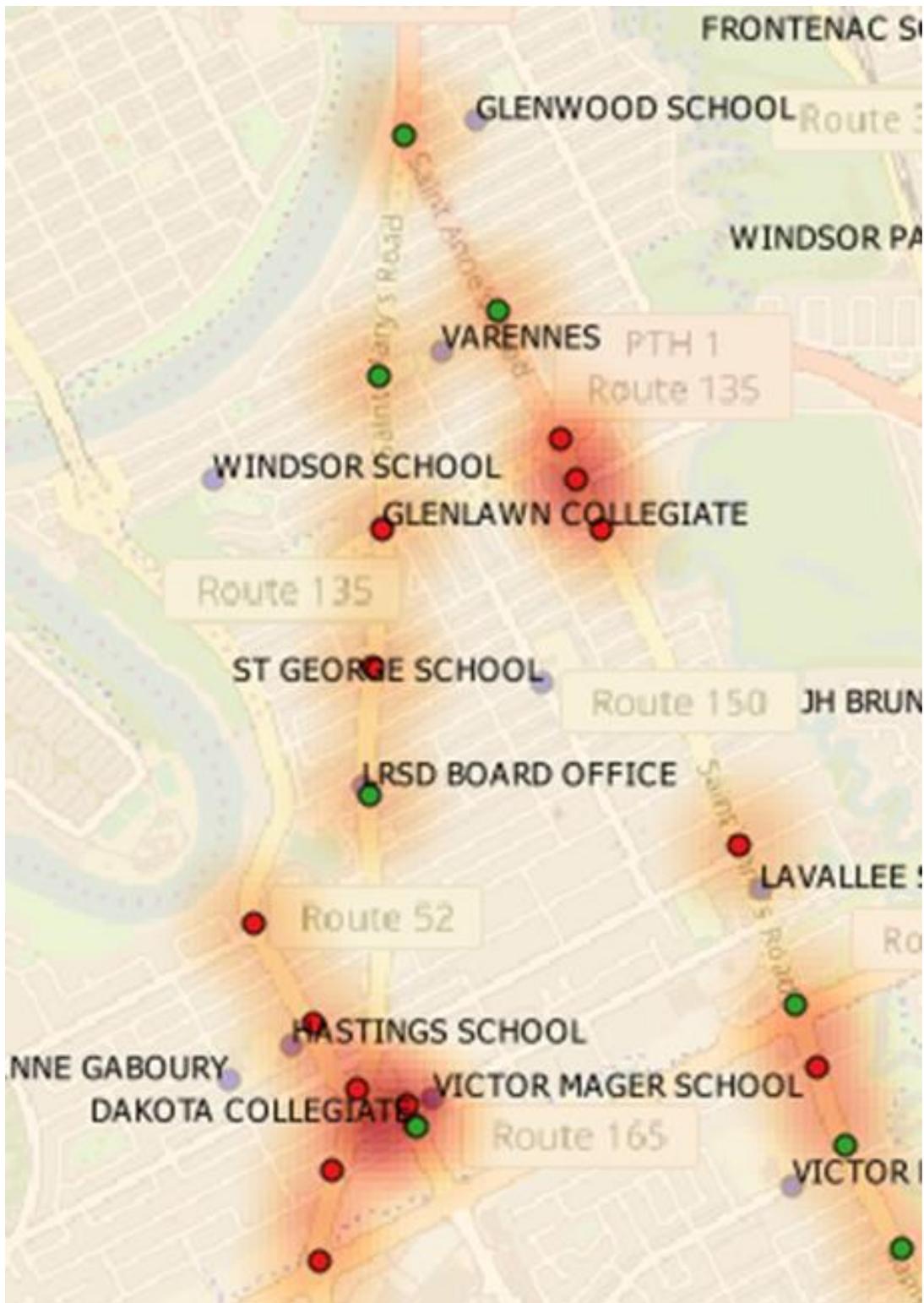


Figure 12: Trend of annual reported vehicle collisions over the five-year period in St. Vital area.

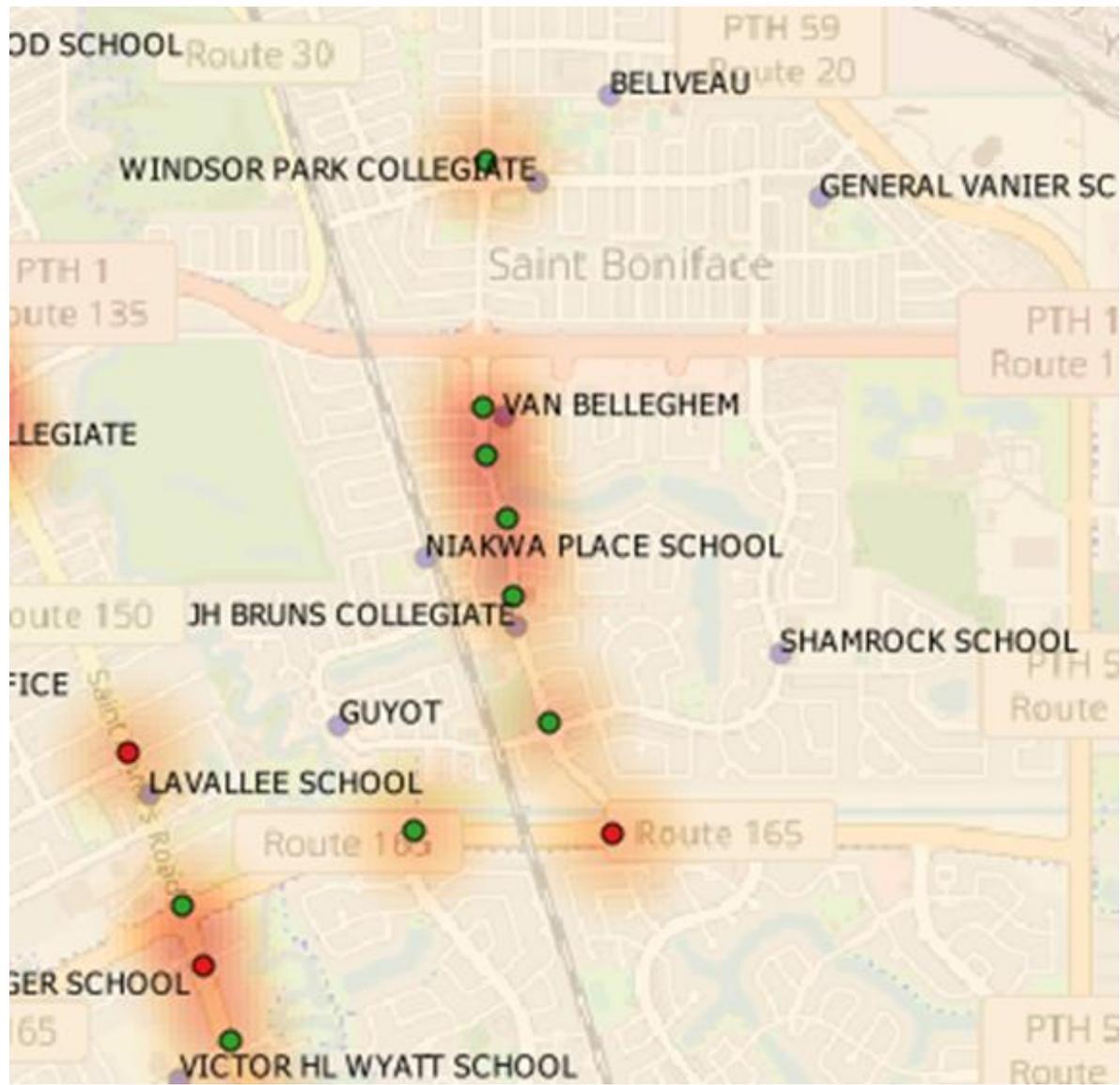


Figure 13: Trend of annual reported vehicle collisions over the five-year period in Southdale area.

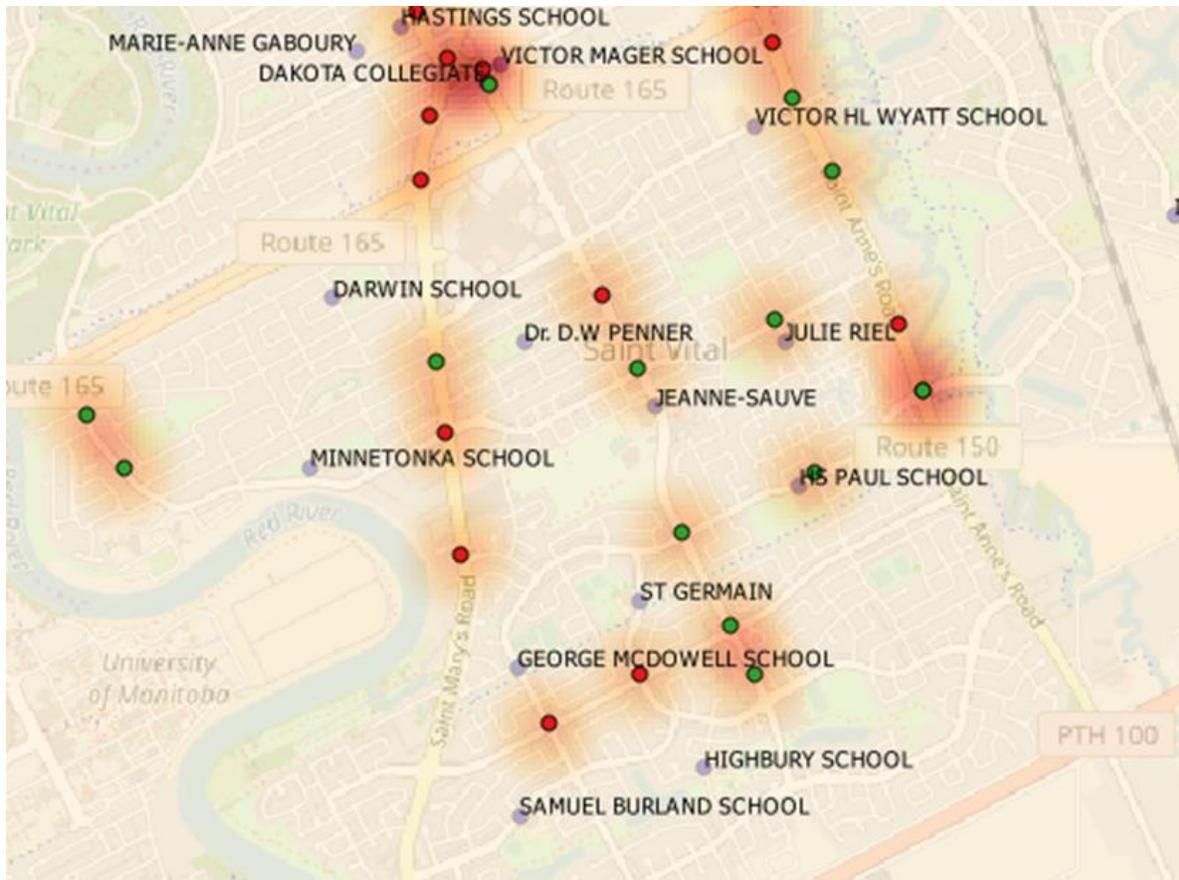


Figure 14: Trend of annual reported vehicle collisions over the five-year period in South St. Vital area.

TRAFFIC CONDITIONS

The traffic volumes map from 2001 to 2015 (available on the City of Winnipeg website) shows the average weekday daily traffic on major streets inside Winnipeg. Road sections highlighted in **GREEN** show average weekday daily traffic counts ranges between 0 to 25,000, **ORANGE** between 25,000 to 30,000 and **RED** over 30,000. Traffic volumes shown were based on a variety of sources without seasonal variation adjustments and might reflect prevailing conditions, including construction and operating conditions in place during the year. The numbers on the traffic map (Figure 15) are two-way traffic total on each street section, which are rounded and sometimes averaged. Actual traffic and counts can vary along a road segment.

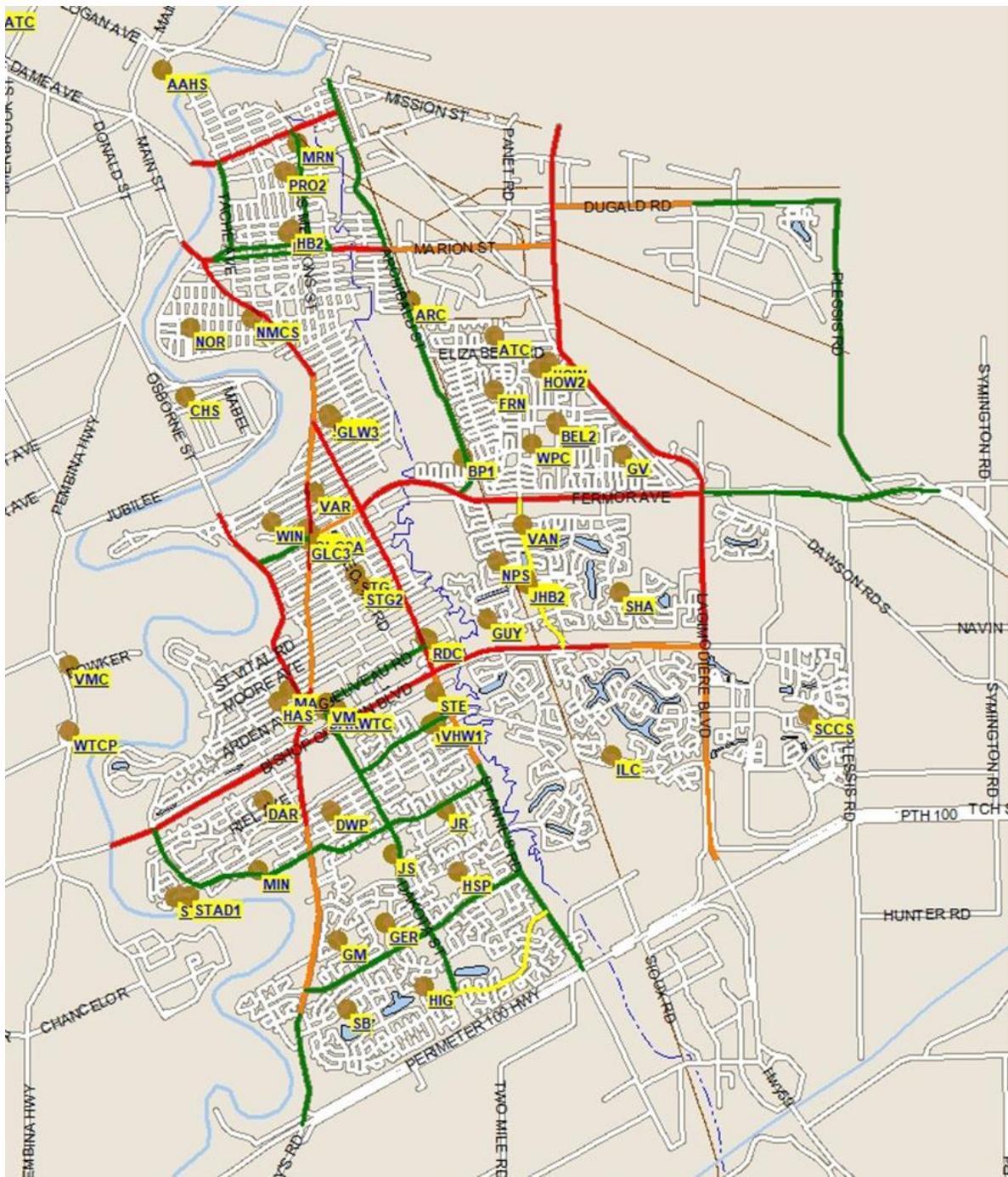


Figure 15: Traffic volumes map from 2001 to 2015 (available on the City of Winnipeg website).

The City of Winnipeg also provided the most recent data on traffic volumes that helped to study the trend of traffic volumes in the LRSD as shown in Figure 16. Throughout the school division, there has been a moderate increase in traffic volumes (highlighted in yellow) with two road sections seeing heavy increase in traffic volumes (highlighted in RED) and one road section with moderate to heavy increase in traffic volumes (highlighted in ORANGE). The traffic volumes have decreased only for a few road sections (highlighted in GREEN).

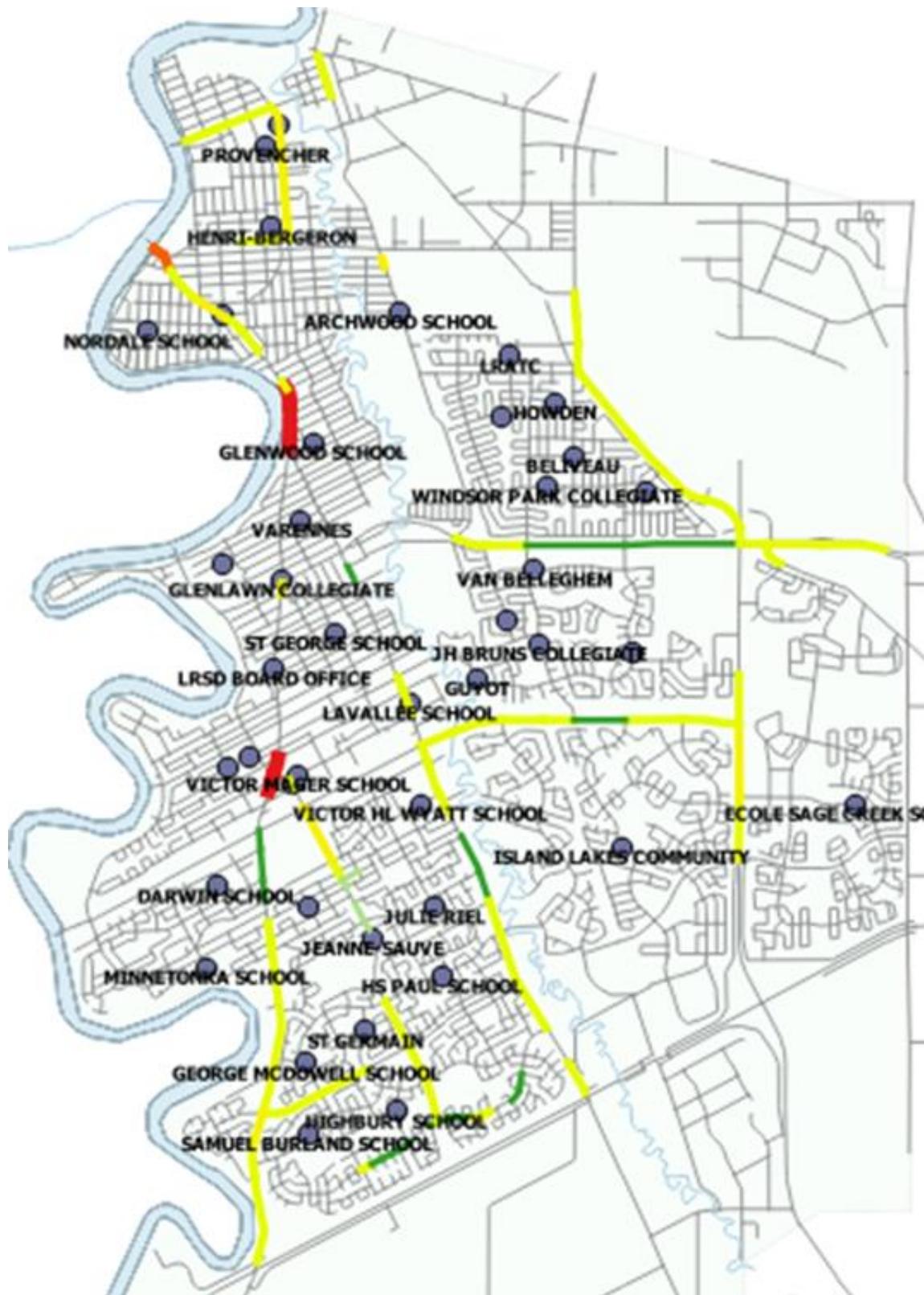


Figure 16: Trend of traffic volumes in the LRD for the period 2015-2018.

RISK ASSESSMENT

A warrant study is an acceptable methodology to study the pedestrian crossing and identify potential problem areas. A warrant study consists of an exposure index study and a gap analysis. An exposure index method helps to determine the need for improvement initiatives by evaluating the level of conflicting vehicular and student volumes. A warrant is based on the findings of the exposure index and gap analysis. Findings support the need for the warrant of adding a crosswalk, crossing guard and traffic control devices.

An exposure index study is used initially to quickly identify potential problem areas which would require further study. For example, a typical study would use the following data:

- 1) Number of pedestrians crossing
- 2) Road speed limit
- 3) Traffic counts
- 4) Number of accidents
- 5) Fatalities

These numbers were weighted based on the number of pedestrian crossers to develop a risk profile, e.g., the higher amount of pedestrian crossing and more traffic = greater potential risk. To balance this number, risk can be reduced by factoring in reduced speed limits, traffic control devices, crosswalks and crossing guards/patrols. Standards for the exposure index were developed by Ontario Traffic Council.²⁰

Risk Assessment:	Pedestrians	+	Speed Limit factor	+	Traffic counts	+	Accidents	+	Fatalities	=	Risk Exposure Number
Risk Reduction:	Reduced speed limits	-	Traffic Control	-	Crossing guards	-	Crosswalk	-		=	Reduced Risk Exposure
										=	Net Risk Exposure

Posted roadway speed – a vehicle traveling at 30 kilometres per hour striking a pedestrian will result in injuries and a high probability of survival of the pedestrian.

- @ 40 km/hr – more severe injuries – still survivable
- @ 50 km/hr – severe injuries to pedestrian – survivability greatly reduced
- @ 60 km/hr – small chance of survival – serious injuries
- @ 60 km/hr plus speed – fatality

The concept of the exposure index is faster speeds, higher traffic counts and greater number of student crossers produce the greatest risk. A residential street with a 30 kilometres per hour speed limit and lower traffic counts will have a lower risk profile.

A variety of factors were considered when completing the divisional risk assessment. Baseline data was collected and analyzed for each school: number of students crossing at intersections and crosswalks; traffic volume; speed limits; accident history; roadway surroundings; traffic control devices; and

²⁰ https://ontario-traffic-council.s3.amazonaws.com/uploads/2018/04/OTC_School_Crossing_Guard_Guide-05-2017-Updated.pdf

enforcement measures (adult crossing guards, school patrols, camera enforcement). Accident history and roadway fatality rates are commonly used measures of road safety.

Students in the school division cross at different types of crossings and are exposed to various types of traffic situations. Some examples of crossing types are as follows:

- Crossing at an intersection: 4-way or 3-way stop sign
- Midblock – crossing residential or regional streets
- Crosswalks – crossing residential or regional streets
- Major intersections with traffic control devices
- Crossing streets with no traffic control

The exposure index study focused on students 12 years of age and under. Children under the age of 12 and under have difficulty determining vehicle speeds, overestimate their own abilities, act erratically and in some instances, have difficulty separating fantasy and reality. The study looked at crossing locations and major roadways that students cross to access their catchment schools. There are 62 crossing intersections accessed by students within the school division. In addition, there are hundreds of other crossings near schools over residential streets. Most traffic accidents tend to occur during heavy rush hour periods or at times children are crossing streets to get to school. When an accident occurs in or around a school zone, crossing zone or an area with many pedestrians, there is causation. The standard for any fatality has been set at 0.5, i.e. the overall risk number increases by 50%. Crosswalk design, crossing lights, traffic control signals, crossing guards, traffic light timings, infrastructure improvements and school patrols are factors that will reduce the risk profile number. Additionally, risk can change by season – September/October and May/June have higher vehicle and pedestrian counts – and by weather conditions - impacts on visibility and stopping distances.

Standards used in the algorithm and analysis are accepted traffic engineering standards for studies of this nature. Based on the net risk exposure data, there are many crossings that require further analysis. The top 10 locations have been identified as shown in Table 5 and these locations require a gap analysis study. A gap analysis study is usually conducted by traffic engineers and planners. This study helps to thoroughly understand traffic patterns at an intersection or crossing locations, estimates critical gaps for vehicular traffic and pedestrians and identifies infrastructure appropriate improvement measures to improve road safety.

An exposure index only identifies potential risk areas. A gap analysis study needs to be completed by traffic engineers to determine adequate gaps in the traffic flow to allow pedestrian to safely cross a roadway. A gap is defined as the time duration (in seconds), measured at the same point in space, between the rear bumper and the front bumper of two consecutive vehicles. The critical gap is defined as the minimum time length (in seconds) of a gap in traffic which will permit (on average) a side street vehicle, a single pedestrian or a group of pedestrians to cross a roadway of specified width without coming into conflict with passing vehicles. In the case of side street traffic, this value may also represent the time length of a gap in traffic permitting side street vehicles to merge into the traffic stream between two vehicles. The findings of gap analysis study will help to determine if an addition of a crosswalk, traffic light, crossing guard, school patrol, infrastructure improvements and/or safety training are required. The additions and improvement will only reduce risk factors for pedestrians.

Table 5: Top 10 locations based on net risk exposures.

TOP 10	SCHOOLS	CROSSING ZONE	POSTED SPEED	NO. STUDENTS CROSSING	ACCIDENT COUNTS 2017	CROSSING GUARDS	SCHOOL PATROLS	WALKING SCHOOL BUSES
1	ST. GEORGE SCHOOL	ST. ANNE'S RD. & MORROW AVE.	60	172	18	NO	NO	YES (1)
2	VICTOR MAGER SCHOOL	DAKOTA ST. & BELIVEAU RD.	60	103	26	YES	YES	YES (2)
3	NIAKWA PLACE SCHOOL	SHOREHILL DR. & BISHOP GRANDIN BLVD.	80	31	27	NO	NO	YES (1)
4	GLENWOOD SCHOOL	ST. ANNE'S RD.	60	9	46	NO	NO	NO
5	ÉCOLE VARENNES	ST. ANNE'S RD.	60	61	5	YES	NO	NO
6	LAVALLEE SCHOOL	ST. ANNE'S RD. & BELIVEAU RD.	60	35	30	YES	NO	YES (2)
7	VICTOR H. L. WYATT SCHOOL	MEADOWOOD & ST. ANNE'S RD.	60	92	15	YES	YES	YES (1)
8	H.S. PAUL SCHOOL	DAKOTA ST. & SOUTHGLEN BLVD.	60	47	10	NO	NO	NO
9	MARION SCHOOL	DES MEURONS ST.	50	25	47	NO	NO	NO
10	MAG/HASTINGS	DUNKIRK DR.	60	24/43	5	YES	NO	NO

PROBLEM STATEMENT

To create a **standardized** Safe Routes to School Program to improve child pedestrian safety. There are identified gaps in the Safe Routes to School Program across the LRSD that could make walking or biking to school unsafe or undesirable.

HOW TO IMPROVE PEDESTRIAN SAFETY?

The majority of unintentional injuries are predictable and preventable. Before planning for pedestrian safety strategy, it is critical to review Haddon's matrix to help understand the risk factors that influence pedestrian safety. William Haddon developed a framework to improve the understanding of injury risk factors and the design of injury prevention interventions to reduce the risk of pedestrian crashes before they happen. This guiding framework will help to analyze the school division's unique child pedestrian safety situation and design a strategic plan to address pedestrian safety concerns. The framework includes three categories of factors at pre-event time to examine injury risk factors as shown in Figure 17. The three categories of factors are:

- Host (child)
- Agent (driver, car)
- Environment (physical and social)

	Host (child)	Agent (driver, car)	Physical environment	Social environment
Pre-Event (prevention phase)	<ul style="list-style-type: none"> • road crossing behaviour • adult supervision • knowledge • child's age • child's gender 	<ul style="list-style-type: none"> • vehicle speed • driver attitude • driver behaviour • driver knowledge • driver experience • vehicle design 	<ul style="list-style-type: none"> • presence/condition of sidewalks • pedestrian proximity to traffic • road design • signage • crosswalks • type of housing • weather • daylight • time of day 	<ul style="list-style-type: none"> • value placed on pedestrian safety • policy/promotion of pedestrian safety measures • law enforcement • neighbourhood socio-economic conditions

Figure 17: Haddon’s Matrix and child pedestrian safety risk factors.

It is important to determine modifiable injury risk factors from Haddon’s matrix as shown in Figure 18 prior to planning the most appropriate pedestrian injury prevention strategies.

	Host (child)	Agent (driver, car)	Physical environment	Social environment
Education	What can we do to educate/improve child knowledge and behaviour?	What can we do about educating drivers?	What can we do to improve physical road conditions?	What can we do to educate to build awareness and support for valuing pedestrian safety?
Enforcement	What can we do about enforcement of safe crossing behaviour?	What can we do about enforcing or influencing the enforcement of safe driving behaviour?	What can happen to ensure traffic control installations are used as intended?	What can we do to influence laws and policies that improve pedestrian safety?
Environmental change	<p>What can we do about increasing adult supervision near the road?</p> <p>What can we do to change road crossing behaviour conditions (e.g., traffic lights)?</p>	What can we do about vehicle modification?	<p>What can we change about the physical environment:</p> <ul style="list-style-type: none"> • to slow traffic? • to separate traffic and pedestrians? • to improve safe crossings? 	What can we do to advocate for pedestrian safety?

Figure 18: Pedestrian injuries issues within Haddon’s Matrix.

There is a growing body of literature emphasising the value of a comprehensive approach in reducing pedestrian injuries. Research shows that “A multi-disciplinary approach including theory based education, engineering solutions and law enforcement has potential to reduce pedestrian injuries.”²¹ An approach that utilizes the three E’s of Prevention (Education, Enforcement and Environmental Change) is most effective in achieving significant and long-term changes to behaviour resulting in decreased injury rate and severity (Figure 19).²²

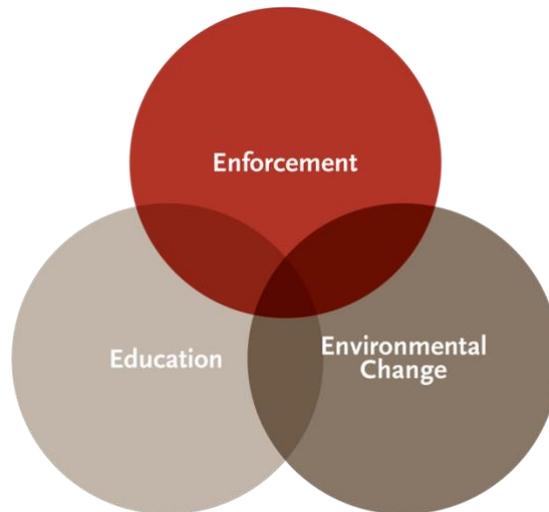


Figure 19: The three E’s of Prevention.

EDUCATION

Safety education programs can increase children’s knowledge of road safety behaviour and their attitudes towards safety. By building children’s knowledge on road safety and encouraging appropriate attitudes towards safety, children will be able to apply what they learn in the classroom to real-life situations. To further promote the development of road safety skills and their application in different traffic settings, practical skills training methods are equally important. Practical skills training methods will lead to measurable changes in children’s behaviour in traffic such as improved judgement, increase their ability to cross at intersections independently, help them learn to time crossings better, reduce their roadside impulsivity and to plan safer routes. For children, education programs should be based on behaviour change theory and need to be appropriate to the age and stage of intellectual and physical development.²³

In many other cities, bicycle and pedestrian safety education program has become a standard part of the school system’s teaching curriculum. Many road safety education programs have been developed to

²¹<https://www.cdc.gov/MotorVehicleSafety/images/ip-v8s1-a.pdf>

²² Safe Kids Canada and FedEx Express. Making It Happen Pedestrian Safety – A Guide for Communities. <http://www.parachutecanada.org/downloads/research/reports/PedestrianSafety-CommunityGuide-Eng.pdf>

²³ Klassen T., Mackay M., Moher D., Walker A., Jones A. Community-based injury prevention initiatives. *The Future of Children* 2000; 10: 83-110. [Issue theme: Unintentional Injuries in Childhood] Available at <www.futureofchildren.org>

teach students of different age groups and can be integrated into the curriculum. MPI has collaborated with Manitoba Education, Training and Youth to develop a comprehensive set of Road Safety Learning Resources to assist in teaching traffic safety to Manitoba students.²⁴ The structured Kindergarten – Grade 10 school-based program is divided into three main components: The Early Years (Kindergarten – Grade 4), The Middle Years (Grade 5-8) and The Senior Years (Grades 9 and 10). The Road Safety Program includes a series of learning activities and accompanying visuals and student worksheets. The learning activities reflect differentiated instruction for all learners. Risk Watch²⁵ is another school-based curriculum that links teachers with community safety experts and parents. The curriculum is divided into five age-appropriate teaching modules and each module addresses eight leading causes of childhood injury, such as motor vehicle crashes, falls, bike and pedestrian hazards. Another school-based curriculum is Smart Board²⁶ that focuses on Kindergarten to grade eight. Safety education should be repeated at regular intervals to improve children’s behaviour towards road safety over time.

School-based education assures that all children get the chance to learn and practise the same skills. All children can benefit from learning bicycle and pedestrian safety behaviours regardless of whether they will walk and bicycle to school as these skills will serve them throughout life. The safety education can be delivered in many ways. Various education methods that can be chosen are as follows:

- One-time instruction would offer an opportunity to introduce safety education to many children quickly, but generally offers the least information and requires the least time. This kind of method works best when the content is short, visual, focused on a single topic, age-appropriate and engages children. Safety messages can be taught through skits, songs, chants, photographic or artistic presentations, videos, guest speakers or other ways of engaging a large audience. Classes working on related topics can share what they have learned with other children in the audience. Children may have a hard time remembering or applying what they learn in these brief sessions. One-time methods can be made more effective by reinforcing them throughout the year by inserting messages in school-wide announcements, signs and newsletter articles.
- Safety education can be integrated into traditional classroom or physical education lessons to meet education standards in many ways: stand-alone sessions, lessons integrated into subjects such as math, science, reading, language arts, art, geography, health.
- Skills practice shows higher success rates, but require more time and extensive preparation. Skills practice gives children a safe, supervised environment to learn safety behaviours. Pedestrian skills practice includes where and when to cross a street and proper crossing procedure. Bicycle skills training includes bicycle handling drills and may also include a supervised group ride in a neighbourhood. Bicycle rodeos are one-time events for children to practise basic bicycling techniques and can serve as an opportunity to check children's bicycles for fit and functioning and to provide instructions on proper helmet use. Rodeos require a knowledgeable instructor and use a simulated setting for practice. Simulated settings may be playgrounds or parking lots set up with stop signs, traffic cones and other props. Often a stop

²⁴ <https://www.mpi.mb.ca/en/Rd-Safety/Pages/rslearningresourcesforschools.aspx>

²⁵ <http://www.peterboroughpublichealth.ca/my-life-health/parents-caregivers/injury-prevention/risk-watch-safety-program/>

²⁶ <http://www.icbc.com/road-safety/teaching/Pages/For-educators.aspx>

sign course is set up to teach children how to stop and look for oncoming traffic. Other activities teach balance, stopping, turning and control.

Teachers may cover the material themselves or invite guest instructors such as a local bicycle club member or law enforcement officer. Local police services often provide safety education to children in school settings. Police officers can visit classrooms to provide information and demonstrations on a variety of safety topics, including railway crossings, bicycling and pedestrian safety. Parents can play a central role as instructors for their own children and also in the school by volunteering to help with classroom and skills practice, but they may need guidance on what to teach. After-school activities are another opportunity to provide safety training and can tap into other community resources.

Engaging parents/caregivers helps to maximize the success of children's road safety education programs as parents have several opportunities to effectively assess their individual children's skills and teach safe behaviour in the course of daily life. Safety information and traffic safety activity books can be sent home and parents can be asked to reinforce the skills with their children. Asking parents/caregivers to create acceptable route maps to and from school with their children, as shown in Figure 20, and identify crossing guards, safe places and areas that may have an "eye on the street" will help children to become familiar with their surroundings. Parents can walk or bicycle the route with their children to point out landmarks and safe places to go in case of emergency. Parents can observe their child's behaviour and provide guidance in real-life situations.

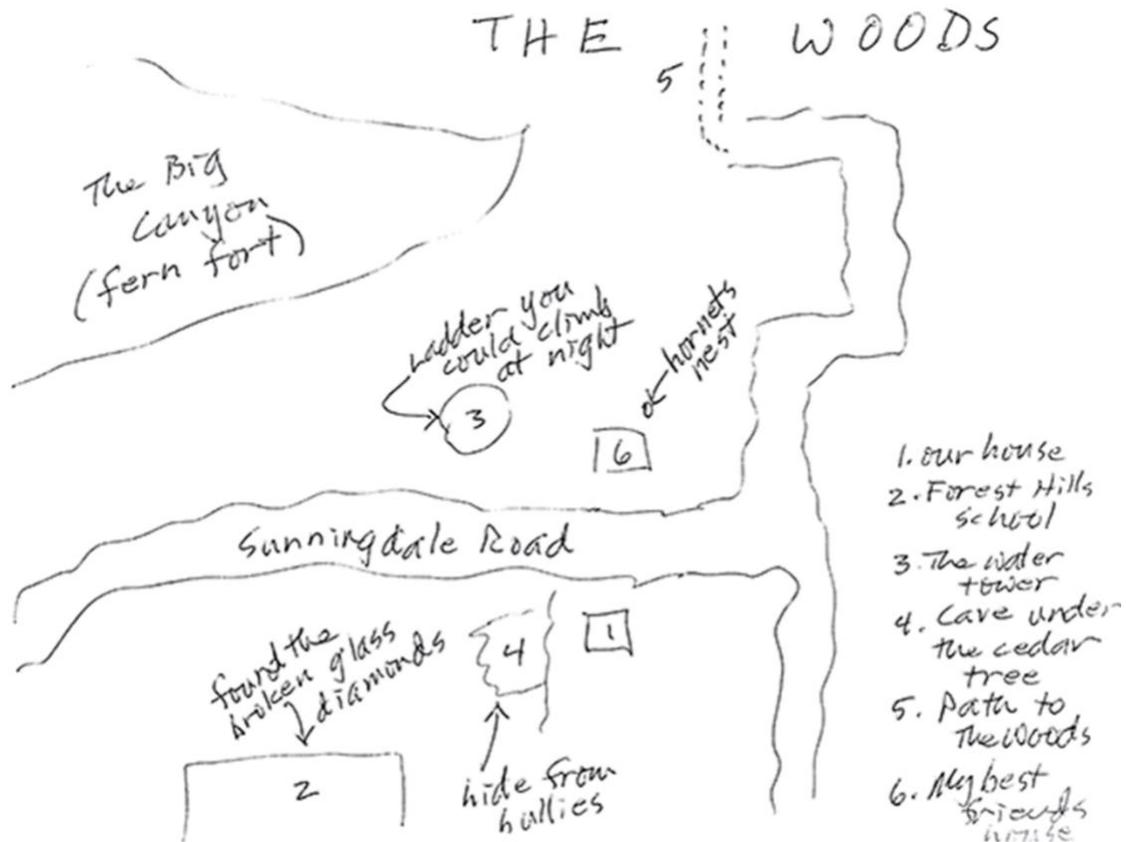


Figure 20: An example of a Safe Route to School Map created by a student.

A parent's or caregiver's own behaviour also impacts the safety of their child and all children as they walk or bicycle to school. It is also important to teach children that they need to check with their parents/caregivers before walking or bicycling alone. Children often believe that they are ready to cross a street on their own once being taught how to cross a street. In general, children are not ready to cross a street alone until age 10. Encouraging parents to take a walk with their child provides time for them to assess the child's skills, such as whether the child pays attention to traffic, chooses appropriate places to walk and has the ability to gauge gaps in traffic that allow for safe street crossing.

Walking around the school as a group to observe arrival or dismissal time can be one of the best ways to reach a collective understanding of the issues, including safety and accessibility, and potential solutions. School communities, e.g., parent advisory council, principal, school trustee, police, often conduct 'neighbourhood walkabouts' to identify specific transportation and safety issues at school sites and to prepare a plan of action to deal with these issues.

ENFORCEMENT

Enforcement is another effective program that promotes safe walking, bicycling and driving by deterring unsafe behaviours of drivers, pedestrians and bicyclists and encouraging all road users to obey traffic laws and share the road safely. An enforcement program is focused on improving behaviours of drivers, pedestrians and bicyclists around the school and requires a network of community members working together. Law enforcement cannot be expected to be solely responsible for creating a support system for children to travel to school safely. Enforcement programs include students, parents, adult school crossing guards, school patrols and neighbourhood watch programs all working in conjunction with law enforcement.

An enforcement program helps to identify unsafe behaviours of driver, pedestrians and bicyclists and develops countermeasures to address specific behaviours. An observation of traffic around a school, speed surveys and an examination of recent traffic accident data near schools can provide additional information. Some of the common unsafe behaviours observed around a school are as follows:

- Driver unsafe behaviours include: speeding through residential streets and school zones; passing stopped school buses; parking or stopping in school loading zones; failing to yield to students walking or bicycling in crosswalks; and ignoring stop signs.
- Pedestrian unsafe behaviours include: not following the directions of the crossing guard or traffic signals; not looking left, right and left again before crossing the street; crossing a street mid-block; darting out between parked cars; and wearing dark clothes when there is poor lighting.
- Bicyclist unsafe behaviours include: riding into traffic without looking left, right and left again; riding against traffic instead of with the traffic flow; turning left without looking and signaling; not obeying traffic signs and signals; riding out from a driveway or between parked cars; not wearing bike helmet; and not being visible at night when riding in the road.

Winnipeg Police Service can play an important role, from conducting education and enforcement campaigns to identifying unsafe conditions. Police officers can evaluate traffic concerns, conduct speed surveys, observe problem areas and behaviours and provide input about safe routes. Providing an enforcement presence in problem areas will discourage dangerous behaviours. School Resource Officers can oversee crossing guard programs and school patrols in the school division.

Different types of law enforcement methods can be used to change unsafe behaviours. Some of the most commonly used methods are as follows:

- Portable speed readers/active speed monitors
- Photo enforcement
- Traffic tickets
- Stricter enforcement in school zones
- Traffic complaint hotlines

The success of any targeted enforcement is strongly correlated to the reliability and accuracy of the local data. It is highly important to measure the impact of an enforcement activity in a specific situation before and after an enforcement effort. Data such as traffic speeds or observing behaviours at crosswalks and parent drop-off and pick-up zones will help to examine the impact of an enforcement activity. The data can be collected and analyzed to decide next steps. If the results are positive, the method used may be enough to improve behaviour. If results indicate little change in unsafe behaviours, perhaps another method should be used.

ADULT SCHOOL CROSSING GUARDS²⁷

Adult school crossing guards play an important role in the lives of children who walk or bicycle to school. The presence of an adult crossing guard can lead to more parents feeling comfortable about their children walking or bicycling to school. The primary role of an adult school crossing guard is to help children safely cross the complex, hazardous or congested crossing locations. The duties and responsibilities of a crossing guard includes the following:

- Encouraging patterns of safe behaviour by pedestrians when crossing a roadway
- Deterring pedestrians, as necessary, from committing unsafe and unlawful acts
- Informing motorists, by the appropriate signals, that pedestrians are using or are about to use the crosswalk and that they have the right to cross
- Observing and reporting incidents and conditions that are hazardous, including violations of traffic laws and regulations

An adult school crossing guard does not direct traffic in the usual sense of controlling or regulating the flow and movement of cars and pedestrians unless they have been specially authorized, trained, commissioned and assigned for this purpose.

SCHOOL PATROL PROGRAM²⁸

School patrol programs with the greatest rates of success are at schools that provide encouragement and build pride and morale in participants. School patrollers have the opportunity to develop leadership skills beneficial to their future endeavours.

²⁷ <https://www2.gov.bc.ca/assets/gov/driving-and-transportation/transportation-infrastructure/engineering-standards-and-guidelines/traffic-engineering-and-safety/traffic-engineering/traffic-management-and-traffic-control/pedestrian-crossing-manual.pdf>

²⁸ http://www.schoolpatrolmanitoba.com/sites/default/files/CAA_Safety_Patrol_2015_Handbook.pdf

A School Safety Patrol is a team of concerned young Canadians, aged 11 to 14, who work very closely with their patrol supervisors to ensure the safety of young children at school crossings and on school buses. The main duty of a school patrol is to help students cross the street safely. Controlling or directing traffic is not their responsibility.

ENVIRONMENT/ENGINEERING

Children are at substantial risk for pedestrian injury due to developmental immaturity; therefore, physically separating them from traffic may be a more effective approach (than education alone).²⁹ Environmental/engineering strategies are generally the easiest to implement because these changes are tangible with a known cost and have documented effectiveness. The effectiveness of these countermeasures is easiest to measure.

Traffic calming measures³⁰ are intended to achieve one or more of the following objectives:

- Reduce vehicular speeds
- Discourage through traffic volume
- Minimize conflicts between street users
- Improve the neighbourhood environment

A speed hump on residential streets is an example of traffic calming measure that has proven to be effective in substantially reducing child pedestrian injuries. An evaluation of an extensive program of speed hump installation in the city of Oakland, California, found speed humps reduced the risk to children by up to 60%, regardless of the general income level of the neighbourhood. Children who lived in an area with no speed humps were more than twice as likely to be hit by a car near their home compared to children living within one block of a speed hump.³¹

Engineering solutions comprise infrastructure changes on the school site, along the road fronting the school, within the pick-up/drop-off zone and along the surrounding road network. Some of the infrastructure improvements are recommended for consistent application at all schools and others in response to school-specific issues. Infrastructure improvements can range from the provision of crossing facilities, roadway geometric changes, traffic calming and changes to signage and pavement markings or parking/stopping/turning regulations as shown in Table 6.

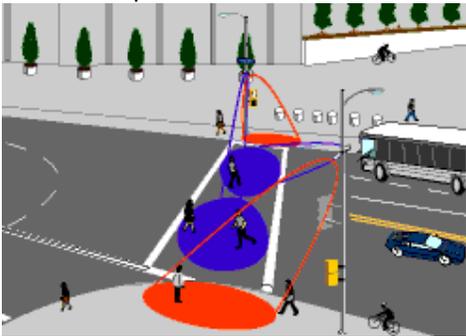
Table 6: Countermeasures for specific school issues.

ISSUE	COUNTERMEASURES
Prevent pick-up and drop-off in front of school	Assign street space for pick-up/drop-off and short-term parking space in locations such as community centres, churches, etc., providing safe connection to the school. To encourage active lifestyles, parents can drop off their children away from the school so that they can join local walking school buses for the final leg of the journey to school. Enforce “No unattended vehicles in pick-up/drop-off zones.

²⁹ Klassen T., Mackay M., Moher D., Walker A., Jones A. Community-based injury prevention initiatives. *The Future of Children* 2000; 10: 83-110.

³⁰Transportation Association of Canada. *Canadian Guide to Neighbourhood Traffic Calming*. Ottawa: TAC, 1998.

³¹ Tester J., Rutherford G., Wald Z., Rutherford M. A matched case-control study evaluating the effectiveness of speed humps in reducing child pedestrian injuries. *American Journal of Public Health* 2004; 94:646-650.

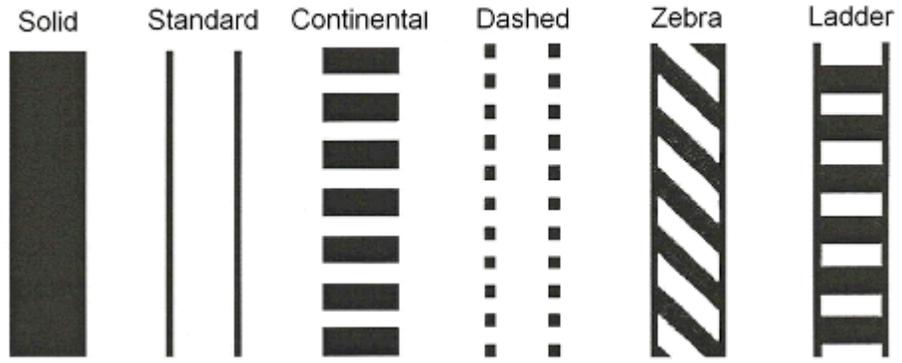
	Construct loading areas on site, wherever possible.
Reduce jaywalking in front of the school	Provide a crosswalk if demand warrants it.
Accommodation during winter conditions	Implement priority to pick up snow on streets close to school or in areas where pedestrian activity occurs.
Maintenance of trees/shrubs	The City's program should include regular patrolling around schools and pathways to identify locations that may obscure pedestrians entering the roadway.
Increased walking time at a signalized intersection	In areas where there are children, teenagers, the elderly, or special needs, users tend to require more time to cross a roadway. A more appropriate walking speed for this user group is 1.0 metres/second (or less).
Risks associated with not using a push button device at crosswalks	Automatic pedestrian detection. 
Road safety risks near schools	Use of supplementary signage such as flashing beacons warns that school children are present or school area warning sign supplemented by a speed radar sign display. 



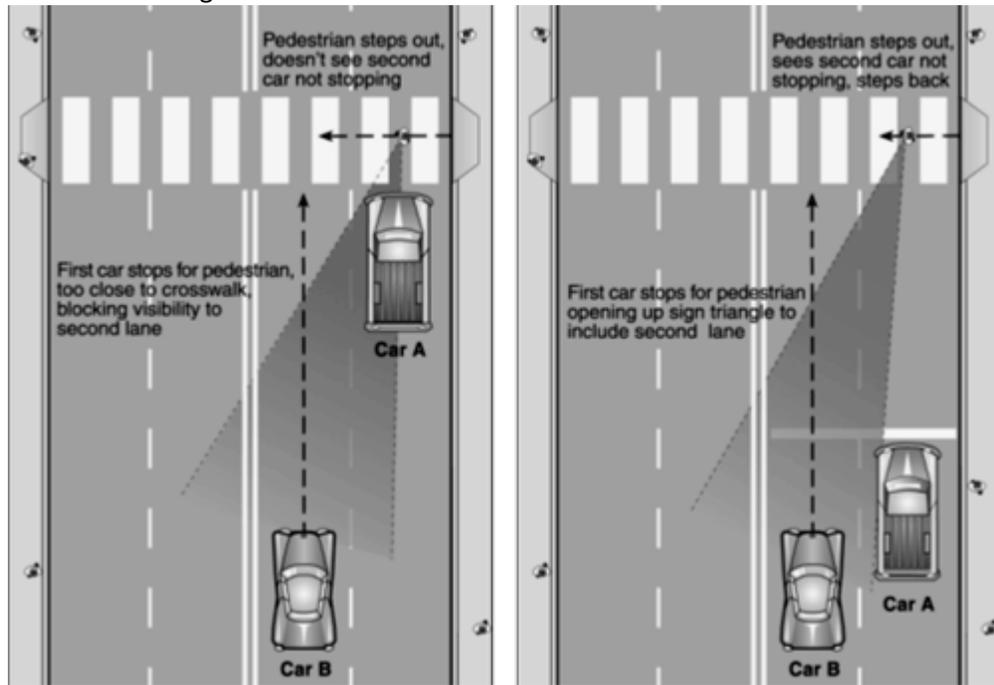
**Improve visibility
between
vehicles and
pedestrians**

Raised pedestrian crosswalk, texturized crosswalk.





Advance markings at crosswalks.



Enhance illumination at crosswalks.



Curb extensions.



Remove sightline obstructions.



Transit stop relocation if current transit stop is near side of an intersection or crosswalk.



Prevent parked vehicles from blocking view of pedestrians. Parking restrictions near crosswalk. No stopping signs.



Place of refuge for pedestrians crossing high volume and

Raised medians, orohibition of pedestrian crossings, adequate pedestrian waiting areas.

high-speed roadways	
Reduce pedestrian-vehicles conflicts	Sidewalk continuity.
Reduce vehicle speeds and collisions at intersections	Roundabout, reduce curb radius, reduce lane widths, lane reductions by addition of bicycle lanes, speed humps and tables, mid-block chicanes or chokers.




SAFE ROUTES TO SCHOOL MAPPING

The mapping of Safe Routes to School will help students and parents/caregivers to identify popular walking routes to and from school and suitable locations for student drop-off away from the school which promote walking a block or two. The map can also provide information about locations where crossing guards and school patrols exist and routes of walking school buses. The current location of crossing guards, school patrols and routes of walking school buses for 29 schools are shown in the maps as an Appendix “School Maps.”

NEW REQUEST

The LRSD Board Office collected data from school administrators to assess the current state of the walking school bus program, adult crossing guard program and school patrol program. During the data collection phase, the schools were also contacted to submit their request for additional walking school buses (Table 7), adult crossing guards (Table 8) and any other requests related to the Safe Routes to School Program.

WALKING SCHOOL BUS REQUEST

Table 7: List of schools requesting a walking school bus.

SCHOOL NAME	COMMUNITY AREA	WALKING SCHOOL BUS REQUEST
Minnetonka School	Village Canadien – Cooperative Housing (River Rd. and St. Mary’s Rd.)	1

Minnetonka School	Village Canadien – Cooperative Housing (River Rd. and St. Mary’s Rd.)	1
Victor Mager School	Manitoba Housing Complex – Chesterfield Ave.	1
Victor Mager School	Manitoba Housing Complex – Beliveau Rd.	1
TOTAL		4

CROSSING GUARD REQUEST

Table 8: List of schools requesting adult crossing guard at different crossing locations.

SCHOOLS	CROSSING LOCATION	TYPE OF CROSSING	REQUEST FOR ADDITIONAL CROSSING GUARDS
Darwin School	Darwin St. & Riel Ave.	4-way intersection	1
Frontenac School	Autumnwood Dr. & De Bourmont Bay	4-way intersection	1
H.S. Paul School	Ashworth St. S & Southglen Blvd.	4-way intersection	1
	Ashworth St. S	Crosswalk	1
	Southglen Blvd. & Hirt Cres.	Crosswalk	1
Minnetonka School	Nicolett Ave. & River Rd.	Crosswalk	1
Niakwa Place School	Pebble Beach Rd. & Willowlake Cres.	4-way intersection	1
	Bishop Grandin Blvd. & Shorehill Dr.	Traffic light	1
École Sage Creek School	Sage Creek Blvd.	Crosswalk	1
St. George School	Fernwood Ave. & St. Anne's Rd.	Crosswalk	1
Samuel Burland School	Aldgate Rd. & Paddington Rd.	4-way intersection	1
TOTAL			11

ACTIVE SCHOOL TRAVEL ENGINEERING PLANS³²

School areas have unique risks and traffic patterns compared to other land uses; therefore, they need to be treated differently than other roadways; however, this must be done with the understanding that the same roads are used for other purposes outside of school times.

In an effort to contribute to an improved Active Transit (AT) system for our children, in fall 2014 the Department of Civil Engineering at the University of Manitoba, in partnership with Green Action Centre and the City of Winnipeg, embarked on a ground-breaking project to create Active School Travel Engineering Plans (ASTEP) at 17 schools around Winnipeg in Louis Riel, Pembina Trails and Winnipeg School Divisions.

A total of five schools in the LRSD participated in this study:

- H.S. Paul School
- Highbury School
- École George McDowell

³² Active School Travel Engineering Plans. Louis Riel School Division. Prepared by the Department of Civil Engineering, University of Manitoba. Feb 2015.

- Samuel Burland School
- École Saint Germain

The study identified school specific issues and recommended infrastructure improvements oriented towards creating safe routes to schools (Tables 9, 10, 11, 12, 13).

H.S. PAUL SCHOOL

Table 9: Recommended countermeasures for road safety issues close to H.S. Paul School.

ID	COUNTERMEASURE	ISSUE
1	Implement a traffic calming circle at Ashworth St. S and Warde Ave. 	Warde Ave. primarily caters to vehicular traffic and accommodates very few pedestrians or cyclists. Combined with the large boulevards and lack of traffic calming measures, many road users speed along this segment. Although the speed limit is 60 km/hr, a speed study showed an average speed of 65.1 km/hr, with 33 out of 40 drivers observed to be speeding, with some travelling close to 80km/hr. City collision data revealed that many collisions were noted at the Ashworth St. South and Warde Ave. intersection. The installation of a traffic calming circle at Warde Ave. and Ashworth St. South would drastically increase safety along this road segment. Not only would it lower the risk of fatalities and injuries, this countermeasure would also effectively slow down the traffic on Warde Ave. A roundabout would be an even safer/more effective option for speed reduction, but the cost of implementing a roundabout (~\$500,000) was simply too high for it to be feasible.
2	Install pedestrian crosswalk at Amersham Cres. and Southglen Blvd. 	Many children coming from the north side of the trailer park take back streets to get to H.S. Paul School. One of the most common paths travelled is by taking Harlesden Dr., followed by Greenford Ave. and Amersham Cres. Multiple tread lines were visible in the snow at Amersham Cres. and Southglen Blvd., indicating that children want to cross here. Although there is a pedestrian corridor further down Southglen Blvd., children do not seem to want to cross there. That being said, Amersham Cres. is still before the 30km/hr zone starts and there is no crossing control, so crossing here is not safe or effective in the current state. The implementation of a pedestrian crosswalk at Amersham Cres. and Southglen Blvd. would satisfy the demand for crossing at this location, while also providing a safer means to do so. The crosswalk would be implemented with basic lane markings (2 lines) and signage for cars on both sides. Both children and community members would greatly benefit from being able to safely cross at this location. Many children and parents participate in soccer games located at the H.S. Paul School during the warmer seasons and park along Southglen Blvd. facing the field. This crosswalk would assist soccer-goers in safely crossing to the field.
3	Install tactile pads at the intersection of Ashworth St. S and the South St. Vital Trail.	Many children and community members walk along the Active Transportation path on a daily basis. It is one of very few paths in the area specifically geared towards non-motorized

		<p>traffic. When the path reaches the Ashworth St. South intersection, there is no curb or surface indicating where the crossing begins. Visually impaired pedestrians would be unable to distinguish between where the path meets the road and could potentially cross unknowingly into oncoming traffic. Construction of a bump or curb at this intersection would be more expensive than needed. A simple solution, such as adding tactile pads on both sides of the crossing is sufficient. A different surface would be enough to warn visually impaired road users of a crossing/change in road use ahead.</p>
<p>4</p>	<p>Install crosswalk lines and tactile pads at Southglen Blvd. and Ashworth St. S.</p> 	<p>Traffic in front of H.S. Paul School is a nightmare for everyone. There are many issues with compliance and overall operation at the Ashworth St. South and Southglen Blvd. intersection. Children have trouble crossing due to parked cars obstructing their line of vision, so a patrol was hired to assist with crossing during the mornings. Buses have trouble turning onto Southglen Blvd. because of a smaller-than-recommended lane width and cars parking right up to the stop sign. The stop line for vehicles is not set back enough from the intersection, further complicating these issues. It is highly recommended that tactile pads be installed and crosswalk lines delineated in all four directions at the Ashworth St. S and Southglen Blvd. intersection. Not only would this improve visibility and conspicuity for shorter pedestrians, it would also force cars to park and stop further back from the stop sign, making turning easier for buses.</p>
<p>5</p>	<p>Change parking at Ashworth St. S and Southglen Blvd. to No Parking between Sept. and June, Mon. to Fri., 8 am to 4 pm including a “No Idling” sign.</p>	<p>Buses cannot turn left here because of these parked cars, causing mass confusion at the intersection. Sometimes parents even try to double-park, taking up another driving lane and adding to congestion.</p>
<p>6</p>	<p>Move stop signs back at Southglen Blvd. and Ashworth St. S in order to assist turning buses.</p>	
<p>7</p>	<p>Addition of crosswalk warning signs at the intersection of the Active Transportation Path and Balham Rd.</p>	<p>Currently no warning to drivers that there is a path at the location.</p>
<p>8</p>	<p>Same as #7 but at Simon Dr.</p>	<p>Currently no warning to drivers that there is a path at the location.</p>
<p>9</p>	<p>Add “School Zone” sign at Warde Ave. and Ashworth St. S.</p>	<p>High speed area with no sign indicating a school nearby. Active Transportation path and school yard extremely close to this intersection.</p>
<p>10</p>	<p>Move sign for ‘Children at Play’ sign on Ashworth St. S.</p>	<p>Sign currently blocked by tree. Visible in winter months, but not when leaves are present.</p>
<p>11</p>	<p>Extend parking lot and include parent drop-off zone in extended lot. Also consider relocating playground.</p>	<p>Principal has stated that staff does not have enough parking and presence of bus routes make street parking difficult.</p>
<p>12</p>	<p>Addition of crosswalk warnings on Dakota St. for the Active Transport Path crossing.</p>	

13	Addition of “Watch for Pedestrians and Cyclists” on stop signs at parking lot and street exits along Dakota St.	Cars do not stop at widened sidewalk where cyclists often pass through the ‘Stop and Dismount’ signage and creep up to intersection without looking.
14	Same as #13 at another location on Dakota St.	Cars do not stop at widened sidewalk where cyclists often pass through the ‘Stop and Dismount’ signage and creep up to intersection without looking.

HIGHBURY SCHOOL

Table 10: Recommended countermeasures for road safety issues close to Highbury School.

ID	COUNTERMEASURE	ISSUE
1	<p>Highbury Rd. at Southfields Dr. and Tiverton Bay - installation of curb bulb-outs in front of Highbury School.</p> 	<p>It was observed that pylon cones were placed on Highbury Rd. in front of Highbury School. The pylons reduce the crossing distance which pedestrians are exposed to moving traffic by shifting the traffic to the centre of the road. The pylons also help enforce the parking restrictions directly in front of each crosswalk and result in more visible pedestrians. It is also likely that the pylons result in a reduction of vehicle speed by reducing the effective width of the street. During the open house, it was discovered that motorists commonly drive over or move the pylons to increase parking space. Replacing the pylons with a permanent curb bulb-out retains the benefits of the pylons without risk of being ignored by motorists.</p>
2	<p>Highbury Rd. at Southfields Dr. - move the sign so it is in front of the trees, ensure adequate tree maintenance is followed.</p>	<p>Crosswalk signs are hidden behind trees. Drivers travelling north on Highbury Rd. have trouble seeing the crosswalk signs.</p>
3	<p>Highbury Rd. at Tiverton Bay - extend west side sidewalk from road to provide room to lower sidewalk grade.</p>	<p>West side sidewalk connecting to the crosswalk in front of Highbury School has a steep slope.</p>
4	<p>Highbury Rd. intersection with Aldgate Rd. - installation of 2-way stop sign in the intersection of Highbury Rd. and Aldgate Rd.</p> 	<p>Limited crossing locations on Aldgate Rd. (north-south direction) pose a major concern for citizens as pedestrians have to wait or walk greater distances for a chance to safely cross. Due to the lack of signalization or controlled stops, drivers tend to drive at higher speeds. As a result, this area proves to be unpredictable as pedestrians cross at random locations. This creates confusion and additional risks for all the road users.</p> <p>To counteract this problem, the installation of additional stop signs is proposed. This decision was based on the comments gathered from the open house as well as the expected growth in road users in the area resulting from the construction of approximately 300 new houses south of Aldgate Rd. This is of special importance as the students from these expected families are within the 1.6 km radius of school bus service restriction. This means that more students will need to get across Aldgate Rd. (south to north direction) by means of walking or biking.</p>
5	<p>Dakota St. and John Forsyth Rd. conversion of Dakota St. and John</p>	<p>The intersection of Dakota St. and John Forsyth Rd. is currently controlled by a four-way stop sign. The intersection is relatively large since John Forsyth Rd. consists of two lanes</p>

	<p>Forsyth Rd intersection to a roundabout.</p> 	<p>in each travel direction. Yield lanes are present for each right-turn movement. Due to the large size of the intersection, it is recommended to convert the intersection into one controlled by a roundabout. Land appropriation would likely not be an issue since the roundabout should be able to fit within the current street right-of-way. Modifications to the geometry of the intersection would be necessary to accommodate the roundabout; however, it is believed this is justified by the efficiency in traffic management of roundabouts. The feasibility of the conversion of this intersection was raised during the walkabout. One area of concern would be educating the public regarding the proper use of the facility. This is particularly true for children as they may not understand the operation of roundabouts in relation to pedestrians and vehicles.</p>
6	<p>In front of Highbury School - raise bus stop paving stones to curb.</p>	<p>Sidewalk and curb at the bus stop shows potential tripping hazard.</p>
7	<p>Highbury Park Path - fill post hole.</p>	<p>A post was removed but there is still a hole.</p>
8	<p>Aldgate Rd. at Zylema Cove - excavate excess material under sidewalk to reduce heave.</p>	<p>Sidewalk heaving and looks to worsen over time.</p>
9	<p>Aldgate Rd. at Higham Bay - construct sidewalk refuge island.</p>	
10	<p>Aldgate Rd. at Paddington Rd. - fill hole with concrete even to street level. Excavate excess material under sidewalk to reduce sidewalk height differential and repair electrical box.</p>	<p>A patch of unfinished concrete is left on the street. Sidewalk block is not levelled with the other blocks and can trip pedestrians. Damaged and exposed electrical box.</p>
11	<p>Aldgate Rd. at Oxford Cres. - realign sidewalk and repair sidewalk slab</p>	<p>Sidewalk ramp is not angled towards the opposite sidewalk ramp. Sidewalk slab is a major tripping hazard.</p>
12	<p>Aldgate Rd. between Oxford and Cummings Cres. - install a concrete slab to connect the bus stop approach to the sidewalk.</p>	<p>The bus stop approach does not connect to the sidewalk and this causes wheelchairs to get stuck in this low grass area.</p>
13	<p>Aldgate Rd. at Cummings Cres. - realign the sidewalk.</p>	<p>Sidewalk slab has low depressed areas and is a tripping hazard.</p>
14	<p>Aldgate at Dakota St. - repair and maintain the condition of the island and install signs before the crossing.</p>	<p>The island turnoff on the east side of Dakota St. has bulging concrete, uneven slopes and damaged curbs. Install signs before crossing to warn turning drivers of pedestrians.</p>
15	<p>Aldgate Rd. at Cactus Cove/Kingsclear Dr. - add soil to the low grass areas to level it with the sidewalk and realign the slabs and install new slabs where necessary.</p>	<p>Heavy ground depression beside the sidewalk. Major depressed slabs can cause tripping.</p>
16	<p>Aldgate Rd. at Sloane Cres. - repair the sidewalk.</p>	<p>Major sidewalk tripping hazard.</p>
17	<p>John Forsyth Rd. at Gablehurst Cres. – realign the sidewalk approach to face the opposite approach.</p>	<p>North sidewalk approach faces at an angle and not towards the south sidewalk approach.</p>
18	<p>John Forsyth Rd. at Everden Rd. - remove the sidewalk approach or install</p>	<p>Sidewalk approach goes nowhere across John Forsyth Rd. Curb is missing on the south side of John Forsyth Rd. so cars can easily drive into the sidewalk area.</p>

	a sidewalk approach on the south side of John Forsyth Rd.	
19	John Forsyth Rd. at Coombs Dr. - construct a curb, move the signs to a more visible location, install orange pole.	Curb is missing on the south side of John Forsyth Rd. so cars can easily drive into the sidewalk area. "Children Playing" and "No Parking" signs behind a tree and are hard to see by drivers. Hydrant is missing an orange pole that identifies it.
20	John Forsyth Rd. at Balsinger Dr. - repair the curb.	Curb is damaged on both sides of Balsinger Dr.
21	John Forsyth Rd. at Manor Haven Dr. - remove the W-Valve if it is not in use, or repair it so that it is not exposed. Re-align the sidewalk approach to face the opposite approach. Move the sign to a more visible location.	Exposed W-Valve with the cap off. The pipe is rusted and can injure children. North sidewalk approach faces at an angle and not towards the south sidewalk approach. "No Parking" sign on the south side of John Forsyth Rd. (in front of École Christine-Lespérance) is hidden. A car was parked illegally at the time.
22	John Forsyth Rd. at Glenham Cove - introduce a larger school zone area.	School zone ends, but Highbury School is just one block away. Drivers are seen to speed up after the sign.
23	Highbury Rd. at Hackmore Cres. - put up 30km/hr signs for the street.	Posts are put up but no signs are on the posts. Three different locations.
24	Dakota St. at Park Path - repaint the crosswalk	Crosswalk paint is faded and not visible from afar.
25	Paddington Rd. at Willowbend Cres. - sidewalk repair imperfections	Elevated sidewalk.
26	Paddington Rd. at Warde Ave. - repair damaged corner.	Damaged corner.
27	Warde Ave. - repair damaged curb, sidewalk cracks, and sidewalk heaves.	Curb damaged, cracked sidewalk and elevated sidewalk.
28	John Forsyth Rd. at Warde Ave. - repair curb.	Curb damaged.
29	John Forsyth Rd. between Warde Ave. and Burland Ave.- repair sidewalk cracks.	Sidewalks with cracks.
30	John Forsyth Rd. at Burland Ave. – fix corner	Damaged corner.

ÉCOLE GEORGE MCDOWELL

Table 11: Recommended countermeasures for road safety issues close to École George McDowell.

ID	COUNTERMEASURE	ISSUE
1	Roundabout 	The four-legged intersection with four-way stop control has a large crossing distance and is confusing and cumbersome for pedestrians. The implementation of a roundabout at this location will reduce pedestrian conflict points and accommodate traffic in a less confusing manner while allowing traffic to flow freely.
2	Reconstruct and mark crosswalks	This four-way stop controlled intersection has high volumes of pedestrian traffic and poor crossing conditions.

		<p>The changes recommended are to provide adequate alignment of ramps on each corner of the intersection, provide adequate pavement markings, and move the existing stop sign on John Forsyth Rd. (south) to the appropriate location at the corner. As a result of moving the stop sign to the corner, the existing crossing will also require to be moved to the corner; this will involve removing the side walk section extending to John Forsyth Rd. (south) on each side of the street and providing signage directing pedestrians to cross at the new ramp located at the corner.</p>
<p>3</p>	<p>Install signaled pedestrian corridor</p> 	<p>High pedestrian usage. Existing crossing provisions include upgraded crossing ramps, signage and pavement markings. The implementation of the lighted corridor should provide safer passage for pedestrians and cyclists using the trail. Furthermore, the corridor should alert drivers of a potential user crossing and lower speeds at this location making the intersection safe for all users.</p>
<p>4</p>	<p>Reconstruct and mark crosswalks; remove post from clear zone</p>	<p>Four-legged intersection with four-way stop control. High usage by young pedestrians. Non-uniform crossing provisions. Needs maintenance. Hazardous light post in clear zone.</p>
<p>5</p>	<p>Reconstruct, realign and mark crosswalks</p>	<p>Four-legged intersection with two-way stop control. Non-uniform crossing ramps and platforms. High potential for vehicle/pedestrians conflicts.</p>
<p>6</p>	<p>Crosswalk ramp, concrete maintenance</p>	<p>Three-legged intersection with three-way stop control. Un-negotiable crossing ramps for vulnerable users (wheelchairs etc.).</p>
<p>7</p>	<p>Construct new, paved, illuminated path</p> 	<p>The existence of desired lines in the green space adjacent to Dakota Forest illustrates that this location is used often by pedestrians and cyclist during summer months. The implementation of a paved and lighted path at this location, along with a maintenance program, will allow users to use this corridor year-round. This path will allow children to avoid using busy routes such as Dakota St. as a part of their regular route to school and reduce the risk of collisions.</p>
<p>8</p>	<p>Signage to inform pedestrians to push walk button</p>	<p>Sufficiently signaled intersection for pedestrian crossing. Unless familiar with the intersection, pedestrians may not know the requirement to activate the crossing control.</p>
<p>9</p>	<p>Transverse crossing pavement markings</p>	<p>This crossing lacks pedestrian control and road user warning. Existing control consists of stop sign for cyclists and additional signage instructing cyclists to dismount.</p>
<p>10</p>	<p>Curb and crosswalk concrete maintenance</p>	<p>Four-legged intersection with four-way stop control. Significant volumes of pedestrian traffic. Crosswalk ramps are in adequate condition.</p>
<p>11</p>	<p>Re-evaluate lighting type, size, brightness</p>	<p>Poor lighting on path posing a potential hazard between pedestrians and cyclists. Better lighting may increase sense of security of users.</p>
<p>12</p>	<p>Widen sidewalk for shared pedestrian and cyclist use</p>	<p>Service users travelling to school area from communities to the north. No designated pedestrian/cyclist accommodation.</p>

SAMUEL BURLAND SCHOOL

Table 12: Recommended countermeasures for road safety issues close to Samuel Burland School.

ID	COUNTERMEASURE	ISSUE
1	Pedestrian crosswalk on Paddington Road at Burland Avenue.	This is a main route used by children walking to school; however, most cars do not come to a complete stop at this intersection and drivers are not watching for children. By implementing a pedestrian crosswalk, drivers are more likely to come to a complete stop at the intersection and be more alert to children crossing the road. In addition, parents will feel more comfortable allowing their children to use this route.
2	Snow removal on all Active AT paths surrounding the school and entering Burland Park.	At this time, no AT paths have snow removal done during the winter which deters students from using them. In addition, parents do not want children to have to walk longer routes on sidewalks as they are exposed to traffic during slippery conditions and the weather is not ideal. By removing snow, children can continue to use the AT path during the winter.
3	Pedestrian crosswalk on Aldgate Road at active transportation path.	There are no controlled intersections or traffic calming devices on Aldgate Road and traffic is often travelling at speeds higher than the speed limit. In addition, the AT path is hidden between fences and cannot be seen from street. By implementing a pedestrian crosswalk at the AT path, drivers will be more alert in the area and become aware of the AT crossing. In addition, parents will feel more comfortable allowing their children to use the path to commute to and from school.
4	Change all “No Parking” signs along Burland Avenue in front of Samuel Burland School to “No Stopping” signs	This area is congested during pick-up and drop-off times, as parents come 45 minutes early to pick up their children and park or idle in the parking lanes. Congestion makes it difficult for children to see if it is safe to cross. Parents park dangerously (i.e. in front of crosswalks, in front of fire hydrants, etc.). By implementing “No Stopping” signs, children will be able to see when it is safe to cross the street, parents will not park illegally and dangerously, and bus stops and fire hydrants will not be blocked.
5	Extend AT path on east side of Burland Park to the asphalt area behind Samuel Burland School	Currently the active transportation path does not quite reach the school and in the winter, there is no link from the path to the school. By extending the active transportation path, children can continue to use the active transportation path during the winter.
6	Pedestrian crosswalk on Paddington Road at active transportation path	There are no traffic calming devices on this section of Paddington Road and the layout of the roadway encourages high speeds. In addition, drivers do not expect people crossing the street in this area. By implementing a pedestrian crosswalk at the active transportation path, drivers will be more alert in the area and become aware of the active transportation crossing. In addition, parents will feel more comfortable allowing their children to use the path.
7	Remove southern portion of active transportation path crossing Dakota Street	Northern portion of path leads to a pedestrian crosswalk on Dakota Street and the southern portion does not lead to a crosswalk. In addition, drivers are not expecting pedestrians

		to cross when they have just driven through a pedestrian crosswalk. By removing the southern portion of the active transportation path, pedestrians will not be led to an area where there is an unsafe crossing and drivers will expect pedestrians to cross at crosswalk.
8	Pedestrian crosswalk on Pately Crescent at Burland Avenue	The area is heavily congested during pick-up and drop-off times. In addition, drivers may not see children crossing Pately Crescent as they are focused on surveying Burland Avenue. By implementing a crosswalk, drivers will be more alert to children crossing the street instead of focusing on clearing the intersection. In addition, drivers will be reminded to check for pedestrians on smaller streets in addition to high-traffic roadways.
9	Create a pedestrian refuge on Aldgate Road at Cummings Crescent (2 m with curb ramps)	There are no controlled intersections or traffic calming devices on Aldgate Road and traffic is often travelling at speeds higher than the speed limit. In addition, children must wait for extended periods of time to be able to cross both lanes of traffic at once. By installing a pedestrian refuge, pedestrians will not have to cross both lanes of traffic at once. Also, parents will feel that the route is more safe for their children.
10	Extend active transportation path on west side of Burland Park to the sidewalk along Burland Avenue	The path currently empties into a one lane back lane which experiences heavy traffic. Parents park their cars in the back lane during pick-up and drop-off times. By extending the active transportation path, children walking/cycling will not have to be near cars. Also, parents will feel more comfortable allowing their children to use the active transportation path.
11	Install speed humps on Burland Avenue where speed limit changes from 50 km/h to 30 km/h	Drivers are not driving the posted speed limit in the area. Also, the street becomes very congested during pick-up and drop-off times, which makes it difficult for drivers to see children attempting to cross the street. By installing speed humps, drivers will become more alert to the speed limit change. In addition, drivers will become more alert to children walking, cycling and using crosswalks.
12	More frequent snow bank removal on Burland Avenue directly in front of Samuel Burland School	Often snow banks reach heights of six feet, which makes it difficult for children to see if it is safe to cross the street. In addition, it is difficult for drivers to see if a child is entering a crosswalk. By removing snow banks, children will be safer crossing the street. In addition, parents will feel more comfortable allowing their children to walk to school during the winter.
13	Pedestrian crosswalk on Paddington Road at Warde Avenue, move stop signs closer to intersection	Because stop signs are set back from the actual intersection, drivers must stop before the sidewalk, drive up to the actual intersection, and check again for cars and while blocking off the sidewalk. By moving the stop signs closer to the intersection, drivers will be more alert to children walking instead of solely focusing on clearing the intersection.
14	More noticeable "No Idle" signs along fence in front of Samuel Burland School	Parents will idle their cars for 45 minutes for their children at pick-up time. There is only one small sign directly in front of the school and one located on the school building. By installing more signs, parents will be reminded of the environmental consequences of idling for long periods of time.

ÉCOLE SAINT GERMAIN

Table 14: Recommended countermeasures for road safety issues close to École Saint Germain.

ID	COUNTERMEASURE	ISSUE
1	Add "Approaching Stop" Sign.	Curve in Paddington Rd. makes stop sign @ John Forsyth Rd. seem abrupt.
2	Add crosswalk paint/signage on each leg of the three-way intersection at Paddington Rd. and John Forsyth Rd. In addition, move "no parking" signs further away from the intersection on Paddington Rd.	Parked vehicles on either side of stop signs obstruct line of sight from vehicles seeing pedestrians crossing Paddington Rd.
3	Add 30 km/hr signs.	Install a 30km/hr signs on John Forsyth Rd. between Warde Ave. and Paddington Rd. to slow down people travelling down this section of road. This may reduce the risk and severity of collisions.
4	Level sidewalk block.	Sidewalk uneven.
5	Add "Crosswalk Ahead" sign.	Crosswalk isn't extremely visible until close up.
6	Add "no U-turn" sign in area and enforce with school personnel.	U-turns in front of the bus loop pose hazard to other vehicles as well as pedestrians. Install a no U-turn sign in front of the school to try and prevent parents from doing that when dropping their children off.
7	Do not allow drop-off as close to stop sign. Enforce with "No Parking/Stopping" sign and school personnel.	Cars dropping off students on Thornewood Ave. are parked too close to the stop sign and obstruct the view of pedestrians crossing Thornwood.
8	Finish barricading off the end of the teachers parking lot so children do not enter that parking lot and have a chance to be hit by a vehicle.	
9	Realign sidewalk to allow all stop signs to be equidistant from the intersection, add crosswalk signs and markings to each leg of intersection, and prune.	At Warde Ave. and John Forsyth Rd. there are no crosswalk markings and signs and sidewalks do not align. Sidewalk and stop sign on south side of John Forsyth Rd. and Warde Ave. is very far from intersection which can be confusing for cars approaching from other directions. In addition, there is a tree blocking the view of a stop sign. With installing this countermeasure it will increase the awareness of drivers that pedestrians will be crossing at this intersection and give drivers an idea of where they need to be stopped so they are not in the way of a pedestrian crossing the street.
10	Add stop sign.	Missing stop sign.
11	Increase sidewalk width.	Sidewalk too narrow.
12	Replace curb.	Curb missing.
13	Level sidewalk block.	Bulge in sidewalk.
14	Install crosswalk signs/paint.	Missing crosswalk and signage.
15	Add sidewalk.	No sidewalk on both sides of Tufnell Dr.
16	Add sidewalk.	No sidewalk on south side of Charing Cross Cres.
17	Move bus stop back.	Bus stop close to intersection which could cause bus to block view of pedestrians to other vehicles.

18	Move bus stop back and add crosswalk signs and paint.	Bus stop close to intersection which could cause bus to block view of pedestrians to other vehicles. No crosswalk markings.
19	Add sidewalk.	No sidewalk on south side of Longford Ave.
20	Add sidewalk for connectivity.	At south east corner of the intersection at Willowbend Cres. and Paddington Rd., sidewalk goes to the road but there is no connecting sidewalk at other side.
21	Realign sidewalk to allow all stop signs to be equidistant from intersection.	There is a stop sign at the sidewalk but the road is a fair distance away from the stop sign which could confuse drivers.
22	Prune tree.	Second 30 km/hr sign partially blocked by tree.
23	Add a sidewalk that connects to the road on the other side or remove the portion of sidewalk.	Sidewalk goes to road but no sidewalk goes to the road on the other side (said sidewalk is made of concrete blocks).
24	Create sidewalk connection to other side of Paddington Rd.	Sidewalk on north side of Pately Cres. does not lead anywhere across Paddington Rd.
25	Add crosswalk signs, stop line, crosswalk paint.	Missing stop lines and crosswalks at intersection.
26	Add crosswalk paint, install crosswalk signs and “approaching crosswalk” signs.	Crosswalk of path has no crosswalk signs, no paint markings and no “approaching crosswalk” signs.
27	Realign and straighten sidewalk.	Sidewalk just north of Boone Pl. has a curve for no apparent reason which could pose hazard to visually impaired.
28	Realign and straighten sidewalk.	Sidewalk meanders on west side of Paddington Rd., could pose hazard to visually impaired.
29	Put up snow fences on each side of AT path and have small exits along the path near the school. Have the bike path snow cleared so it’s useable throughout the winter.	
30	Install a small asphalt path that runs from the church parking lot across the bike path, behind the teachers’ parking lot, and connects to the École Saint Germain.	

NIAKWA PLACE SCHOOL³³

Niakwa Place School Parent Association prepared a report on road safety to identify issues that needs to be addressed to improve the accommodation of all road users with main focus on improving safety of pedestrians as shown in Table 15.

Table 15: Recommended countermeasures for road safety issues close to Niakwa Place School.

ID	COUNTERMEASURE	ISSUE
1	Add sidewalk	No sidewalks adjacent to the school along Pebble Beach Rd., from Willow Point Rd. to Willowlake Cres., as well as on Willow Point Rd. between Pebble Beach Rd. and Gleneagles Cres.

³³ Infrastructure Deficiencies Affecting Student Safety At Niakwa Place School, Winnipeg, MB Report prepared by Grant Lindgren Niakwa Place School Parents Association (Chairperson) January 2017

		Lack of public sidewalk makes that main public entrance to the school inaccessible. To enter the school’s main entrance from the public sidewalk on the opposite side of the street, the current infrastructure actually forces pedestrians to cross the street between crosswalks, in contravention of section 88(2) of the Highway Traffic Act. Students and visitors to the school are forced to walk on the roadway, particularly in winter and during periods of wetness. Lack of appropriate sidewalks creates an enormous risk by pushing students up onto snowbanks adjacent to the street. The hazards associated to children on snowbanks beside a roadway are well documented.
2	Create a “cut-out” and loading zone in front of the school on Pebble Beach Rd.	Lack of appropriate loading zones in front of the school and lack of access to the main entrance are extremely problematic for visitors with physical disabilities and mobility issues. No stopping zones along the length of the school grounds on Pebble Beach Rd. forces Canada Post employees, courier drivers and delivery persons to disobey the Highway Traffic Act to conduct their business.
3	Create a “cut-out” for a loading zone along the length of Willow Point Rd., on the north side of the school.	Traffic congestion on Willow Point Rd. during pick-up and drop-off compels people to utilize private driveways to turn around when passing is not possible. This causes animosity between the school families and the neighbourhood residents who should rightfully expect their property to be respected. The school administration receives complaints from the neighbours every year, particularly in winter when the car traffic creates snow ruts in the driveways before residents can clean their property as they wish. Traffic congestion, particularly at the intersection of Willow Point Rd. and Gleneagles Cres. has led to increased numbers of motor vehicle collisions.

FINANCIAL IMPACT

WALKING SCHOOL BUS PROGRAM BUDGET

Assumptions:

1. To calculate total cost, it is assumed that every school year will have approximately 195 school days
2. The hourly salary of an Educational Assistant Payband 4 is \$21.95 per hour (including benefits) as per Collective Agreement CUPE 3473
3. The hourly salary for casual employees is \$17.60 per hour (including benefits)

Option 1: If an Educational Assistant is hired as Walking School Bus leader for an hour daily, the cost of a walking school bus is shown in Table 16.

Table 16: Cost of walking school bus with an Educational Assistant as bus leader.

CATEGORIES	COST
Staff Salary	\$ 4,280.25
Supplies	\$ 200.00

TOTAL COST	\$ 4,480.25
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Option 2: If a casual employee is hired as Walking School Bus leader for an hour daily, the cost of a walking school bus is shown in Table 17.

Table 17: Cost of walking school bus with a casual employee as bus leader.

CATEGORIES	COST
Staff Salary	\$ 3,432.00
Supplies	\$ 200.00
TOTAL COST	\$ 3,632.00

The total cost of walking school buses based on option 1 and 2 is shown in Table 18. The operational cost is higher for a walking school bus with an Educational Assistant as bus leader and is lower for a walking school bus with a casual employee as bus leader.

Table 18 shows budget required for two new walking school buses based on two options.

CATEGORIES	OPTION 1	OPTION 2
Minnetonka School	\$8,960.50	\$7,264.00
Victor Mager School	\$8,960.50	\$7,264.00
TOTAL BUDGET	\$17,921.00	\$14,528.00

ADULT CROSSING GUARD PROGRAM BUDGET

Assumptions:

1. To calculate total cost, it is assumed that every school year will have approximately 195 school days
2. The hourly salary of a crossing guard is \$17.60 per hour (including benefits)
3. The total working hours of all current crossing guards per day is 24.53 hours

The divisional budget for the crossing guard program is \$59,705 for the school year 2017-2018. Based on the current total working hours of all crossing guards, schools having a crossing guard program are providing budgetary support in total of \$24,481.96 to the crossing guard program out of their school budget.

After aligning the working hours of crossing guards with school bell time for first class, there will be an increase of 125 minutes per day (or 2.083 hours per day) to the total working hours of crossing guards.

$$\begin{aligned} &\text{Additional budget required due to an increase in total working hours of crossing guard} \\ &= 2.083 \text{ hours per day} \times \$17.60 \text{ pay per hour} \times 195 \text{ school days} \\ &= \$7,150.00 \end{aligned}$$

Based on the request for additional crossing guards by eight schools, a total of 9.83 hours per day will be required.

Budget request of additional crossing guards

=9.83 hours per day X \$17.60 pay per hour X 195 school days
 =\$33,748.00

Total additional budget required for adult crossing guards = \$7,150.00 + \$33,748.00 = \$40,898.00

For Flagperson Certificate Course, the training for both current 30 and new 11 crossing guards will require three groups. Based on group rates, the training cost will be **\$3,897** + taxes.

Table 19: Total budgetary requirement for a standardized adult crossing guard program.

CATEGORIES	BUDGET (2017-18)	NEW BUDGET REQUEST (2018-19)
Crossing Guard Salaries	\$84,198.40	
Additional Budget required after aligning working hours with school bell times for first class		\$7,150.00
New Crossing Guard Salaries		\$33,748.00
Professional Development (Flagperson Certificate Course)		\$4,500.00
Staff Meetings		\$500.00
Uniforms/Headcover		\$2,000.00
Sign (Stop Paddles)		\$3,000.00
TOTAL BUDGET		\$135,096.40

RECOMMENDATIONS

It is recommended that multiple stakeholders and partners in LRSD be involved in developing the framework to support a standardized Safe Routes to School Program.

STUDENTS

- Create safe walk routes from home to school that capitalize on school patrols, adult crossing guards, controlled intersections and where possible, low traffic volume.
- Participate in the development and implementation of action items such as older students leading walking school buses, organizing active transportation promotions and events.
- Make banners and posters to promote safe walking and biking to school.
- Participate in walkabouts and traffic observations.
- Students can be taught to report safety concerns to trusted adults (parents, guardians, teachers, school principal, adult crossing guards, etc.) and speak out and say something when they see unsafe behaviour happening.

PARENTS/PARENT ADVISORY COUNCILS

Parent/caregiver's support and involvement in student personal safety and security is important because parents/caregivers are role models for their child and can play a vital role in teaching children to become safe pedestrian. Parents/caregivers can provide guidance to their children and raise safety awareness and safe pedestrian habits in young children.

- Parents/caregivers can co-map with the school, safe routes to and from school and encourage their child to use safe routes and avoid shortcuts and isolated routes. Parents/caregivers should discuss and approve possible alternate routes if children sense suspicious activity or feel unsafe

on their regular route. For children who come home to an empty house, parents/caregivers can establish a check-in procedure that may include having the children check in with a trusted neighbour or call the parents at a specific time to let them know they are safely home.

- For elementary-age students, walking school buses and bicycle trains, in which an adult driver walks or bicycles along a designated route and picks up students along the way, offer a great way for students to travel together. Adults can create opportunities for safety discussion by accompanying their children on walks. Parents/caregivers can walk or bicycle the route with their children and familiarize them with landmarks and safe places in case of emergency. The success of parental guidance is dependent upon adults having proper safety knowledge to share with their children.
- Assist their children in completing a Traffic Safety Activity Workbook.
- Parents/caregivers can participate in the walkabout and traffic observations. Parents/caregivers can help with traffic safety and watch out for anything suspicious. Some communities choose to establish a formal safe places program, which identifies a marked network of places children can go when they sense danger. Parents/caregivers who stringently obey traffic safety rules and have even brief teaching moments with their children on safety can help to improve child pedestrian safety.
- Identify and communicate safety concerns related to safe walking routes to school.
- Contribute ideas and advocate for infrastructure improvement initiatives.
- Initiate networking activities for other parents to connect and share best practices on safe routes to school. Parents and caregivers can teach children to:
 - Always look both ways before crossing any street including a marked crosswalk or an intersection with a Walk signal.
 - Continue to look as you cross the street and check every lane of traffic, and any gap, as you walk.
 - Do the same when crossing at intersections but also watch for turning vehicles.
 - Never allow a marked crosswalk or WALK signal to allow you to feel safe.
 - Always watch out for traffic and do not use electronic devices when walking.
 - Be visible when possible.

TEACHERS

- Link the standardized Safe Routes to School Program with the curriculum, e.g. through math, geography, arts, science, drama, writing, etc. Many experts recommend institutionalizing ongoing pedestrian safety education within schools, starting at the earliest grades and incorporating both knowledge and skill-based learning. This requires the development of standards and curricula which are flexible enough to accommodate external agencies, neighbourhood groups and parents in order to allow for the best possible delivery and implementation within both the schools and the community.³⁴ Curricular connections are provided for each learning activity in MPI's Road Safety Program for Schools. MPI's Road Safety Program provides teachers with a valuable, user-friendly resource that enhances

³⁴ United States Department of Transportation. (2010). Pedestrian and Bicyclist Safety and Mobility in Europe, Page 6 and 31. <http://www.international.fhwa.dot.gov/pubs/pl10010/pl10010.pdf>

the teaching of a topic that is important to daily living and active, healthy lifestyles. Teachers can use curricular connections in order to cover all the Road Safety Learning Activities. Teachers may wish to use some of the learning activities as Take-Home Activities for students to complete with their families. Road Safety is an ongoing concern and teachers are encouraged to review this topic with students on a seasonal basis.

Safety education can be integrated into traditional classroom subjects to meet education standards in many ways. Examples include:

- Health class - learning the benefits of physical activity, using pedometers to count steps.
- Reading – reading about nature or walking.
- Science – walking outdoors to collect samples and observe nature, learning about climate change.
- Geography – draw a map of the route to school, learning about places that the class visits.
- Language arts – writing about what is seen on the route to school.
- Art – design posters to encourage walking, climate change, pollution.
- Math – calculating average walking speeds, vehicle speeds, distances, time taken.

SCHOOL ADMINISTRATORS

- Provide updated information related to developing a standardized Safe Routes to School Program to the Transportation Department and Senior Administration.
- Help with relevant aspects of data collection (e.g. school bell times, adult crossing guards, school patrols, walking school buses, child pedestrian safety issues).
- Actively participate in the standardized Crossing Guard Program to learn safety issues around their school and create an action plan.
- Contribute ideas, advocate and make recommendations for infrastructure improvement initiatives.
- Ongoing obligations for school administrators to update safe walk paths to school. The creation of a 'Safe Routes to School' map will help families plan their active journey to/from school. The map should identify popular walking routes and highlight key features in the neighbourhood that support active travel modes. The example below of a 'Safe Routes to School' map was created by the LRSD Transportation Department for École Varennes (Figure 21). The maps can be created prior to the beginning of the new school year in order to encourage students and parents/caregivers to use this map provided by the school administrators and promote walking and bicycling from the outset.

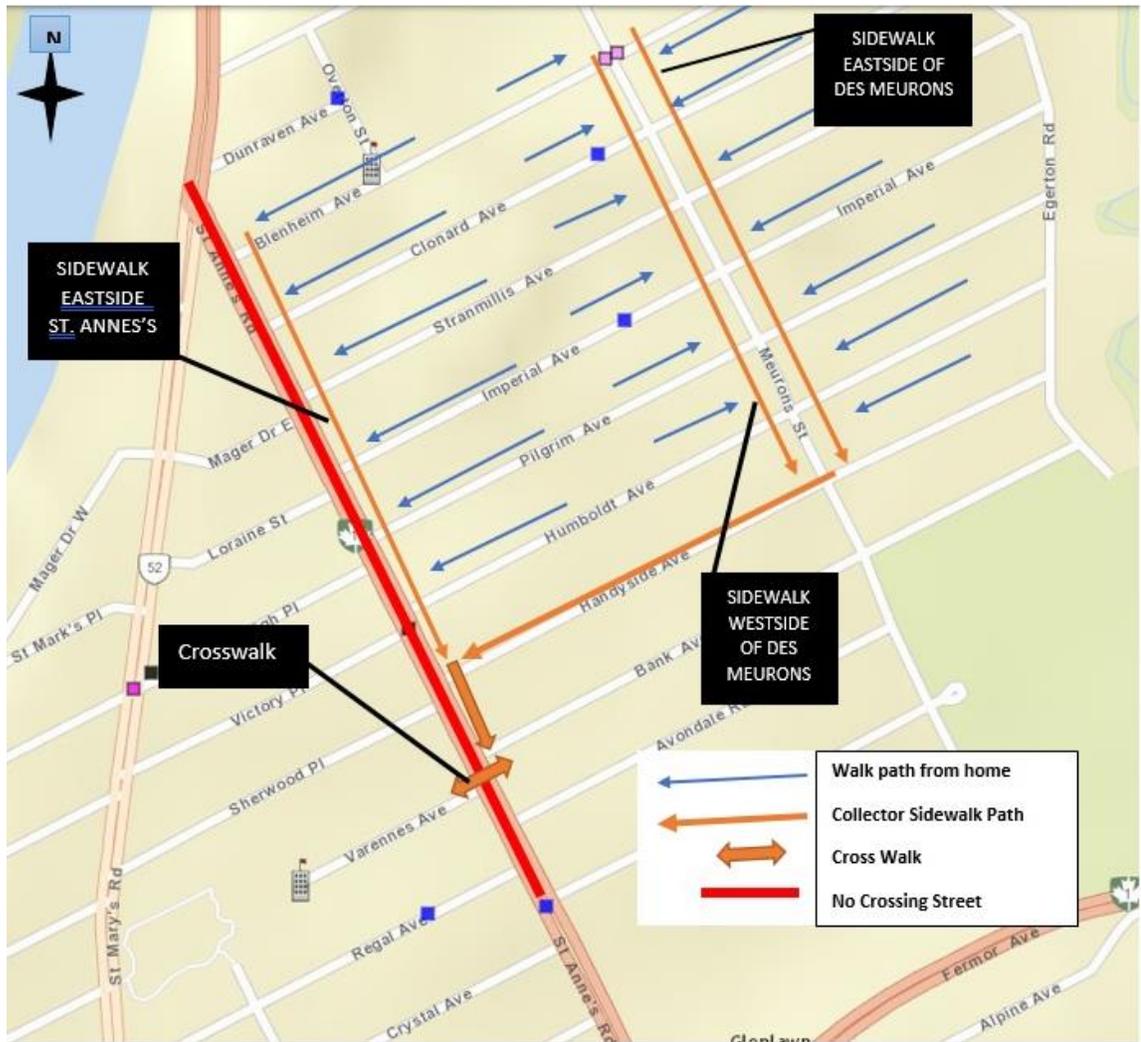


Figure 21: An example of 'Safe Routes to School' map for École Varennes.

- Work with their Parent Advisory Council to develop and maintain safe pickup and drop off zones at their school to reduce traffic congestion around the school.
- Provide regular communication on pedestrian safety to families to build and nurture a culture of safe and active transportation to and from school.
- Communicate and promote the standardized Safe Routes to School Program updates using a variety of communication vehicles including social media.
- Support students to become “change agents” to influence adult behaviours.

SUPERINTENDENT’S TEAM

- Provide direction and resources to Leadership Council to support and standardize the Crossing Guard program, School Patrols and Parent Advisory Council active transportation efforts.
- Integrate the standardized Safe Routes to School Program into the curriculum and standardize the instructional and structural skill practice for each school.
- Rebuild and strengthen the relationship with the Green Action Centre and other local community organizations (MPI, CAA, Public Health, etc.) that have parallel mandates regarding

child safety, health and well-being and physical activity. Engaging community members in local Safe Routes to School Program efforts can have a tremendous payoff. Area businesses, child care facilities, churches, senior or community centres near schools can be valuable partners. If there are serious issues of student safety to be addressed, local residents, neighbourhood-based organizations and businesses can play a role in helping to foster a safe environment for children on their route to school. If a community or neighbourhood cares about the issue, then the Safe Routes to School Program is in a much stronger position to implement community-based strategies successfully.

- Encourage and support a sustained commitment to develop the use of walking school buses.

WALKING SCHOOL BUS PROGRAM

The Walking School Bus is an active transportation program where adults walk school aged children to and from school. Walking School buses follows an established route, operates throughout the school year and makes walking easier, safer and more enjoyable for children. Students are picked up and dropped off at planned stops. It certainly encourages more physical activity among young people and at the same time creates long-term behaviour changes when it comes to daily transportation. Walking school buses offers a great opportunity to build social connections between adults and children through their involvement.³⁵

Some of the benefits of a Walking School Bus are:

- Increased daily physical activity
- Improved traffic safety habits and increased confidence
- Increased energy level
- Increased independence
- Enhanced mental wellbeing
- Increased time with friends
- Increased sense of community
- Increased leadership skills
- Fun environment for everyone
- Decreased traffic around the school
- Decreased air pollution
- Reduced greenhouse gas emissions
- Increased awareness/connection to geographic spaces
- Enhanced parental and community engagement

IMPLEMENTATION OF A WALKING SCHOOL BUS PROGRAM

A walking school bus is organized based on the unique needs of each school. Traditionally, schools have used adult volunteers, but in some schools, trained older students can also act as walking school bus leaders. Step by Step: How to start a walking School Bus at Your School guide

³⁵ Kingham S. & Ussher S. (2007) An assessment of the benefits of the walking school bus in Christchurch, New Zealand. Transportation Research Part A: Policy and Practice, ISSN: 0965-8564, Vol: 41, Issue: 6, Page: 502-510.

outlines how to plan and implement a walking school bus for your school and includes proven tools, tips and resources for a fast and easy start of walking school bus.³⁶ The need for a Walking School Bus can be assessed based on the following:

- How many students and families would be interested in participating?
- Are there any safety concerns in the neighbourhood and roads within it?
- How far away from the school could the walking school bus start?
- When will the walking school bus operate?
- How many routes do you anticipate?
- What was the outcome of the walkability assessment of each potential route?

Before starting a walking school bus, the feasibility of offering a walking school bus must be evaluated.

- What kind of walking school bus program be offered – formal or informal?
- Who will be volunteering as walking school bus leaders – adult trained volunteers or older trained students?
- What will be the projected cost of running a walking school bus?
- Is there financial support available for a walking school bus?

A plan must be developed to ensure that the walking school bus program moves in the right direction. A plan must include recruiting walking school bus leaders, training program for walking school bus leaders, promotion of walking school bus, running the program, evaluation and adjusting the program.

Recruit walking school bus leaders – Bus leaders are typically adults who volunteer to walk with students to and from school on a regular scheduled time and route. It is wise to have a reserve list of adult volunteers as leaders will periodically drop out of the program and have sick days. To recruit walking school bus leaders, contact families, community service organizations, neighbourhood watch, senior residents, teachers and others who have an interest in student safety, improving student health, walking and community service. Reach out to individuals or organizations via e-mails, flyers, Parents Advisory Council, parent teacher conferences, open houses, school events and social media. Use a formal volunteer registration process to have a reserve list of adult volunteers. It is also important to have a process in place to screen volunteers (screening interview, Police Record Check for Vulnerable Sectors, background check and volunteer clearance), both for students' safety and as a liability protection.

Older or high school students can be recruited to participate in the Walking School Bus Program as bus leaders. Based on the proximity map, find students who live near or feed into the designated route. School communications such as morning announcements, flyers to families, e-mails, calls from principals and in-class presentations can be used to reach out to students and families. Use a formal student registration process to collect a list of interested students.

³⁶ Step by Step: How to Start a Walking School Bus at Your School. A toolkit developed by California Department of Public Health's Nutrition Education and Obesity Prevention Branch. Published October 2016.
<https://www.saferoutespartnership.org/resources/toolkit/step-step>

Confirm Walking School Bus routes with your bus leaders by distributing a package that includes final route map with stop information, Walking School Bus Student Expectations and Code of Conduct, Walking School Bus Leader checklist, Emergency contact List, Walking School Bus Student List and Walking School Bus comment form.

Develop and offer Walking School Bus leader training program to all bus leaders. The training must be offered to all the new leaders starting in the new school year or midway through the year. Bus leaders undergo in-depth classroom training that covers safe walking practices, important safety precautions, behaviour guidance techniques for working with children and emergency protocol and procedures. Review traffic safety as it relates to pedestrians, walking rules and protocol so leaders are knowledgeable enough to educate students as well. Resources include: Walking School Bus Student Safety Card, Walking School Bus Route Leader Instruction Card, Principles Behind Child Pedestrian Injury and Basic Walking Safety. Bus leaders need to know what is expected of them and about student behaviour expectations as well. Review how a typical day will go, what to do if a leader cannot walk on a particular day, what to do in case of emergency and other special circumstances, how to use the leader comment form, how to use the sign in/sign out sheet, and what to wear. Review each route with bus leaders, timing for each stop and other significant reference points.

Set up a system to address Walking School Bus leader illness or unavoidable absences. This could include contacting the Walking School Bus Coordinator, contacting the school, or setting up a phone call chain (includes email list, text chain, and messages) with substitute Walking School Bus leaders to call at least an hour before the Walking School Bus is to start.

Consider offering incentive and materials such as high visibility safety vests (for Walking School Bus leaders to wear and to enhance visibility of the group), whistles (to get the attention of participants for important announcements or in case of safety concerns), traffic flags (to carry when crossing the street to increase visibility of the group to drivers), clipboards (to check-off participant names and fill out any last-minute forms), paper (to print forms, flyers, and handouts), pens and backpacks (to carry all materials for the program).

Develop policies on how to handle injury or illness en route, how to handle behaviour issues, how to handle children who participate, but are not registered, etc.

Develop a communication plan and materials to help maintain participation. New families should be made aware of the program. Host a Walk to School Day event to start the program. Promote the day and your program using school communication methods (school website, flyers, email, etc.). an informational brochure can be created and distributed on or before Walk to School Day or week to educate and recruit bus leaders volunteers and students. Invite "Guest Walkers" and have special activities or prizes for that day. Send an article to the local paper or Lance.

Once the program is up and running, adjustments to the routes or program logistics may be required due to changes to the students and leaders participating in Walking School Buses and the interest in program at the school, district and community levels. Hold regular meetings with bus leaders to gather information from walking school buses, keep leaders informed of any changes, share information through e-mails, newsletter and recognize leaders. Address issues as

needed to maintain and improve the program. Respond quickly to safety concerns, student and leader behaviour issues, and questions from administration and the community. Document and adjust the program as needed.

Develop evaluation and feedback tools – The Program Manager regularly tags along with the Walking School Buses for performance evaluation reasons. Survey students and families on their experiences with Walking School Bus Program using take-home, online surveys or one-on-one interviews. Adjust your program as needed to make it safer, accessible, and fun.

- Advocate for change in provincial legislation to allow the use of “Stop Paddles” by Crossing Guards.

Crossing Guards are allowed to use “STOP PADDLES” to signal drivers and facilitate the safe crossing of students along or across intersections going to or from school in many Canadian provinces such as British Columbia³⁷, Alberta³⁸, Ontario³⁹, Quebec⁴⁰, Nova Scotia⁴¹, New Brunswick,⁴² but not in Manitoba.

Safety Services Manitoba offers a Flagperson Certification Course that will help the crossing guards meet the legislative responsibilities under the Workplace Safety & Health Regulations, Manitoba Regulation part 20 – Vehicular and Pedestrian Traffic and *The Highway Traffic Act* – Manitoba Laws.

Under the “Workplace Safety and Health Act”

Safe work procedures: traffic control

20.5(1) Whenever the movement of vehicular traffic constitutes a risk to the safety or health of a worker, an employer must

- (a) develop and implement safe work procedures that provide an effective means of traffic control;
- (b) train workers in those safe work procedures; and
- (c) ensure that workers comply with those safe work procedures.

20.5(2) “Without limiting subsection (1), if vehicular traffic creates a risk to the safety or health of a worker, an employer must ensure that one or more of the following are used to protect the worker:

- a) Warning Signs
- b) Barriers
- c) Lane control devices
- d) Flashing lights
- e) Flares

³⁷<https://www2.gov.bc.ca/assets/gov/driving-and-transportation/transportation-infrastructure/engineering-standards-and-guidelines/traffic-engineering-and-safety/traffic-engineering/traffic-management-and-traffic-control/pedestrian-crossing-manual.pdf>

³⁸ <http://www.dailyheraldtribune.com/2010/08/26/school-patrol-program-gearing-up-for-fall>

³⁹ <http://www.mto.gov.on.ca/english/safety/pedestrian-safety.shtml#q6>

⁴⁰ http://www1.education.gouv.qc.ca/sections/metiers/index_en.asp?page=fiche&id=411

⁴¹ <http://0-nsleg-edeposit.gov.ns.ca.legcat.gov.ns.ca/deposit/b10153767.pdf>

⁴² http://www.fredericton.ca/sites/default/files/pdf/crossing_guard_program.pdf

- f) Conspicuously identified pilot vehicle
- g) Automatic or remote-controlled traffic control systems
- h) Speed restrictions
- i) One or more workers who are designated and act as flagperson in accordance with section 20.6

Flagpersons

- 20.6(1) No employer shall require or permit a worker to work as a flagperson unless the worker
- (a) holds a valid flagperson's training certificate issued by a person or organization that has been approved by the director under section 20.6.2; and
 - (b) has demonstrated competency in applying the training referred to in clause 20.5(1)(b) and subsection 20.6.2(2) to the employer's workplace.
- 20.6(2) An employer must ensure that a flagperson
- (a) carries his or her flagperson's training certificate at all times;
 - (b) is provided with
 - (i) a paddle with reflective surfaces, on one side of which is written "STOP" in white letters on a red background, and on the other side is written "SLOW" in black letters on a fluorescent yellow-green background,
 - (ii) high visibility safety apparel that meets the Class 3 Level 2 requirements of CAN/CSA Z96-02, High Visibility Safety Apparel, and that is fluorescent yellow-green in colour,
 - (iii) protective headwear of a fluorescent colour, augmented during hours of darkness with a retro-reflective material or combined materials securely attached to the headwear in such a manner as to provide 360o visibility to others, and
 - (iv) a means of communication with any other flagperson at the workplace, when the worker does not have a clear view of that other flagperson; and
 - (c) in the case of a flagperson who works during hours of darkness, a fully operational flashlight fitted with a red signalling wand of sufficient brightness to be clearly visible to approaching traffic.

As per Manitoba Regulation part 20 – Vehicular and Pedestrian Traffic

Flagpersons

- 20.6(1)** No employer shall require or permit a worker to work as a flagperson unless the worker
- (a) Holds a valid flagperson's training certificate issued by a person or organization that has been approved by the director under section 20.6.2

Under The Highway Traffic Act – Manitoba Laws

Definition of "flagman"

77(10) In this section, "flagman" means a person employed by a traffic authority, or a contractor doing work on behalf of a traffic authority, for the purpose of directing the movement of traffic on any portion of a highway under construction, or where repair work or other work is being carried on.

Observance of flagman's directions

77(11) Every driver of a vehicle shall obey and observe the directions given by a flagman.

The flagperson ("flagman") is one of the most effective and flexible "devices" available to control traffic in work zones. In general, flagperson should be used when it is desirable or necessary to give some message to the motorist respecting⁴³:

- road or traffic conditions ahead
- the correct path to follow
- the existence of potential conflicts between the road user and workers or equipment
- limited approach sight distance to the work ahead

The work environment of a crossing guard and flagperson is same and both workers are directing the movement of traffic and the movement of vehicular traffic constitutes a risk to the safety or health of both workers. Therefore, the crossing guards must receive flagperson training in order to direct traffic on roadways at any time and meet their legislative responsibilities under the Workplace Safety and Health Regulations. As a certified flagperson, crossing guards will be able to use Stop Paddles to direct traffic on roadways and assist students in crossing streets. At an unsignalized crossing, a crossing guard has the authority to create gaps by stopping traffic temporarily with a STOP paddle and then verbally directing the students to cross the street.⁴⁴ More information on the flagperson certification course is presented below.

[FLAGPERSON CERTIFICATION COURSE](#)⁴⁵

This course is structured for anyone involved in traffic management. If the employee is directing traffic on roadways at any time they must have received flag person training from an approved training organization such as Safety Services Manitoba. This certification course is designed for workers with no previous experience as a flag person and will enable employers to meet their legislative responsibilities under the Workplace Safety & Health Regulations. Participants will receive a certificate upon successful completion of this course. The course agenda includes the following:

- Legal duties and responsibilities
- Guidelines for effective implementation
- *Highway Traffic Act* and *Workplace Safety & Health Act*
- Traffic engineering and standards policies
- Manitoba Infrastructure and Transportation Contract Specifications
- Theory test and review of test

The training can be held on Safety Services of Manitoba premises or on-site. The duration for the course is one full-day (6-8 hours, depending on class size) and the maximum class size is 16. The course fee per person is \$169 or group fee is \$1,299.

- Reconnect with the University of Manitoba's Faculty of Engineering and the City of Winnipeg to initiate gap assessment studies to identify infrastructure improvements to support Active Transportation to school.
- Develop a communication plan for Pedestrian Safety Campaigns in partnership with Winnipeg Police Services, MPI, CAA and the media.

⁴³ <https://www.gov.mb.ca/mit/contracts/pdf/workzone.pdf>

⁴⁴ https://www.gov.mb.ca/mit/traffic/pdf/school_area_guidelines.pdf

⁴⁵ <https://www.safetyservicesmanitoba.ca/general-health-and-safety-courses/flagperson-certification/>

- Create a comprehensive and standardized Crossing Guard Program in partnership with Winnipeg Police Service. Several studies have confirmed that School Crossing Guard program can significantly increase the number of children walking to and from school. An observational study reported that the presence of a school crossing guard increases walking to school by 14%.⁴⁶ The impact of a crossing guard on children walking rates goes beyond just supervising the movement of children across a public road. Parents' concerns about traffic safety is one of the main reasons why children don't walk to school and use inactive mode of transportation.⁴⁷ The presence of crossing guards on crosswalk will help address parents' concern about traffic safety and give parents the assurance to let their children walk to and from school. Another study reported that children are twice as likely to engage in active transportation when school crossing guards are employed.⁴⁸

ADULT CROSSING GUARD PROGRAM

In the LRSD, the hiring, training, supervising and funding of adult school crossing guards is overseen by the senior administration. Adult crossing guards should be assigned to school crossings only after a study has indicated a need. An adult school crossing guard is a paid employee or a volunteer member of the community. It is critical that every prospective guard should undergo a basic physical examination and criminal background check and should have good vision, hearing and mobility, be able to stand for long periods of time outdoors and to communicate well with others.

Adult crossing guards should know to whom in the department they must report. It is important that crossing guards call in as soon as possible, and at least one-half hour before duty time, if they are unable to report for duty. Specific, consistent procedures must be established for those situations when the adult guard is not able to report for duty. Substitute crossing guards should be available to provide coverage.

Adult crossing guards are typically posted on arterial roadways: at uncontrolled locations, at stop sign controlled intersections and at traffic signal controlled intersections. Although adult guards are primarily assigned to assist elementary age children going to and from school, this should not preclude the use of adult guards for junior high or high school students where dangerous traffic situations exist or local criteria for the adult guard is met. Factors to be considered for placing an adult crossing guard include:

- Number of vehicles passing through the crosswalk
- Speed limit
- Turning movements of vehicles
- Frequency of gaps or crossing opportunities in traffic
- Composition of traffic (e.g., percentage of trucks)

⁴⁶ Rothman L, To T, Builing R, Macarthur C, Howard A. Influence of social and built environment features on children's walking to school: an observational study. *Prev. Med.*, 2014;60:10-15.

⁴⁷ Metrolinx Greater Toronto and Hamilton Area School Travel Household Attitudinal Study Report 2011.

⁴⁸ Larouche et al. A cross-sectional examination of socio-demographic and school-level correlates of children's school travel mode in Ottawa, Canada. *BMC Public Health* 2014, 14:497.

- Roadway class and number of lanes
- Divided or undivided roadway
- Drivers' habits (e.g., passing)
- Infractions and types
- Accident history
- Number of student pedestrians crossing, their age groups and abilities
- Student crossing habits and pattern
- Traffic control devices
- Crosswalk width
- Distance of the crosswalk from the school
- Urban or rural surroundings
- Visibility (i.e., sight distance)
- Environmental conditions
- Lighting conditions (i.e., ambient and artificial)

A training program is necessary for the smooth and effective operation of adult crossing guards. The appropriate training and instruction should be provided to adult crossing guards before they are assigned to actual duty so that they will know what is expected from them. The local traffic enforcement agency may be available for the training of adult crossing guards. Training should be extended to substitute guards as well as those who supervise the crossing guards. Training methods include both classroom instruction and field exercises and should address:

- Safety issues and limitations of children as pedestrians.
- Traffic laws and regulations.
- Understanding school zone markings, signs and signals.
- Proper use and purpose of traffic signs and signals.
- Crossing procedures for unsignalized and signalized crosswalks, T-intersections, roundabouts or free-flow right turn lanes and ways to teach crossing procedures to children – gap assessment, stopping distance, methods of signalling drivers and pedestrians. In every situation, a guard encourages student pedestrians to follow these safety steps:
 1. Stop at the curb or edge of the street.
 2. Look left, right, then left again for traffic.
 3. Look over the shoulder for possible turning vehicles if the pedestrian is standing at an intersection.
 4. Walk directly across the street at a consistent pace and continue scanning the street while crossing the street.
- Site-specific traffic factors and potential traffic hazards such as sight obstruction, malfunctioning or missing traffic control devices, roadway or sidewalk construction hazards and standing water, mud, snow other things blocking the pedestrian's path.
- Professional work responsibilities, including agency rules and regulations, who the guard's supervisor is, the proper chain of command and legal aspects of the job.
- Proper use of safety equipment.

- Proper attire and behaviour to remain safe and to project a positive public image. Visibility is the essential requirement of any type of uniform. Adult crossing guards should be uniformly and distinctly outfitted with identification badges and reflectorized vests so that motorists and pedestrians can recognize them and respond to their signals.
 - Emergency procedures – Adult crossing guards should be given instruction on emergency procedures, including: how to get help, receive first aid instruction and instructions on bad weather conditions.
 - Filing reports – procedures for crashes involving adult school crossing guards and children on their way to or from school, reporting traffic violations and accidents to police.
 - Protecting the health and welfare of the guard while working, including topics such as proper attire to increase visibility, the need for hydration, sun protection, bee sting treatment and how to respond to threats from loose dogs.
- Review and update the job description of Educational Assistant to incorporate the responsibilities of Crossing Guard.
 - Support encouragement activities:
 - Support special events such as International Walk to School Day, Walk and Roll to School Day, Trail Day, Car Free Day, Bike Month, Traffic Safety Day, Mileage Clubs and Contests, the iWalk Club, Morning Mile, Walking Challenge, etc.
 - Offer incentives to students such as step counter, reflective bracelets, helmets, bike locks, pedometers, etc. to encourage active transportation.
 - Support an Appreciation Day for Crossing Guards, School Patrols and Parent Advisory Council active transportation efforts.

SCHOOL BOARD

- THAT the Board in collaboration with the Superintendent’s team advocate to City of Winnipeg staff for traffic studies and infrastructure improvements
- THAT the Board review the recommendations related to a standardized Safe Routes to School Program and provide the resources to support the successful implementation of the action plan
- THAT the Board continue to promote regular and formal communication between the Board, its senior administration and City of Winnipeg staff

MUNICIPAL STAFF (PLANNER, ENGINEERS, LOCAL COUNCILLOR)

- Advocate for traffic studies
- Provide current and historical data on traffic counts
- Liaise with the school board and its senior administration on ongoing basis to resolve existing issues and address future issues in a timely manner
- Ensure infrastructure improvements recommended by the school board’s study are included in a City master plan and budgets (e.g. signage and road crossing upgrades; walking, biking and traffic-calming built infrastructure)
- Advocate for the development of an action plan for required infrastructure improvements

WINNIPEG POLICE SERVICE

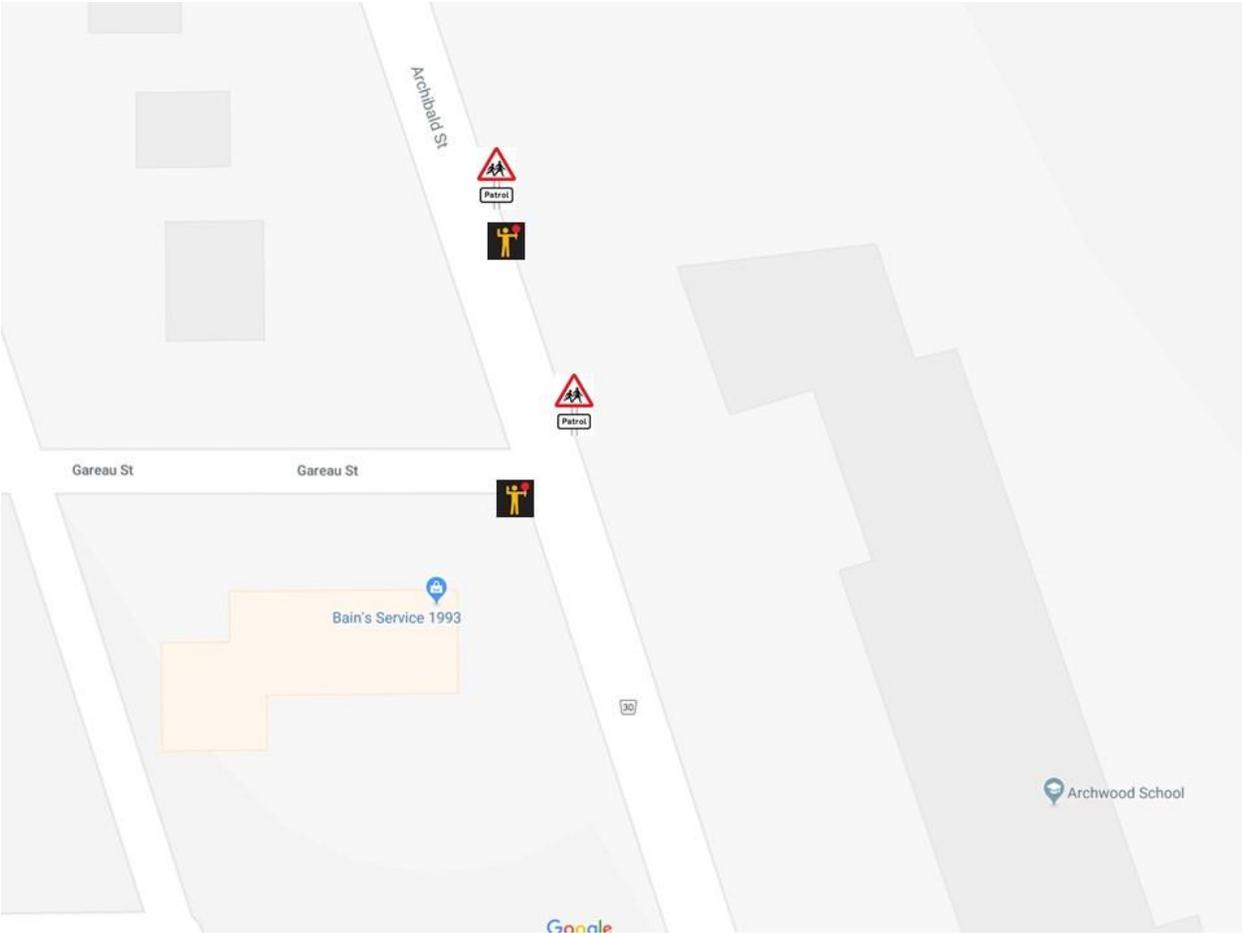
- Support all schools to participate in pedestrian safety education programming by teaching “Street Smart Skills”
- Provide statistics and highlight areas of concerns in the neighbourhood
- Conduct regular speed surveys at high risk intersections and school zones
- Develop enforcement campaigns based on the local issues
- Assist in the training and monitoring of adult crossing guards and school patrols

CONCLUSION

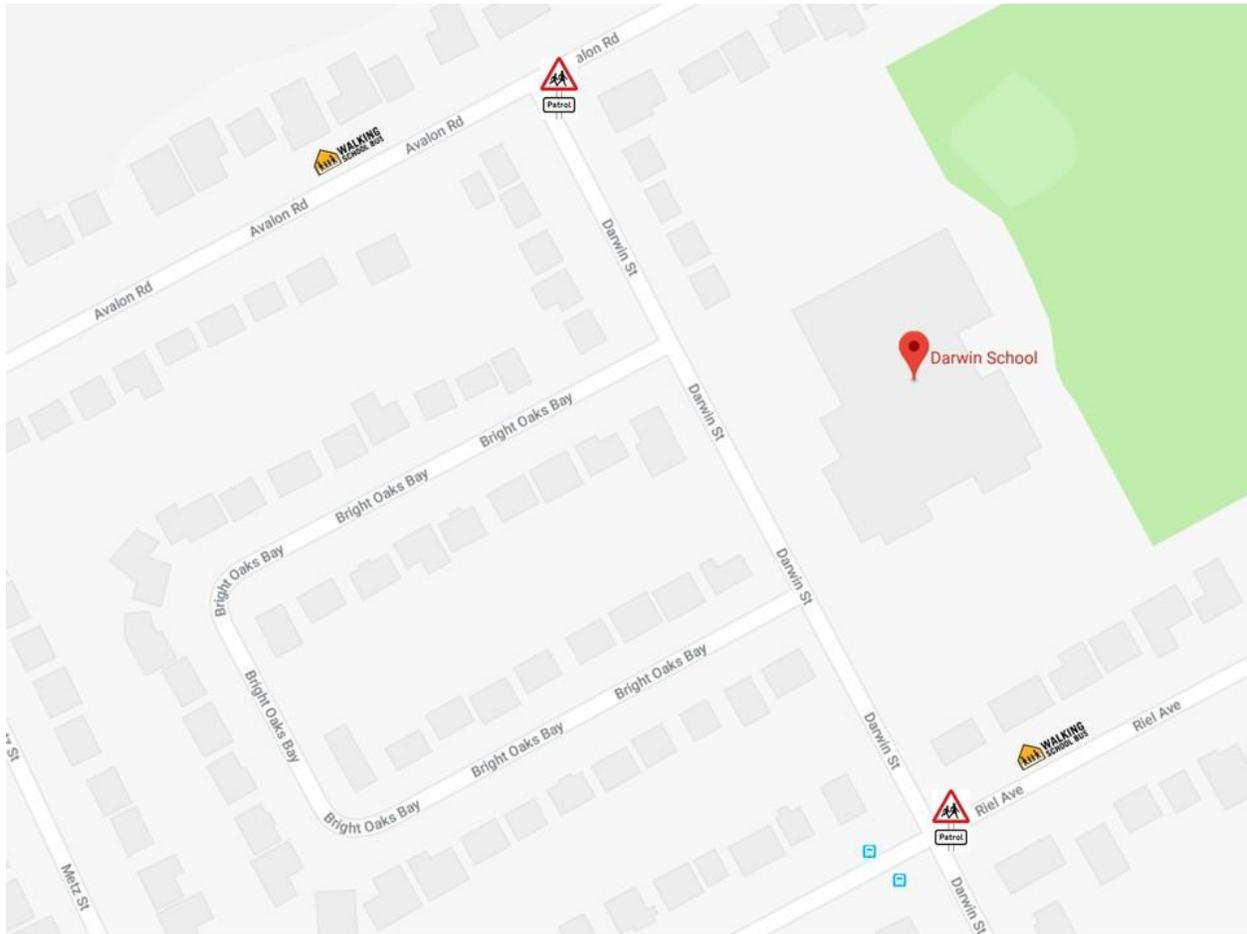
Several recommendations have been made based on the analysis and research conducted, including the factual data obtained and concerns raised by stakeholders. Multiple stakeholders and partners in the LRSD need to be involved in developing the framework to support a standardized Safe Routes to School Program. The three E's of prevention are to be thought of as multiple angles that complement one another to address the traffic safety issues. While some of the traffic safety issues may be primarily addressed through one E or the other, long-term gains are typically far more effective through reinforcement of all the E's of prevention. The LRSD should take decisive steps towards the development of education strategies and support of high-leverage programs that are anticipated to yield long-term gains through cultural change.

SCHOOL MAPS

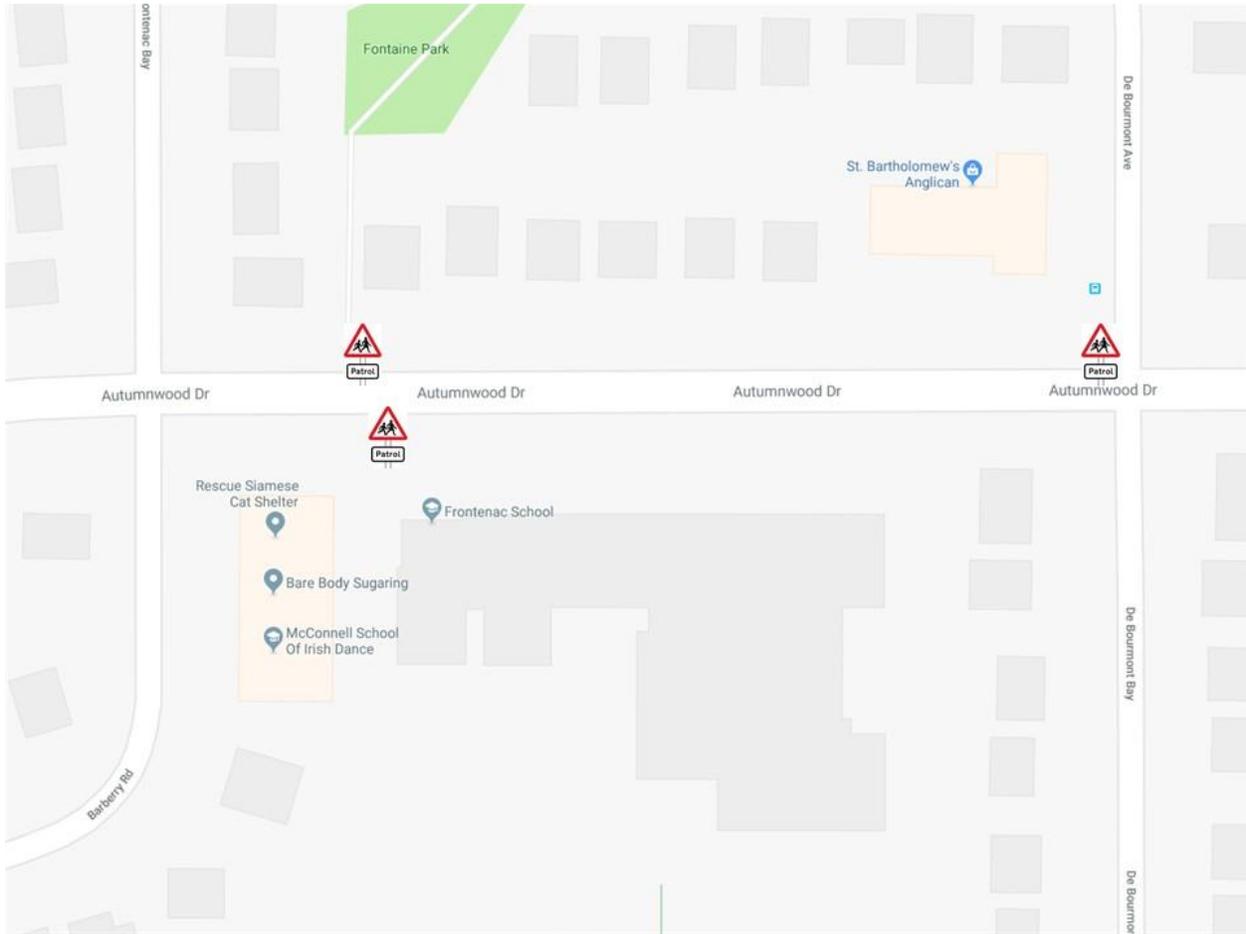
ARCHWOOD SCHOOL MAP



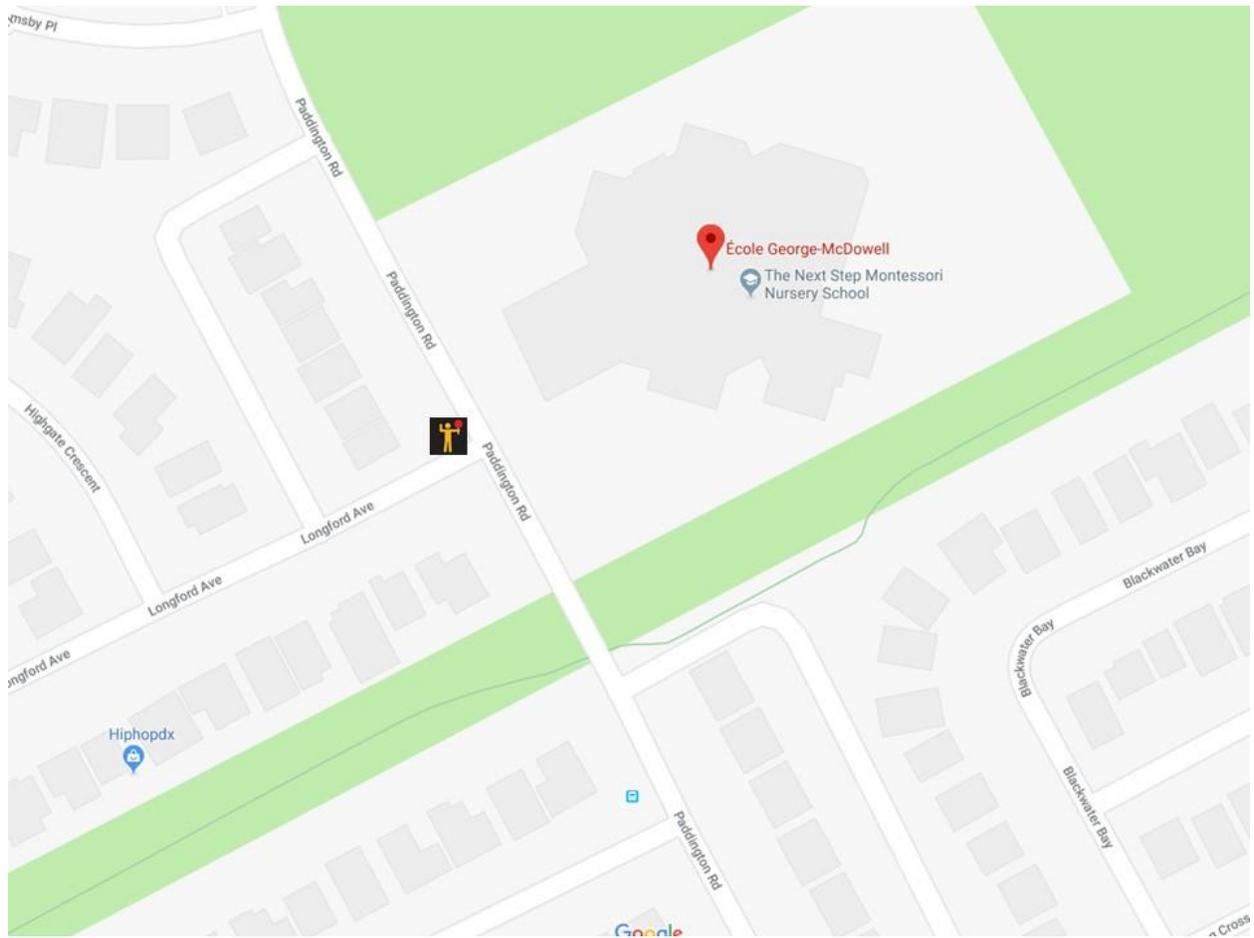
DARWIN SCHOOL MAP



FRONTENAC SCHOOL MAP



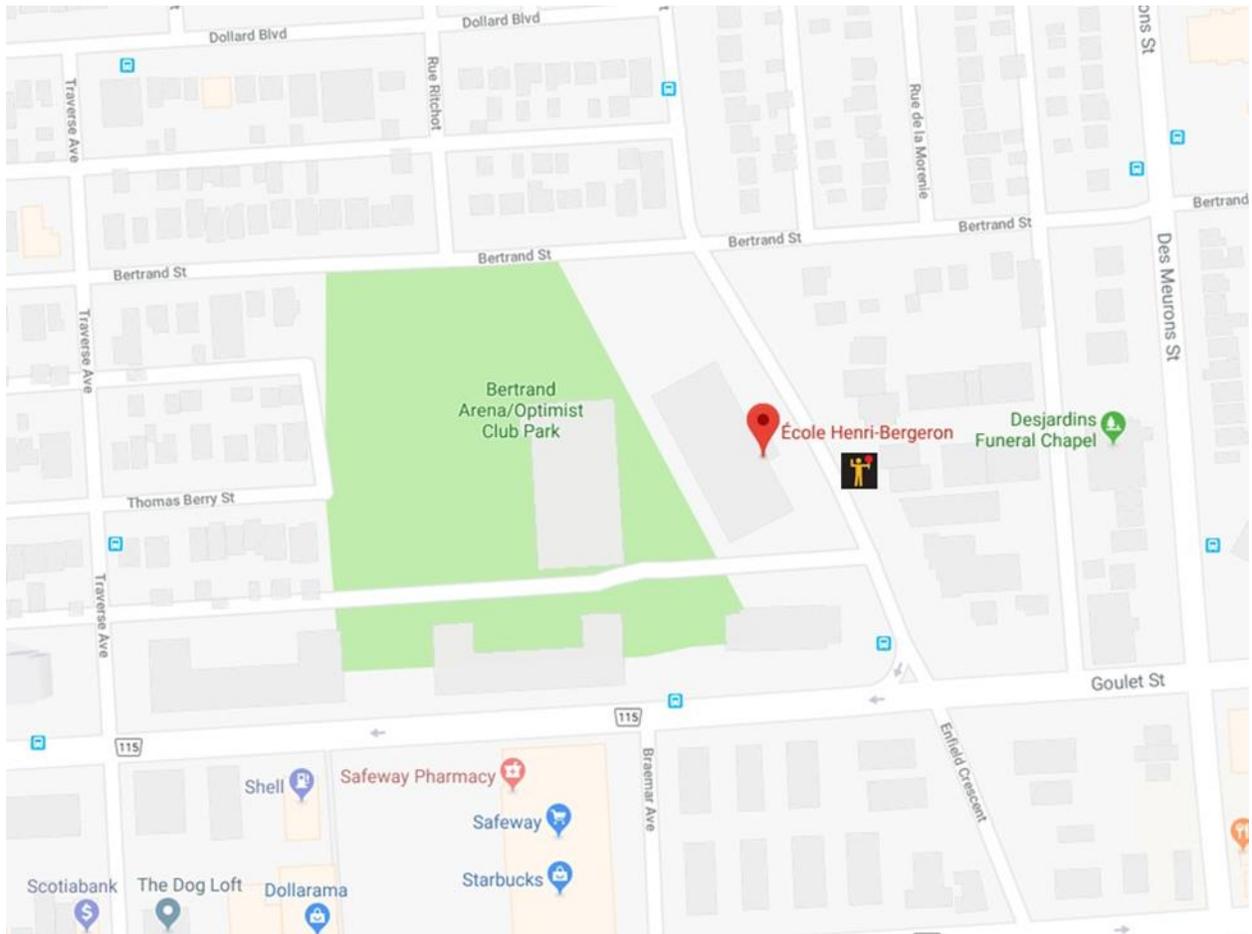
ÉCOLE GEORGE-MCDOWELL MAP



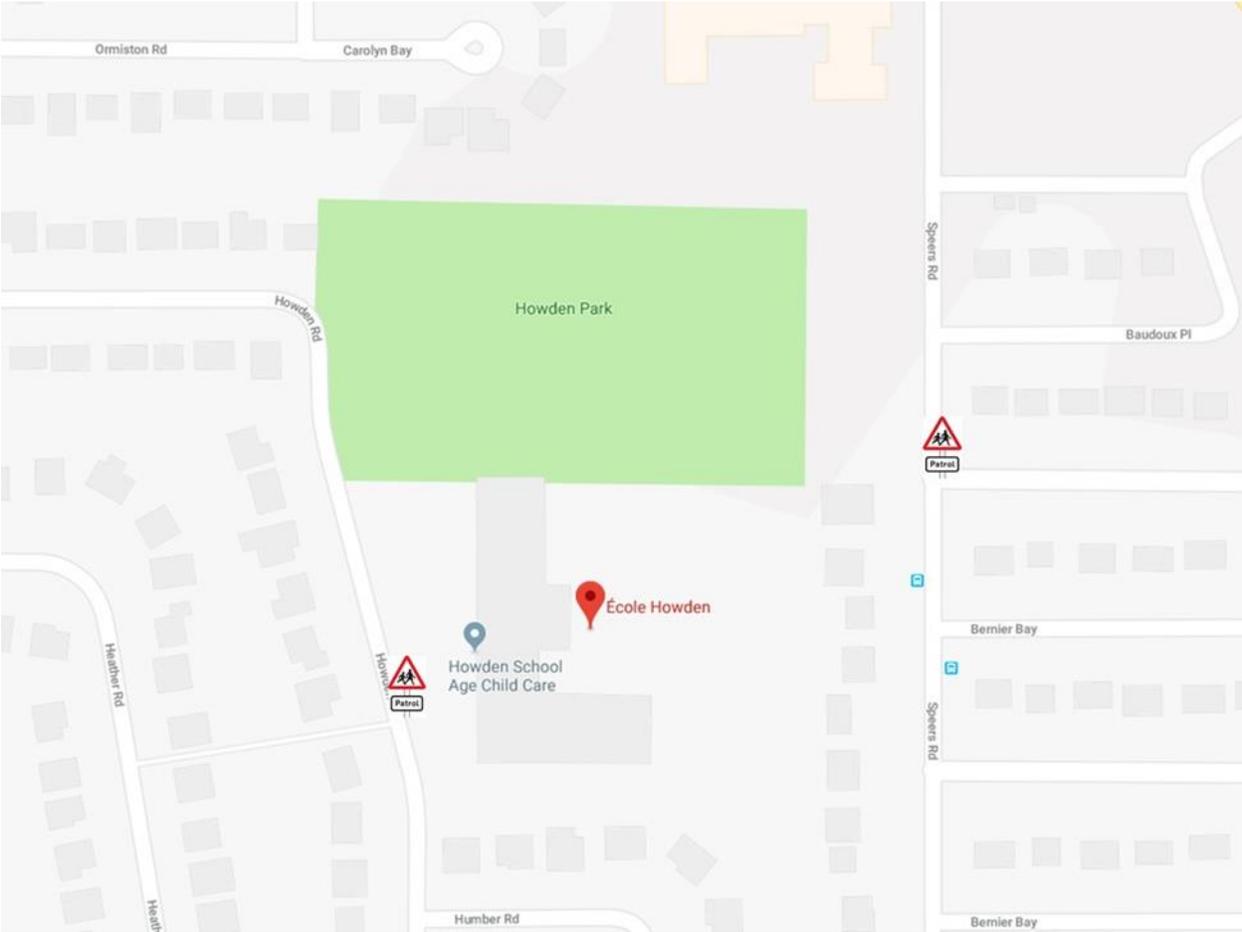
ÉCOLE GUYOT MAP



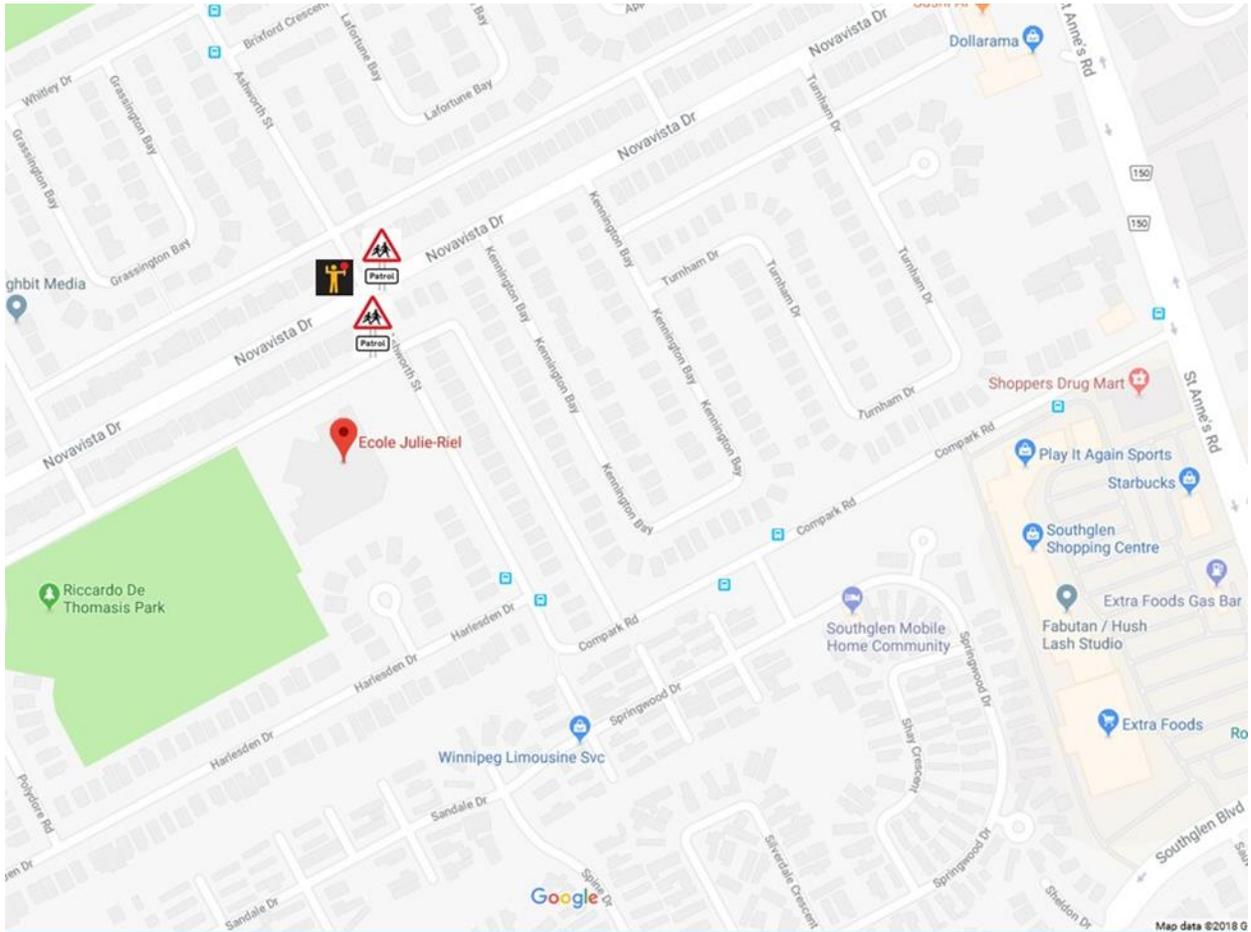
ÉCOLE HENRI-BERGERON MAP



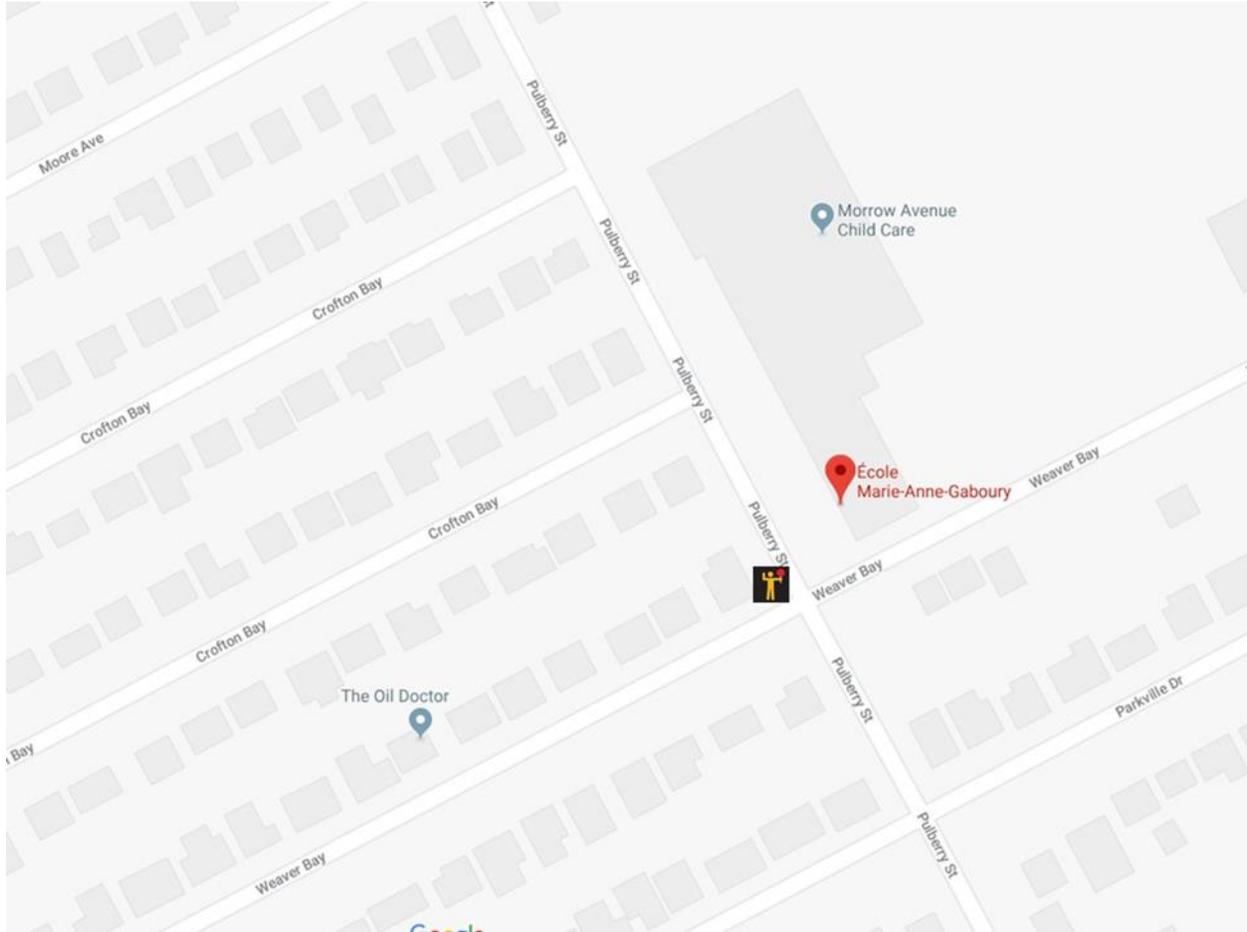
ÉCOLE HOWDEN MAP



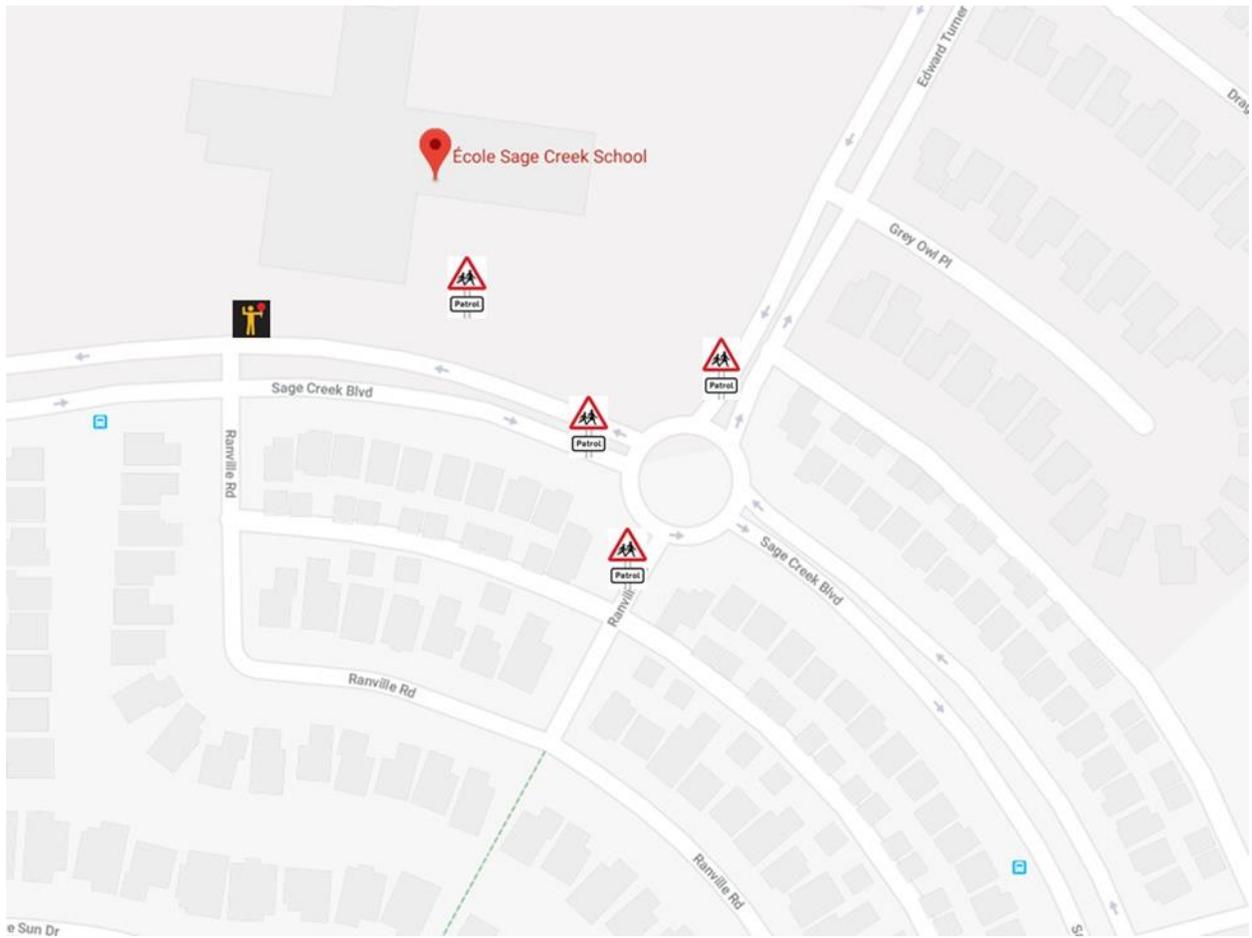
ÉCOLE JULIE-RIEL MAP



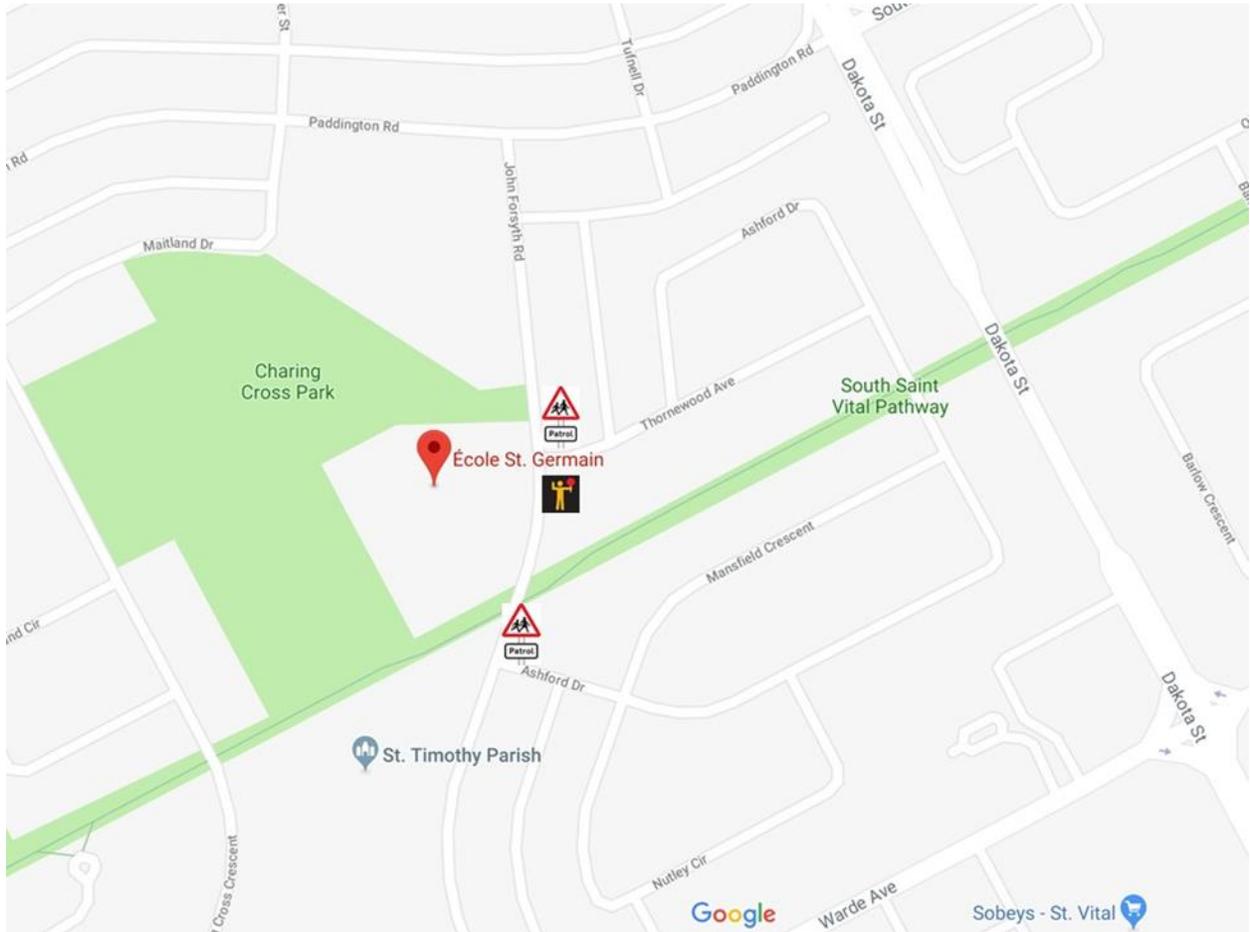
ÉCOLE MARIE-ANNE-GABOURY MAP



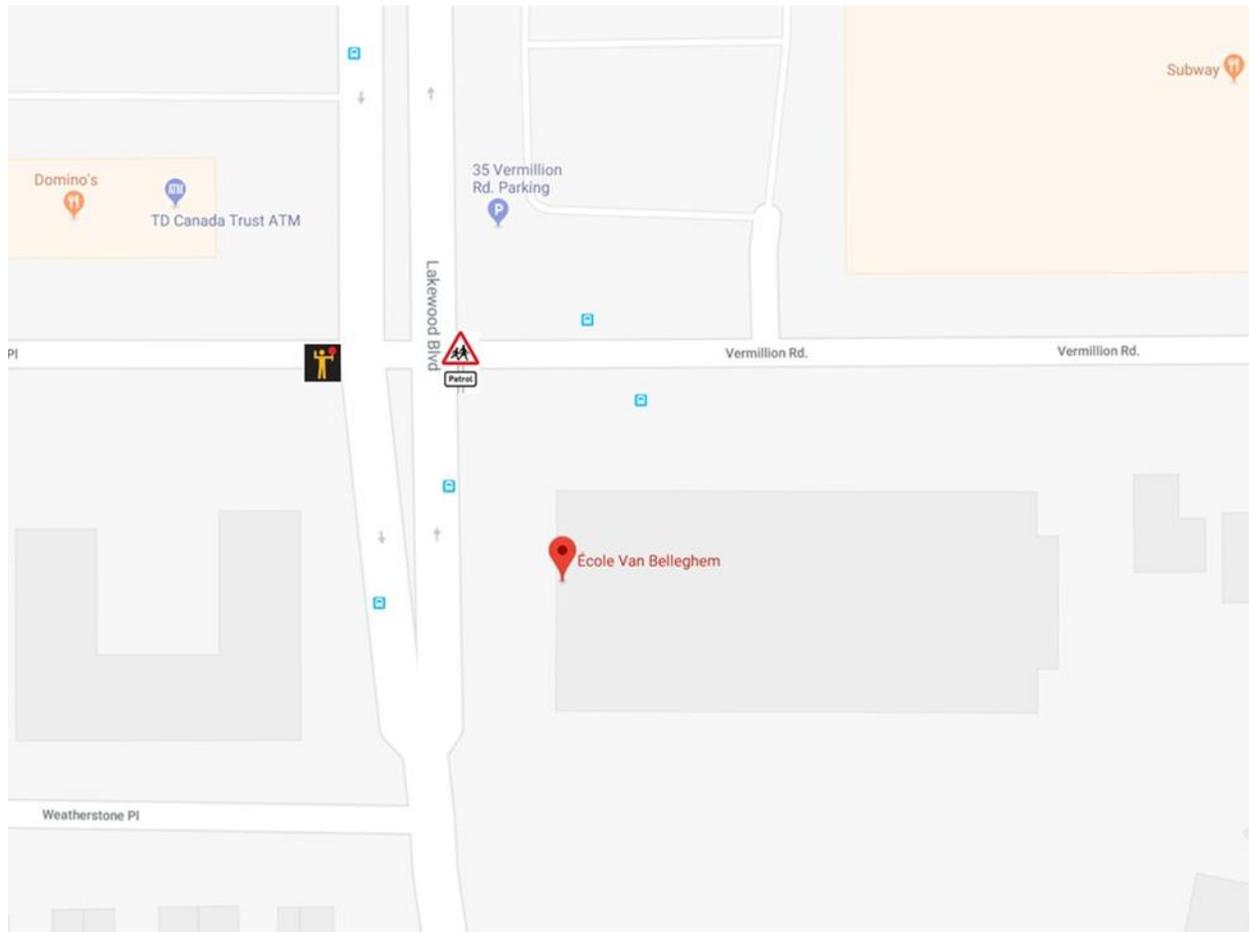
ÉCOLE SAGE CREEK SCHOOL MAP



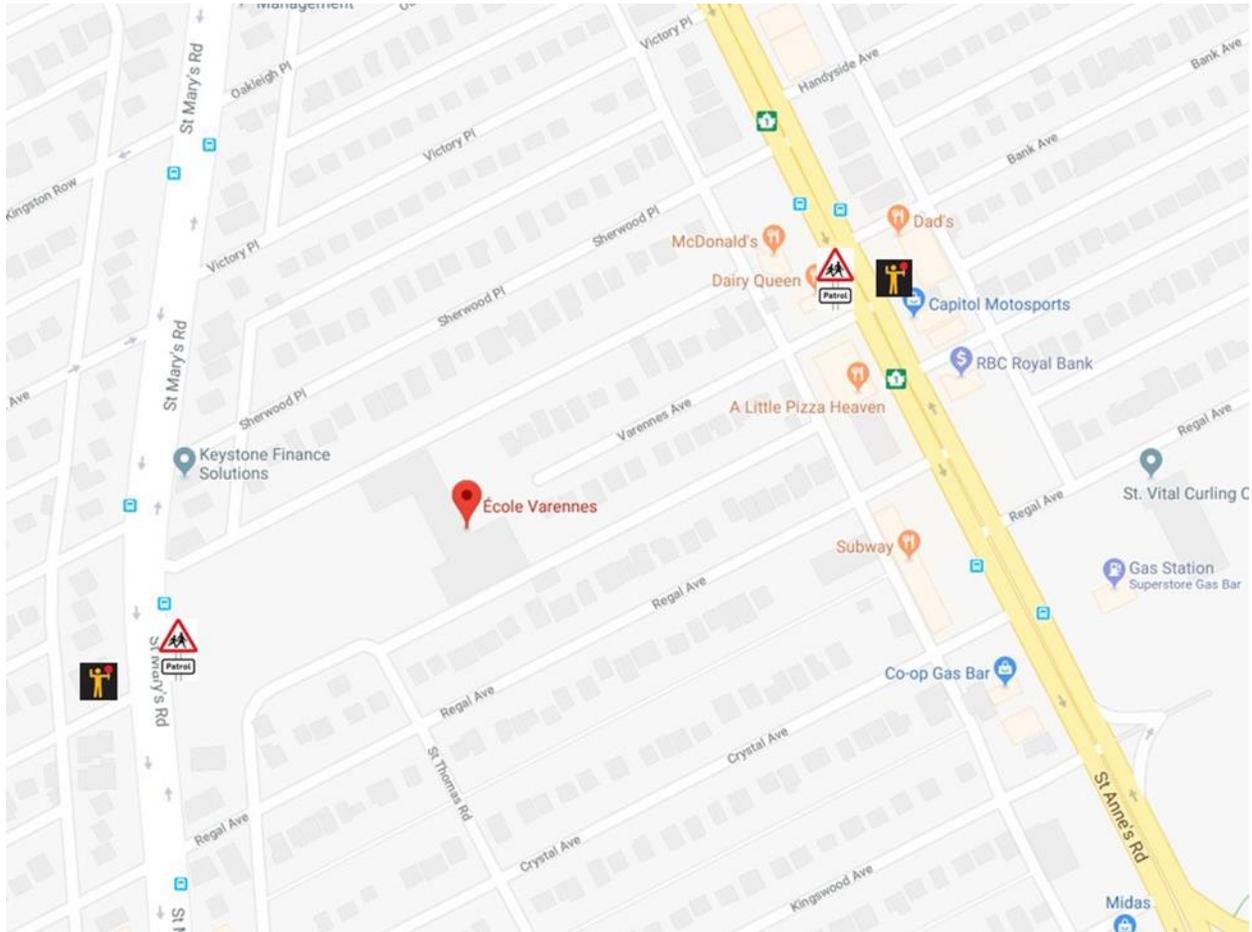
ÉCOLE ST. GERMAIN MAP



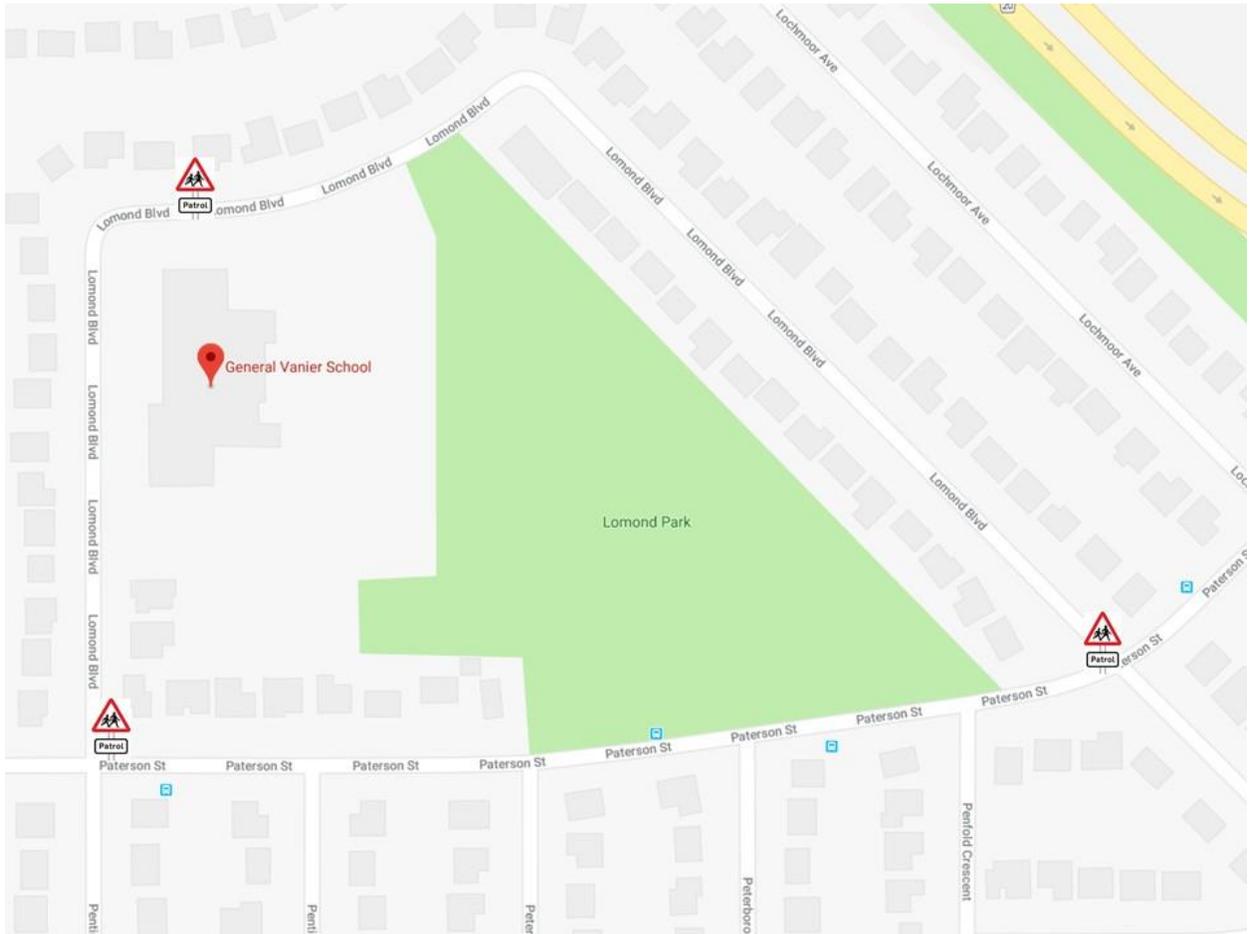
ÉCOLE VAN BELLEGHEM SCHOOL MAP



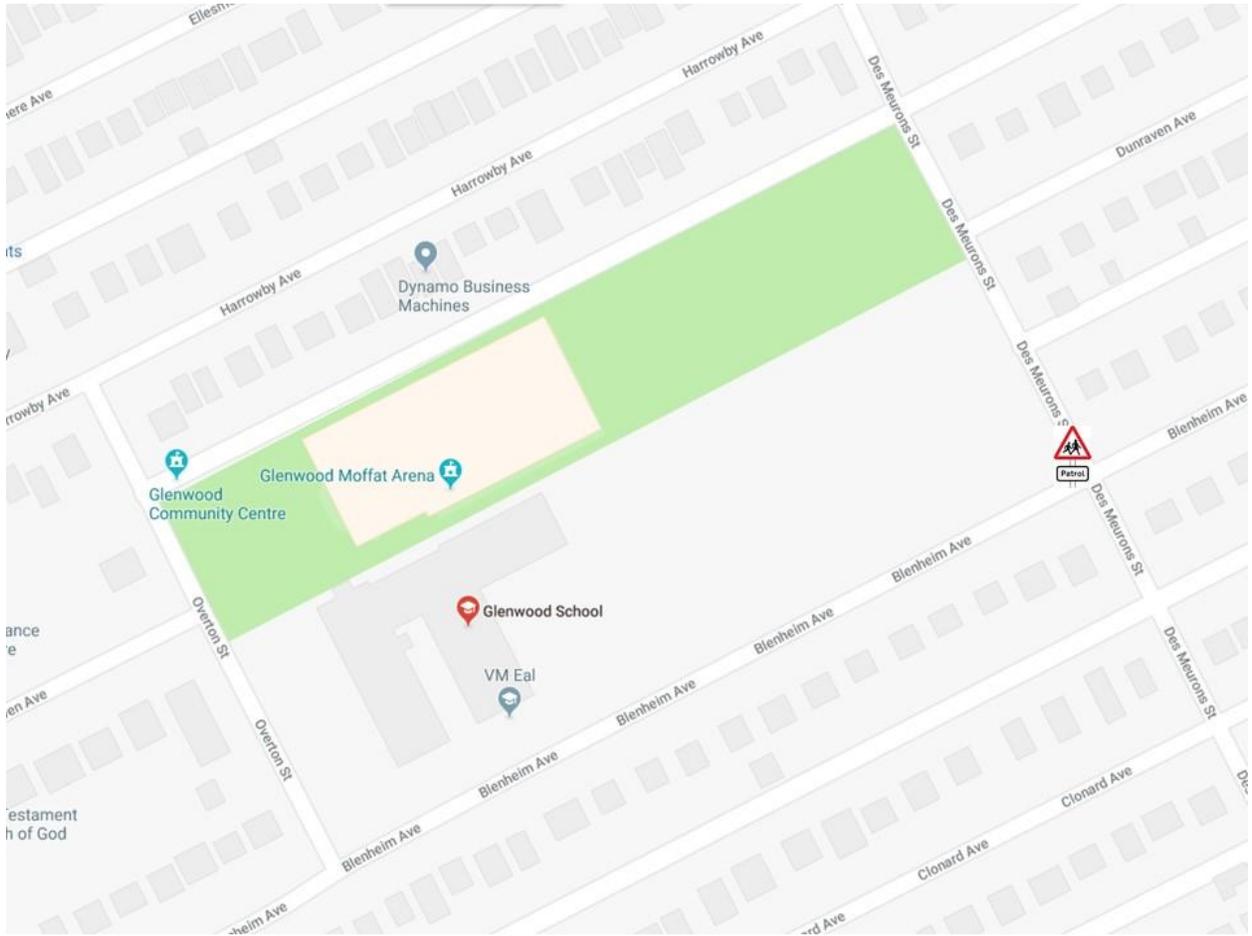
ÉCOLE VARENNES MAP



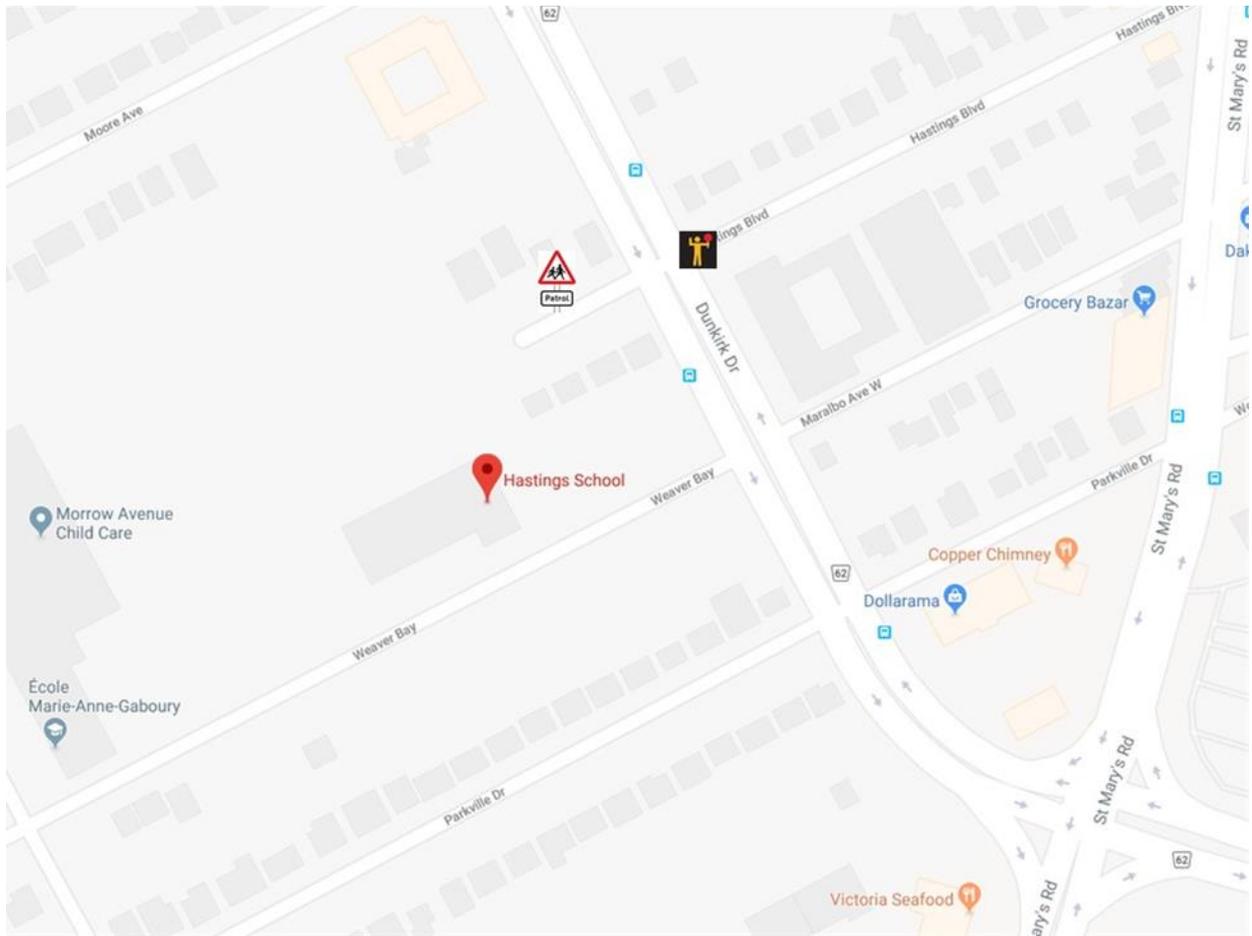
GENERAL VANIER SCHOOL MAP



GLENWOOD SCHOOL MAP



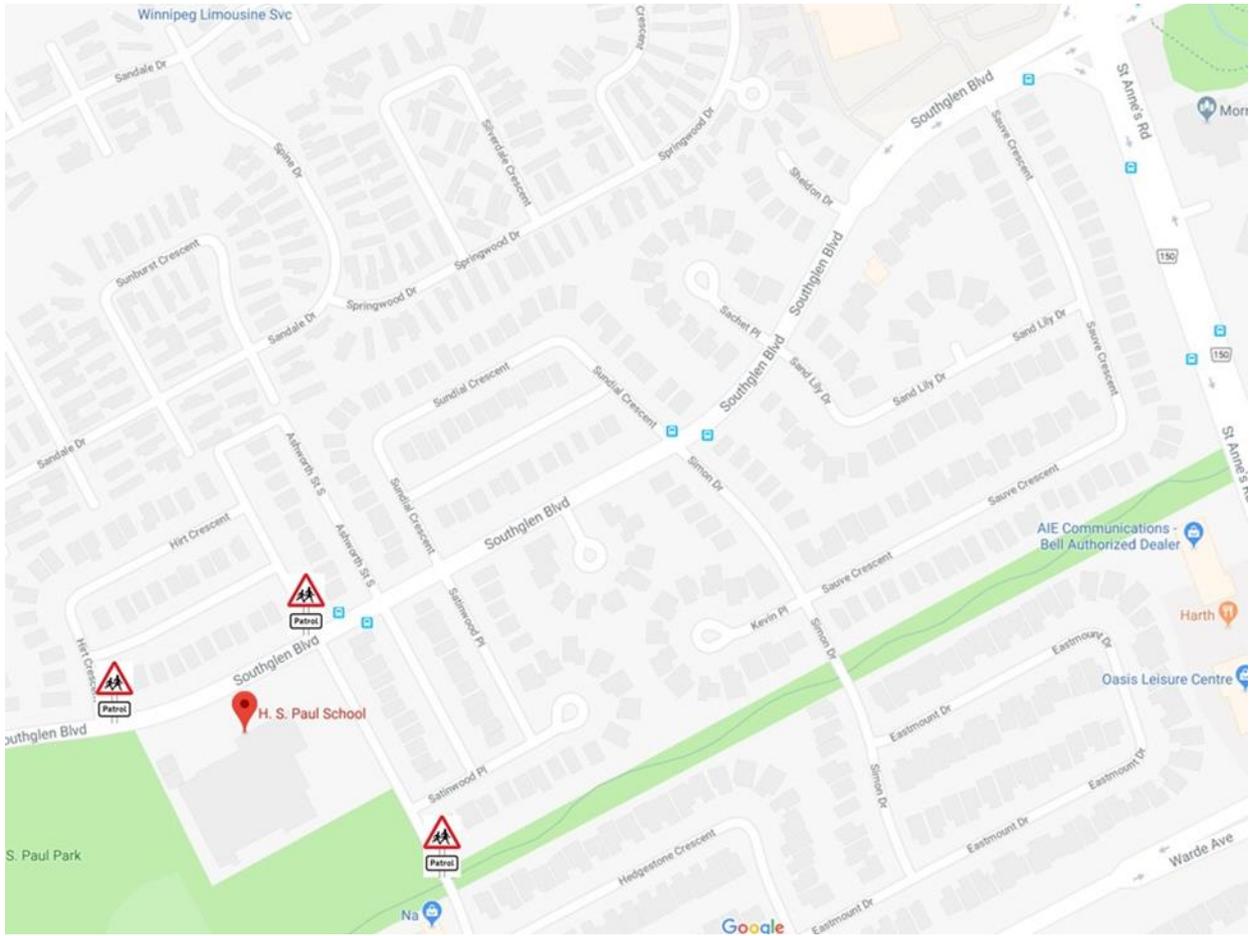
HASTINGS SCHOOL MAP



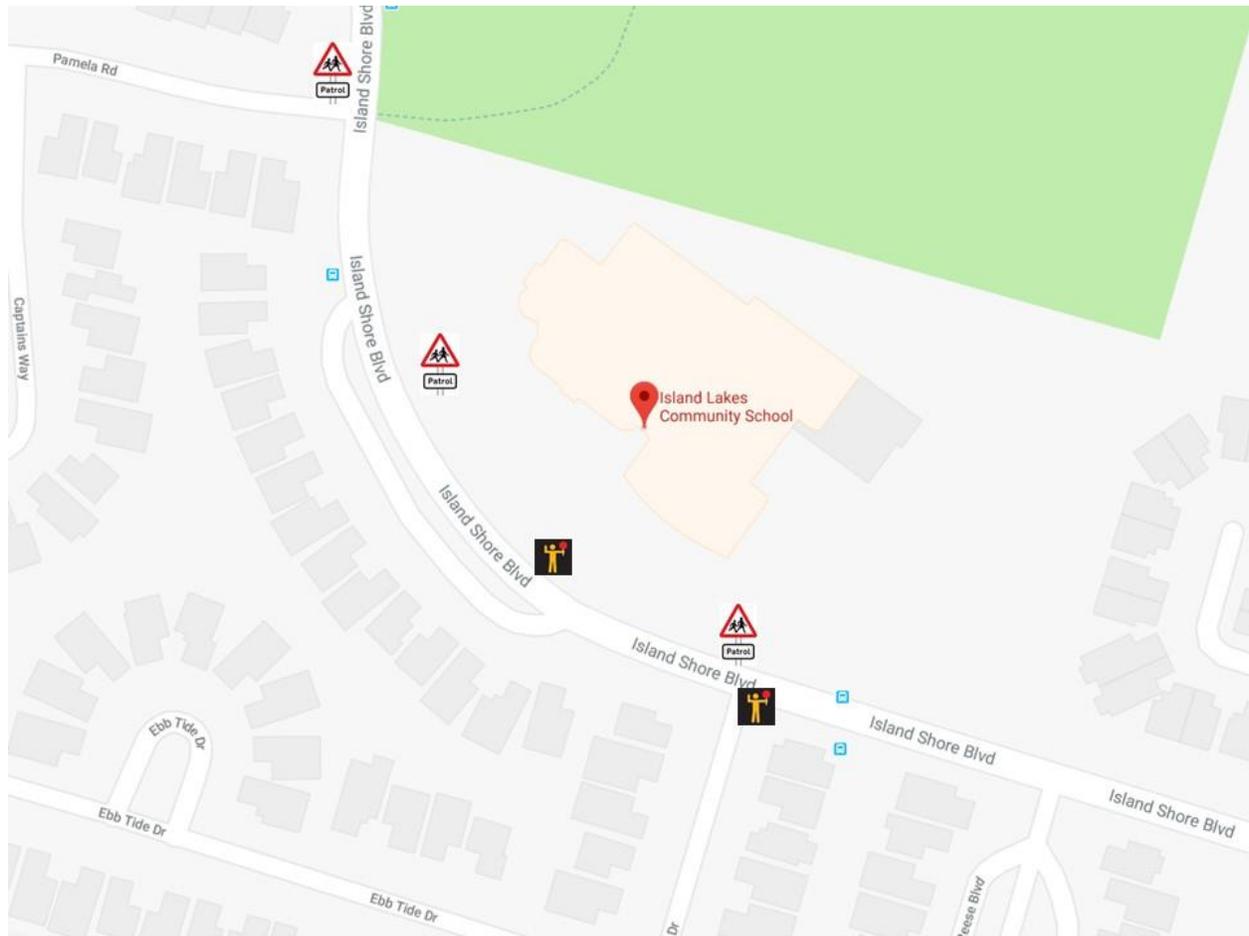
HIGHBURY SCHOOL MAP



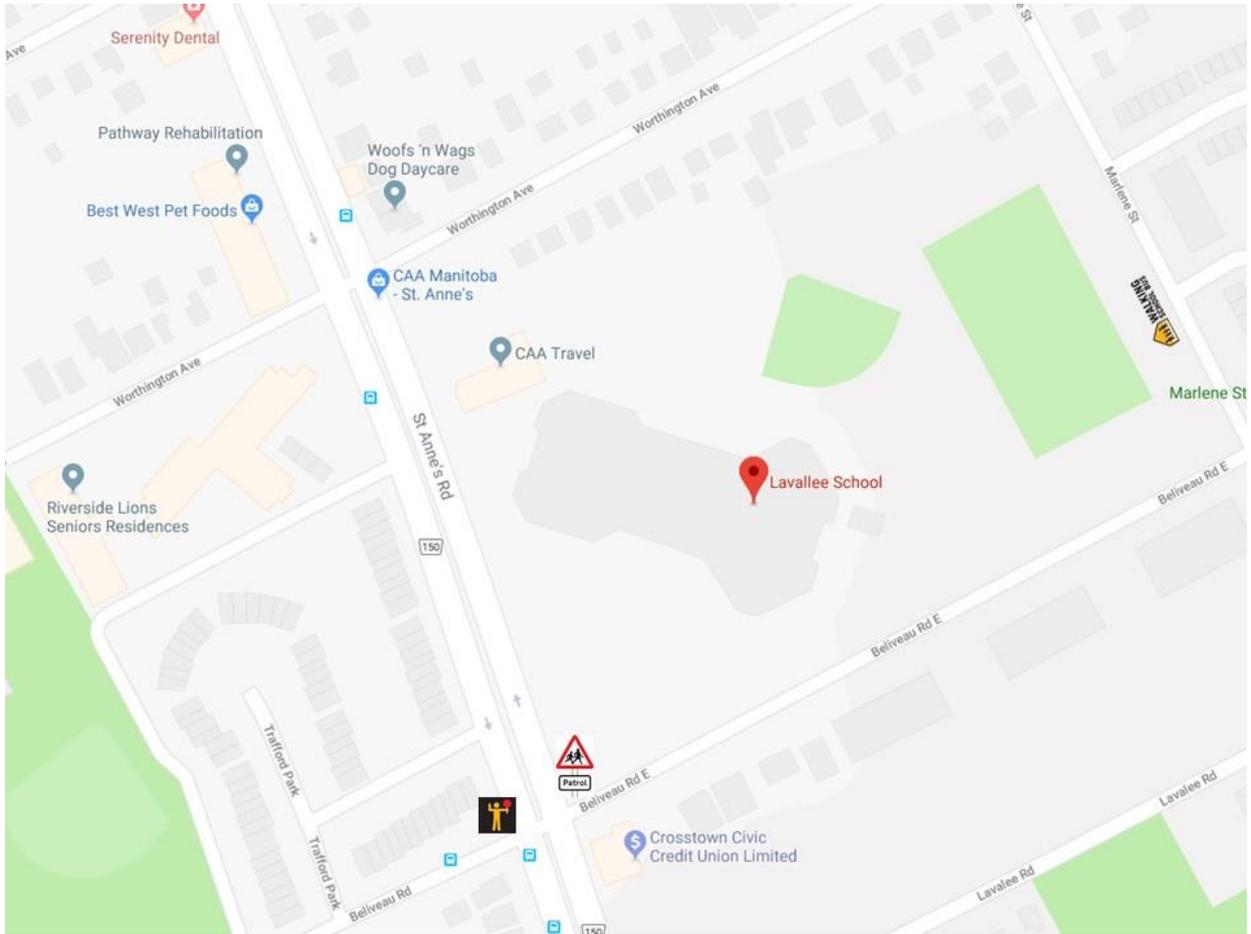
H.S. PAUL SCHOOL MAP



ISLAND LAKE COMMUNITY SCHOOL MAP



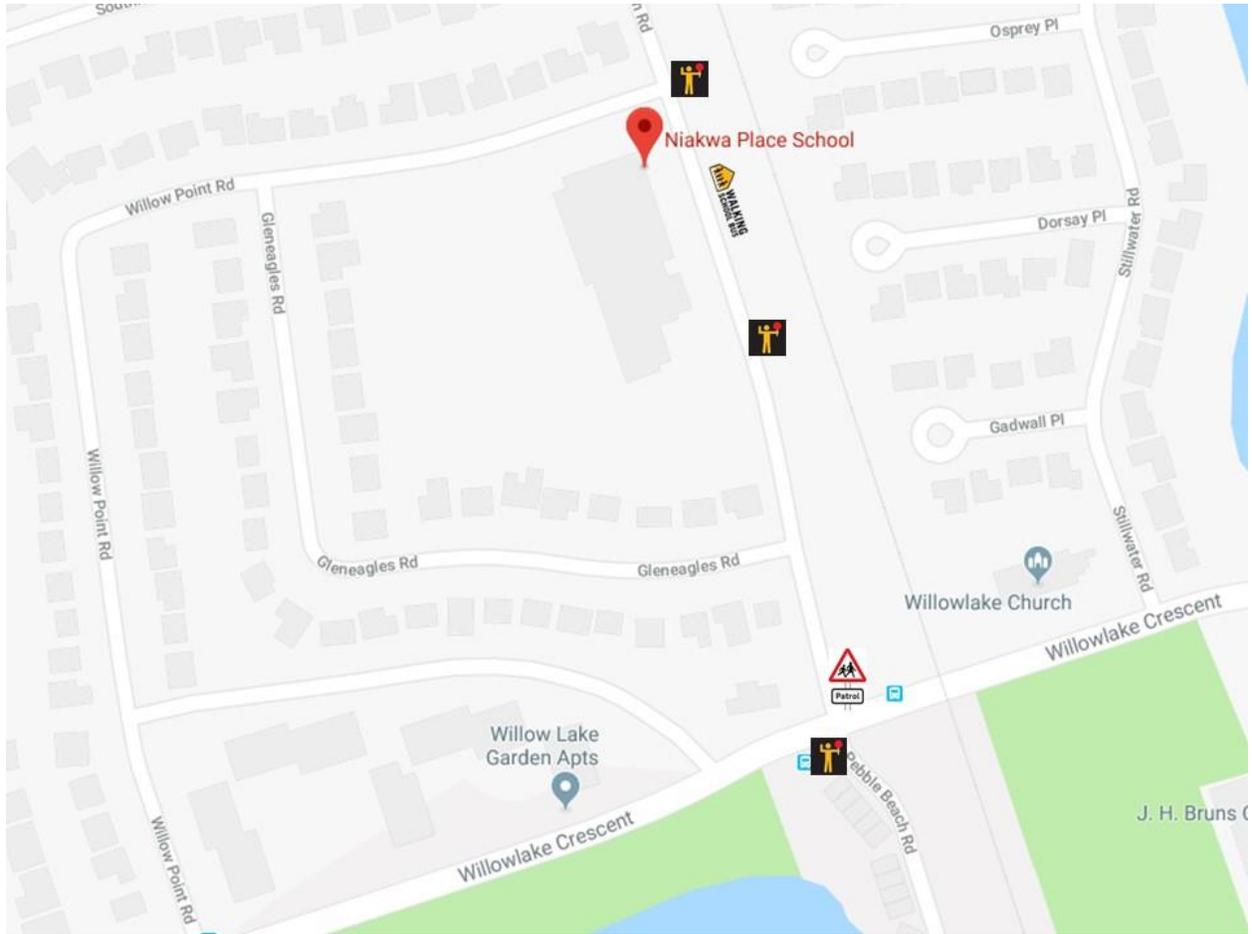
LAVALLEE SCHOOL MAP



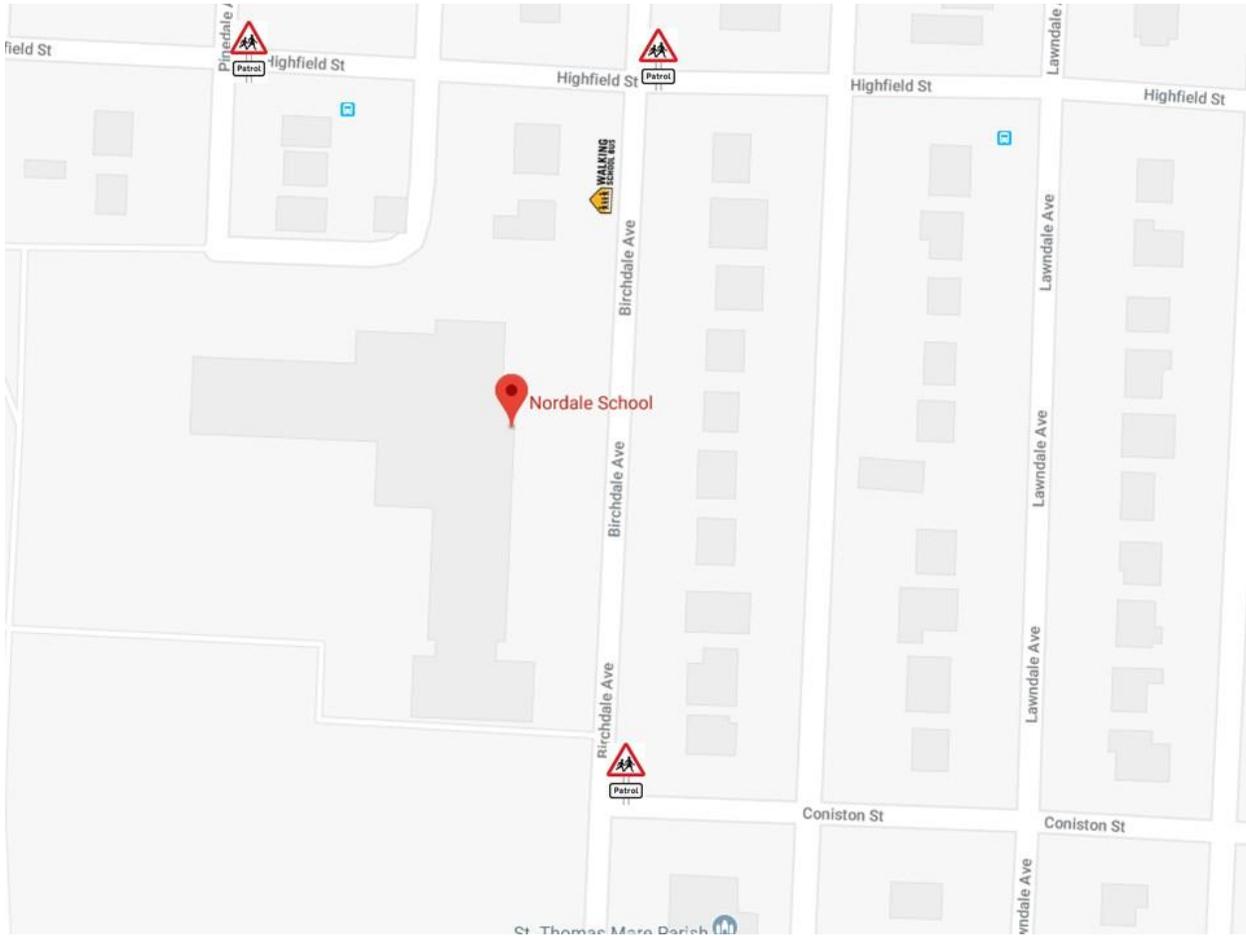
MINNETONKA SCHOOL MAP



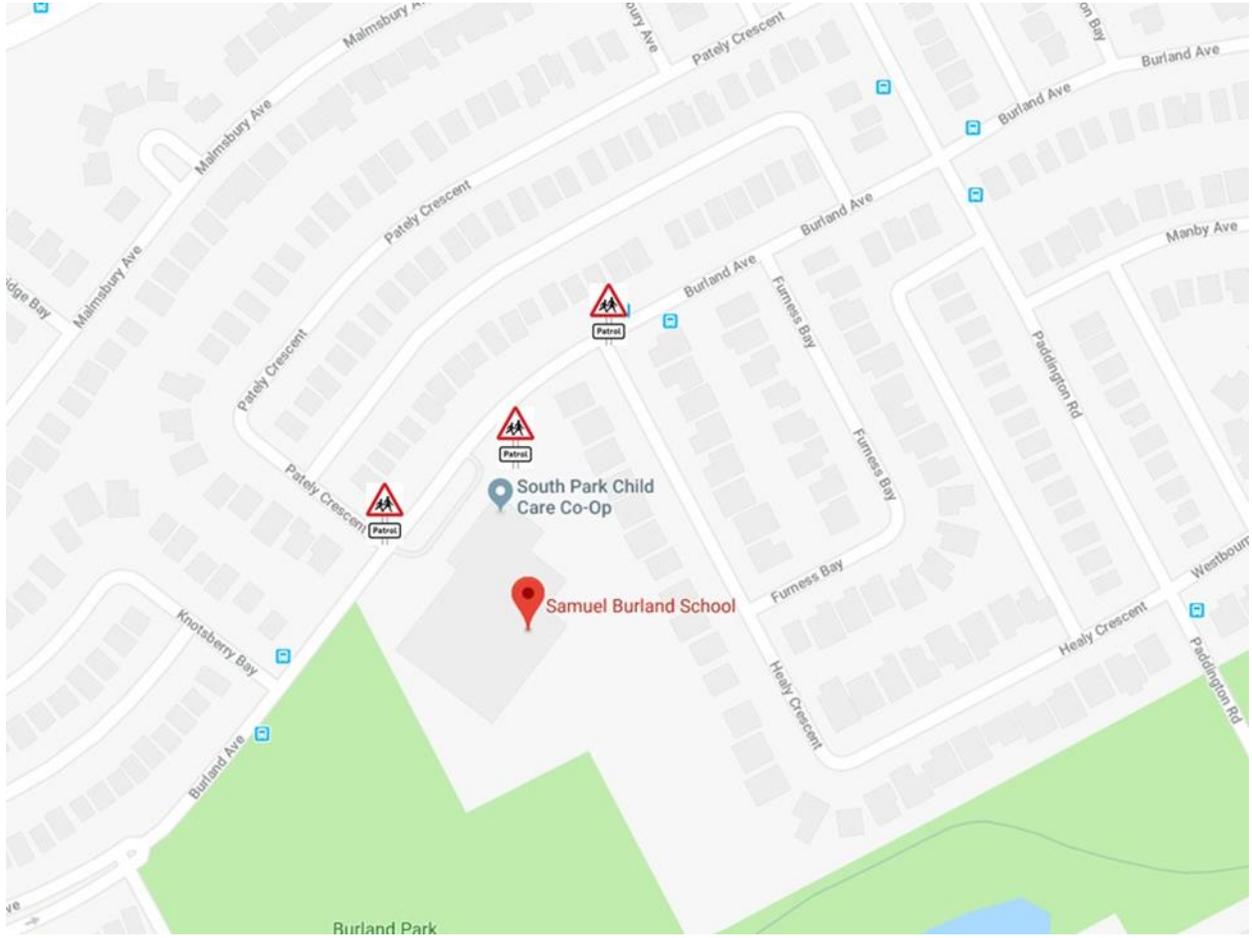
NIAKWA PLACE SCHOOL MAP



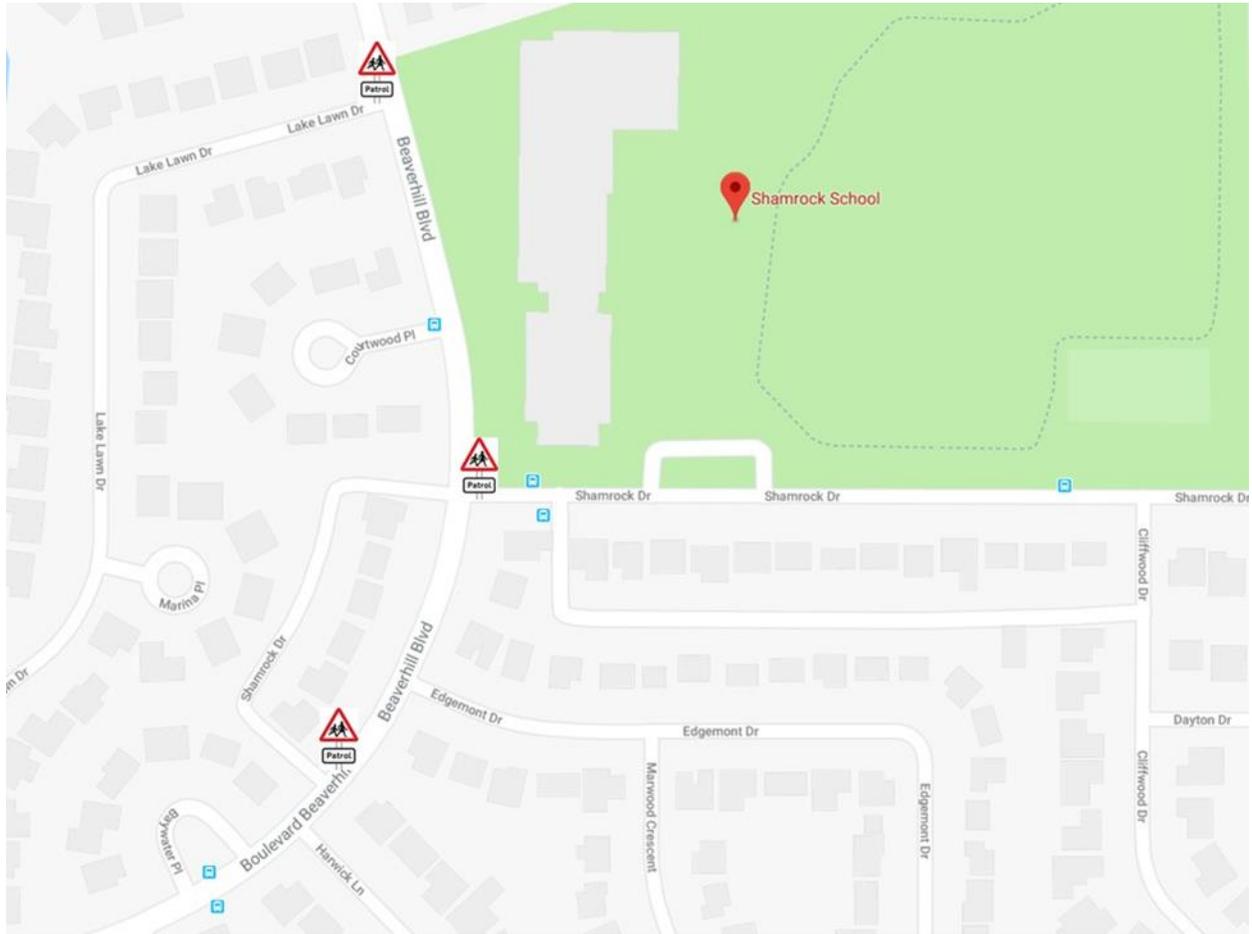
NORDALE SCHOOL MAP



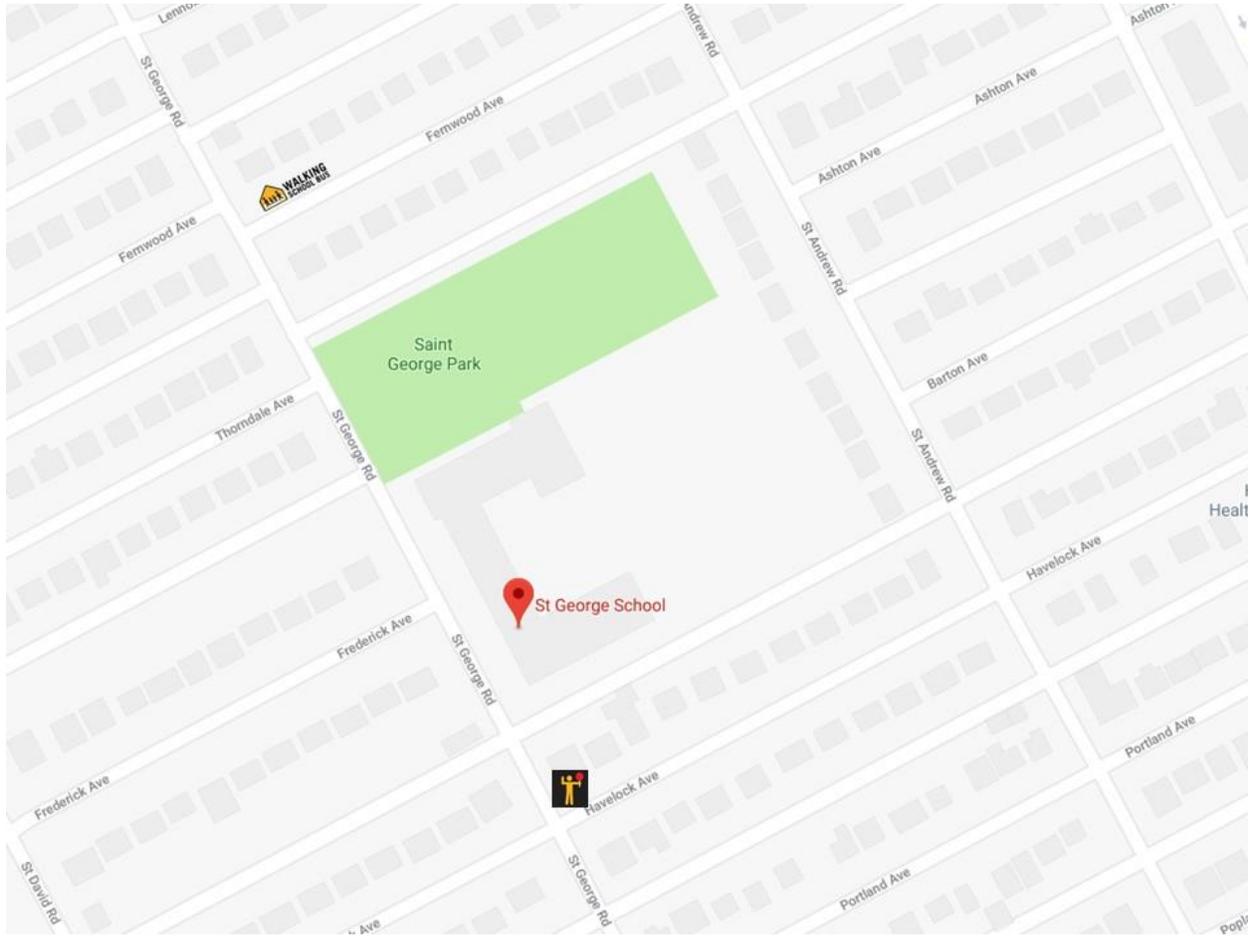
SAMUEL BURLAND SCHOOL MAP



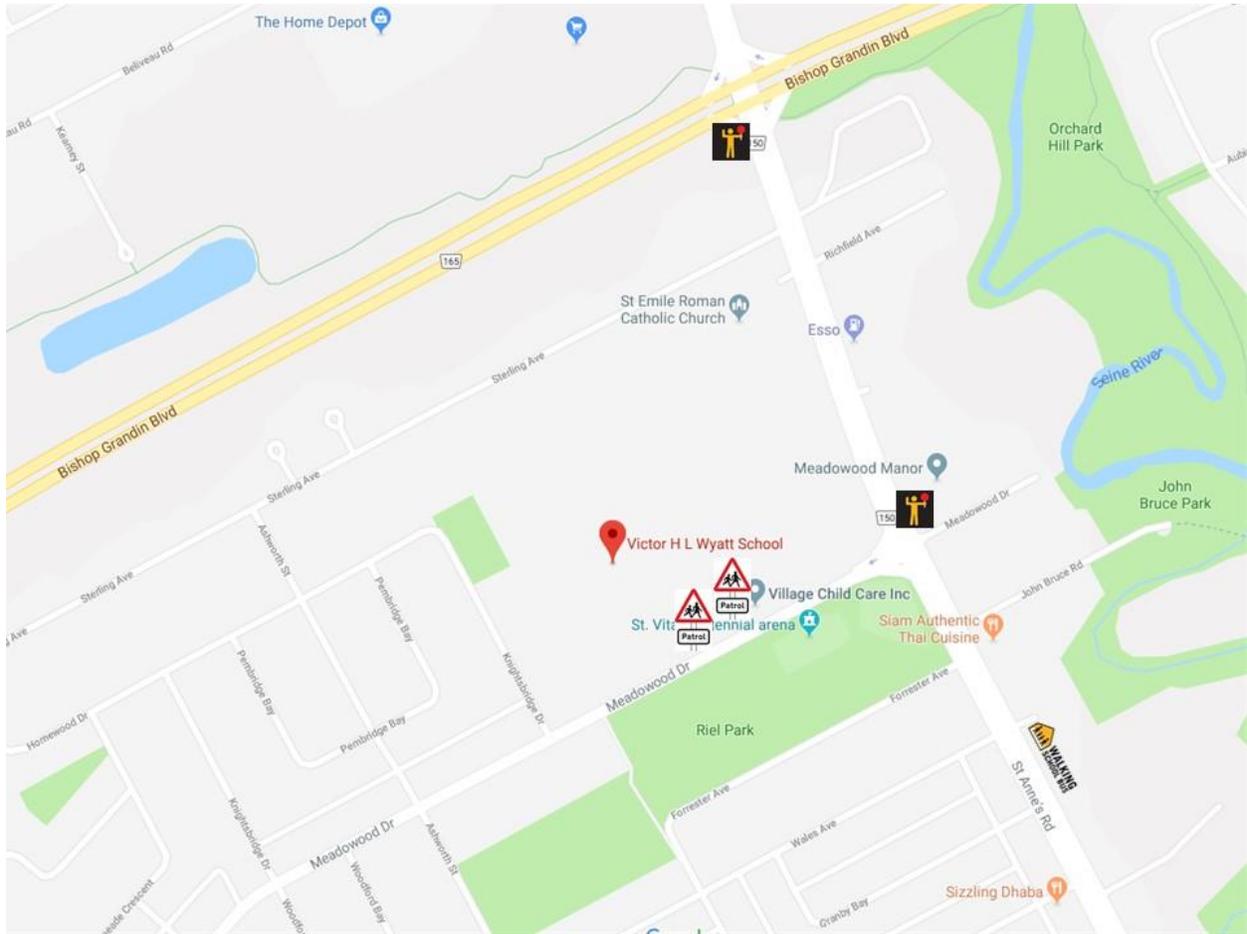
SHAMROCK SCHOOL MAP



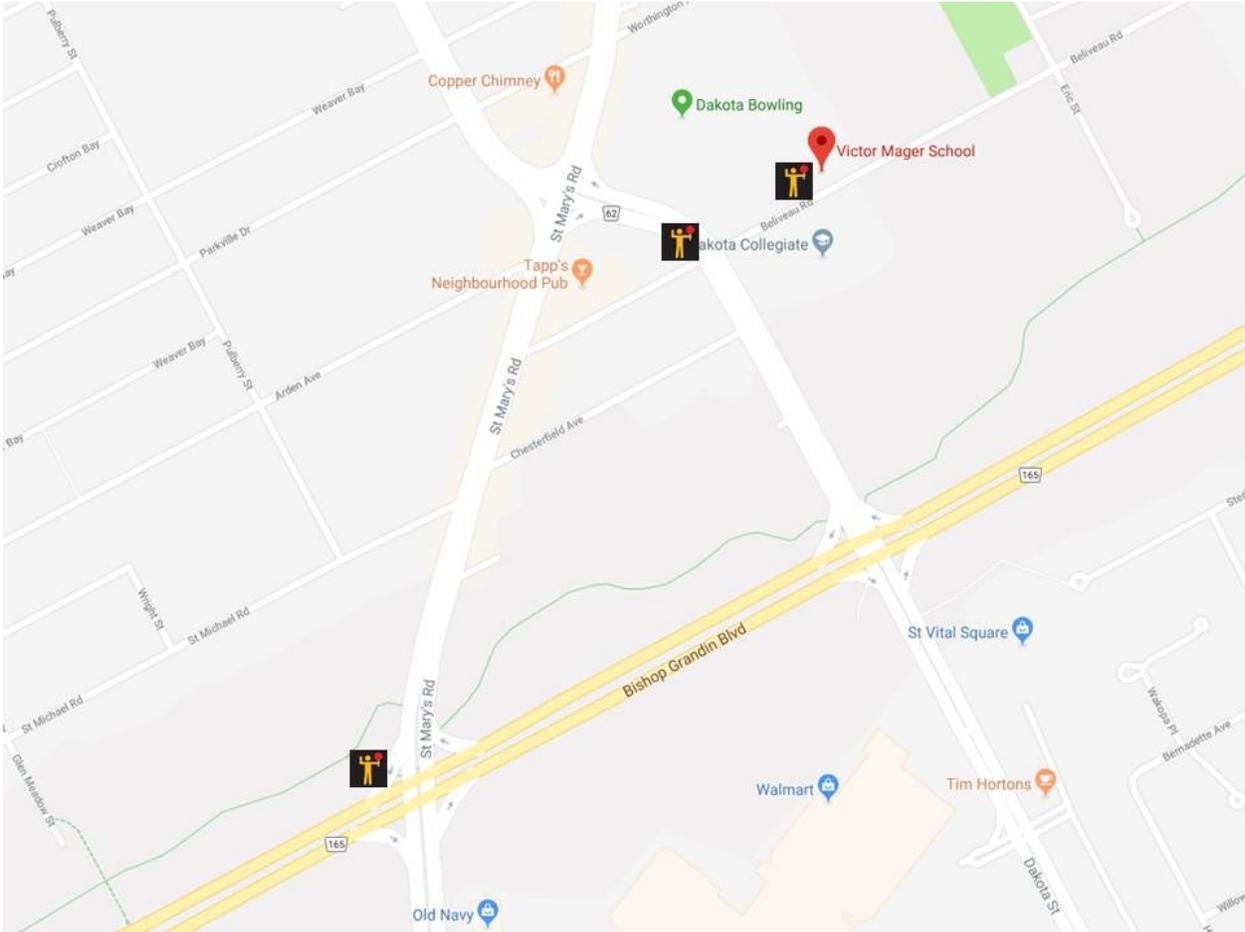
ST. GEORGE SCHOOL MAP



VICTOR H L WYATT SCHOOL MAP



VICTOR MAGER SCHOOL MAP



WINDSOR SCHOOL MAP

