DESIGNING FOR ACTIVE TRANSPORTATION

York Region School Sites Design Guidelines

2017

York Region

IBI

Vélo Québec

ACKNOWLEDGEMENTS

These guidelines were prepared based on input & involvement from various stakeholders through a steering committee, including participants from these organizations:

- City of Markham
- City of Vaughan
- Town of Aurora
- Town of Richmond Hill
- York Region Active & Sustainable Transportation
- York Catholic District School Board
- York Region District School Board
- York Region Public Health
- York Region Transit

In addition to the steering committee, three schools in York Region were kind enough to allow the steering committee to visit their site to observe site circulation and operations. Special thanks to Aurora Heights Public School, Castlemore Public School, and St. Theresa of Lisieux Catholic High School.

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1.0 Introduction

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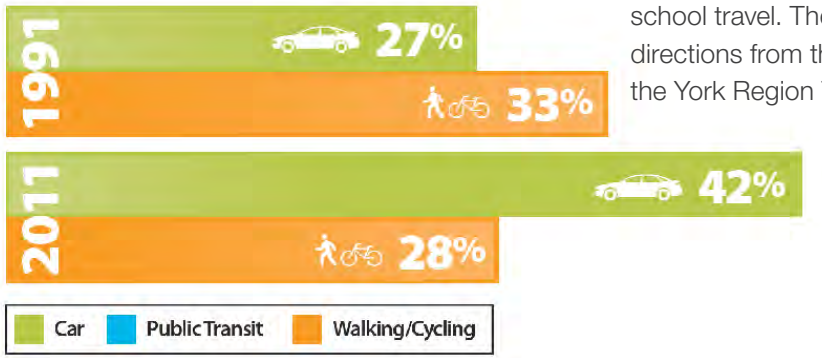
Over the last two decades, travel to school by walking or cycling has steeply declined. From 1991 to 2011, the share of students driven to school by private vehicle had risen from 27% to 42% while the share of students walking or cycling to school had dropped from 33% to 28% (Figure 1). Meanwhile, the lack of physical activity and obesity among children has become a leading public health issue.

Figure 1. Mode of travel to school in York Region



Source: York Region TMP, with data from Metrolinx's School Travel in York Region report, available online: http://smartcommute.ca/wp-content/uploads/2016/03/SchoolTravelReport_YorkRegion_Print.pdf

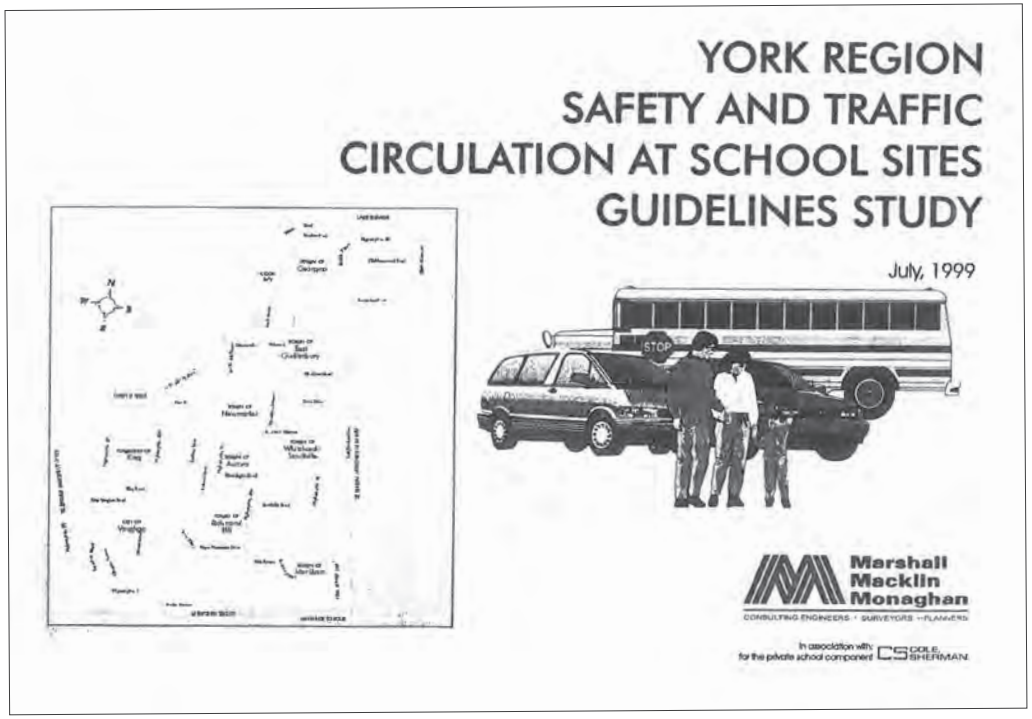
Reversing the decline in active travel to school is seen as a way to make children more physically active and reduce the prevalence of diseases related to inactivity. It is also seen as a way to help encourage children to develop healthy habits that will stay with them throughout their lives. Research shows that children who travel to school by walking or cycling are less likely to become automobile dependent later in life.

This guide is intended to support the joint efforts of York Region Public Health, York Region District School Board, York Catholic District School Board and area municipalities in supporting active school travel. These efforts are aligned with policy directions from the York Region Official Plan and the York Region Transportation Master Plan's goal of creating a multimodal transportation system in which walking and cycling are the mode of choice for a larger share of the school population.

1.1. FOCUS

This guide is a supplement to the 1999 York Region Safety and Traffic Circulation School Sites Guidelines Study. Whereas that document focused almost exclusively on access to school by motorized modes of transportation, the present guide is focused on measures for facilitating active travel to school. It makes reference to access to school by motorized modes only insofar as these interact with active modes of transportation.

The concept and recommendations presented in this document are intended to encourage active modes of travel to school, recognizing the need for partnership in the delivery of these elements. Whenever possible, the school boards, municipalities and the Region should partner to advance recommendations that would otherwise be unachievable as a result of funding or resource limitations.



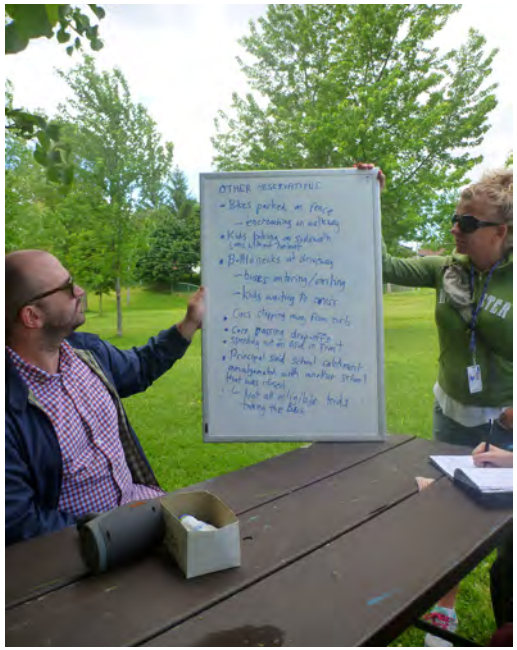
Original 1999 York Region Safety & Traffic Circulation at School Sites Guidelines Study

1.2. AUDIENCE

This purpose of this guide is to **help a wide variety of stakeholders find common ground and clarify a common language** for creating an environment that encourages active travel to school.

Stakeholders addressed by this guide include but are not limited to:

- School and school board officials
- Municipal planning and transportation officials
- Public health officials
- Parents and parent associations
- Students



Photos taken during the stakeholder site visit to various schools in York Region

1.3. HOW TO USE THIS GUIDE

The goal of this guide is to help stakeholders understand how to create a community environment that encourages active travel to school. The information in this guide should be used:

- **For planning new communities:** during the secondary planning process, for choosing the school site, laying out the street grid, establishing planning and engineering standards and building controls
- **For designing new schools:** during the school design process, for identifying the amenities and design critieria that facilitate access to the school by different modes of transportation
- **For improving access to existing schools:** during the School Travel Planning (STP) process, to inform the Action Plan on changes to be made to the environment around the school to facilitate active travel.

The material in this document is presented under three main headings:

- **School Site –** This chapter focuses on the selection and design of the school site itself, including multi-modal access and layout. establishing planning and engineering standards and building controls
- **School Neighbourhood –** This chapter focuses on the neighbourhood immediately adjacent to the school neighbourhood, including guidance on traffic calming, street layout, intersections, integration with transit and school routes.
- **Supporting Policies, Programs and Resources –** This chapter provides information about a number of existing programs and resources in York Region & beyond.

The strategies presented in this guide are applicable to:

- Elementary and secondary schools
- Existing and new schools
- Urban, suburban, and rural contexts.

Throughout this guide, references are provided to relevant York Region policy documents and guidelines. References to external resources on specific technical issues are provided where required. **Depending on the municipality in which the school is located, municipal design standards, site plan requirements and guidelines take precedence over the alternative resources identified in these guidelines. These resources are provided for technical guidance only but should not be interpreted as applicable in every scenario.** Some of the guidelines in this document may not align with all current local municipal policies and practices. These guidelines are intended to provide a diverse set of tools & guidelines that can be applied in a context-sensitive manner on a case-by-case basis. Guidance in this document is not intended as a substitute for professional judgement.

In addition to the guidelines, a **series of tools including checklists and demonstration plans are provided in the appendices** of this documents.

2.0 School Site

2.0 School Site

York Region Official Plan (YROP) Policy 7.2.16 requires that municipalities partner with the York Region District and Catholic School Boards to implement the Active and Safe Routes to School program, and to design and locate school campuses to promote walking, cycling and transit as a primary means of transportation.

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When a York Region municipality is preparing a secondary plan for a new development, in consultation with the school boards, it must ensure that appropriate sites are being set aside for future schools. Where future schools will be located relative to residential land uses, public facilities, and public transportation, and other amenities, has a significant impact on how children will travel to that school.

When the time comes to build a new school, the school site becomes the responsibility of one of York Region's two school boards. The school board is responsible for the design, construction and maintenance of all facilities on the school site. However, the local municipality controls many aspects of the site design through its land use and site design policies. This includes the shape and orientation of the school building as well as the provision of on-site parking and other transportation facilities. YROP Policy 7.1.11 requires local municipalities to adopt land use and site design policies that promote sustainable modes of transportation, including walking, cycling, transit, and carpooling.

The guidelines presented in this section are to be taken into consideration by local municipalities in the preparation of secondary plans and the formulation of land use and site design policies. They are also to be taken into consideration by the school boards as they design new school sites or improve existing ones.

2.1. LOCATION

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

Many studies show that the distance between home and school is the strongest predictor of whether students walk or bike to school. When a new community is being planned, it is crucial that optimal sites be reserved for schools to maximize the potential for active travel to school. It is the role of the local municipality, which creates secondary plans and approves subdivision plans, to ensure that centrally located sites near other community amenities and away from barriers to walking and cycling be reserved for schools.

KEY CONSIDERATIONS

Centrality

School board policy (YRDSB Policy & Procedure 462.0) is to locate new schools centrally with respect to their intended attendance area. The aim is to provide the greatest number of residents with a short travel distance, ideally within 800 m or a 15-minute walk from the school. This reduces the number of children requiring school bus service and should favour the use of active modes of transportation for access to school.

Community Amenities

During class or after school, students may need to access other public amenities, such as parks, sports facilities, community centres or libraries. Locating these near schools can encourage active travel between the school and the amenities. However, when schools and public facilities are clustered, their sites need to be carefully laid out to ensure that they do not impede active travel to school—i.e., that students arriving from certain directions need not circumvent the other public amenities to get to the school.

Barriers

Rivers, freeways, and some railways cannot be crossed in the absence of a bridge or tunnel. A lack of safe and conveniently located crossings for pedestrians and cyclists can force long detours and discourage the use of active transportation.

Major roads with high traffic speeds and volumes are also obstacles for pedestrians and cyclists, especially children. Even if there are conveniently located pedestrian crossings, parents may be unwilling to let young children cross major roads on their way to school. For this reason, elementary schools should generally not be located along Regional Roads.

Street Access

From the perspective of site permeability, school sites fronting on streets on three or four sides can provide access from all directions.

For elementary schools, considerations such as security, recreation facilities and mean that in some situations it may be more appropriate to front onto a street on one or two sides. In these cases, off-road linkages to the site from all sides can be used to mitigate the reduced permeability of the site (refer to Section 2.2).

Size

The school boards and the municipality should agree upon school site sizes during the secondary planning process. Currently the typical size for an elementary school site in York Region is between 2 and 3 hectares with a frontage of at least 140 m whereas typical secondary schools sites require over 6 hectares and 200 m of frontage. Future school sites in designated urban areas in may be developed on smaller sites.

Recommendations

Recommendation 1

During the secondary planning process, the local municipality must ensure that optimal sites are reserved for schools.

Recommendation 2

School sites should front on streets on at least two sides. For high schools, it is preferred for sites to front on three sides whenever feasible.

References & Resources

- York Region District School Board (undated). Policy and Procedure #462.0, Student Accommodation-Sites and Facilities. http://www.yrdsb.ca/boarddocs/Documents/PP-studentaccomodationsitesandfaciliites-462.pdf
- Institute of Transportation Engineers (ITE) (undated). Safe Routes to School Briefing Sheets: School Site Selection and Off-site Access. http://library.ite.org/pub/e265efc5-2354-d714-5129-d2fe40a9c014
- The suggested average walking speed for elementary-school-aged children is 0.9 m/s

2.2. PEDESTRIAN ACCESS

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

It is important to facilitate pedestrian access to schools from all directions. In addition, paths within the school site are needed to link the surrounding sidewalks to school entrances and play areas.

At existing schools, pedestrian accessibility can be improved by adding paths on the school site to provide shortcuts to sidewalks and off-street paths surrounding the school. The school board may need to work with the local municipality to create legal pedestrian easements from the school building to any nearby paths and negotiate responsibilities for on-going maintenance.

Although this practice is currently uncommon in York Region, the desire to facilitate pedestrian access to school sites from all sides is identified in many new school design guidelines including The City of Toronto's Elementary School Design Guidelines and Halton Region's Design Guidelines for School Site and Adjacent Land Planning.

KEY CONSIDERATIONS

Building Entrances and Paths

The Toronto Elementary School Design Guidelines (2016) suggest that the following be provided on a school site:

- A wide, concrete walkway from the street sidewalk to the main building entrance
- Asphalt walkways from the corners of the site to the play areas at the side or rear of the school building
- Asphalt walkways through legal pedestrian easements onto the site

Fencing around the school site should be kept to a minimum. If fencing is necessary, for example between a play area and a street, openings should be provided at the corners of the site or wherever on-site paths connect to surrounding sidewalks or paths.

For elementary schools, where access must be carefully controlled, these openings can be kept secure with a gate that can be opened by adults. The trade-offs between site security and

permeability should be considered at the time of site development.

For secondary schools, a wide, concrete walkway from the street sidewalk to the main building entrance is also recommended. The location of other school entrances should take into consideration pedestrian desire lines. Designers should analyze the directions from which pedestrians are likely to approach the school site to determine the placement of secondary entrances and the paths that lead to them. The most direct paths possible, which avoid obstacles and minimize conflicts with vehicles, should be provided. Paths to secondary entrances can be paved with asphalt.

Conflicts with Cyclists

To minimize potential conflicts between cyclists and pedestrians, a common strategy is to locate bicycle parking near the streets around the school site, adjacent to the paths leading to the school building. This encourages cyclists to park their bicycles on the periphery of the school site and continue to the nearest building entrance on foot (see Section 2.3.1 for more details on bicycle parking).

Conflicts with Vehicles

Interaction with motor vehicles on the school site should be minimized. Pathways on the school site should allow pedestrians and cyclists to avoid on-site facilities for vehicles, such as loops for buses, parent drop-offs, and parking. If a path crosses a driveway or parking lot, it is recommended that the crossing be raised and that it have prominent markings (Figure 2).

Universal Design

All paths and facilities intended for use by pedestrians on the school site must be accessible to persons with disabilities, as required by the Accessibility for Ontarians with Disabilities Act (AODA).

Recommendations

Recommendation 3

A wide walkway should be provided from the street sidewalk to the main building entrance.

Recommendation 4

Walkways from the corners of the site to the play areas at the rear of elementary school buildings or to secondary entrances of secondary school buildings should be provided.

References & Resources

- City of Toronto (2016) Elementary School Design Guidelines 1.0 http://www.tdsb.on.ca/AboutUs/FacilityServices/ElementarySchoolDesignGuideline.aspx
- Accessibility Ontario (undated) About the AODA, https://accessontario.com/aoda/
- York Region (undated) Accessibility Policies and Training http://www.york.ca/wps/portal/yorkhome/yorkregion/yr/accessibility/accessibilitypolicyandtraining/accessibilitypoliciesandtraining/
- Institute of Transportation Engineers (ITE) (undated) "School On-Site Design" in Safe Routes to School Briefing Sheets http://library.ite.org/pub/e2660aa0-2354-d714-510d-6a9aed049d40

Maintenance

All on-site pedestrian paths must be regularly cleared of snow and deiced through the winter. Deicing and snow clearing should occur on weekdays before school arrival hours and, in case of a snow or event during the day, should be performed before dismissal hours.

Figure 2. Pedestrain walkways and raised crossing

Source: Vélo Québec

2.3. BICYCLE ACCESS

York Regional Official Plan Policy 7.2.12 instructs municipalities to encourage property owners to provide facilities such as benches, shelters and secure bicycle storage at major destinations, including employment, educational, institutional and shopping locations. Section 2.3.1 below provides guidelines on the provision of bicycle parking at schools, including secure bicycle parking, while Section 2.3.2 provides guidelines on the provision of the other so-called end-of-trip facilities that bicycle commuters typically require.

2.3.1. PARKING

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

To encourage students and staff to cycle, a sufficient supply of secure and convenient bicycle parking should be provided on the school site.

Student bicycle parking is typically provided outdoors, preferably in highly visible locations that passively discourage theft and vandalism. Staff members may prefer more secure bicycle parking, which can be provided indoors or in an outdoor shelter with limited access.

Regional Official Plan Policy 5.2.10 states that secondary plans and zoning by-laws shall incorporate parking management policies and standards that include reserving preferential on-site locations for bicycle storage requirements.

KEY CONSIDERATIONS

Capacity

Exact bicycle parking demand is difficult to predict and likely to change over time. For this reason, it is suggested that schools provide a baseline amount of regular and secure bicycle parking while reserving space for potential future expansion of both. As a reference point, Vélo Québec's Planning and Design for Pedestrians and Cyclists (2010) recommends the following capacities for bicycle parking at schools:

- 1 bicycle parking space per 5 to 20 students
- 1 bicycle parking space per 10 to 40 school employees

Local experience and counts can also provide a reference point. Bicycle parking usage should be monitored and if demand is reaching capacity, additional bicycle racks should be added. If necessary, on-site car parking stalls can be used to accommodate additional bicycle parking. One car-parking stall can accommodate 10 or more bicycles, depending on the type of rack used.

An insufficient supply of bicycle parking on the school site may result in bicycles being locked in undesirable places, such as to fences, signposts, lampposts, furniture, and trees, which may be damaged as a result. Bicycles parked in undesirable places may also become an obstacle or a hazard for pedestrians and other cyclists, and can impact site accessibility.

Location

It is preferable that bicycle-parking areas be placed near streets, at access points to the school site. This ensures passive surveillance and should help deter vandalism and theft. Also, parking bicycles on the periphery of the site helps to reduce conflicts between cyclists and pedestrians by encouraging cyclists to park and to proceed to the entrance on foot.

Convenience

Schools should provide racks to which bicycles of varying shapes and sizes can be easily attached with a U-lock. The rack should prop up the bicycle by its frame, not by pinching one of the wheels. So-called “inverted-U” racks fulfill these requirements and are commonly used at schools (Figure 3).

Protection from the Elements

If possible, outdoor bicycle parking spaces should be placed under a canopy or within a partial enclosure, such as a shed. In the latter case, the shed should be made of transparent material to allow passive surveillance of the bicycle parking area.

Figure 3. Inverted-U bicycle racks at schools

Vandalism and Theft

Fear of vandalism and theft can be a deterrent to bicycle use. Placing bicycle parking in locations visible from within the school or from surrounding streets is a passive measure for discouraging vandalism and theft. A more robust measure is to provide bicycle parking within a limited-access enclosure, such as an outdoor shed (Figure 4) or a room in the school building. Security can be further enhanced with camera surveillance. However, this kind of secure bicycle parking can be more costly to provide and more onerous to manage. For this reason, schools might wish to offer this type of facility to staff members only.

Layout

For ease of access, outdoor and indoor bicycle areas must be carefully laid out. The following minimum clearances should be respected for the sake of convenience and ease of use:

- 0.75 m between neighbouring inverted-U racks
- 0.5 m clearance from the end of a row of racks to a wall
- For ease of circulation:
  - 1.0 to 2.0 m between rows of racks
  - 1.0 m clearance for gaps in a row of racks

Figure 4. Bicycle parking in a limited-access enclosure

Recommendations

Recommendation 5
Secure, highly-visible bicycle parking should be provided on all school sites to support cycling amongst both staff and students.

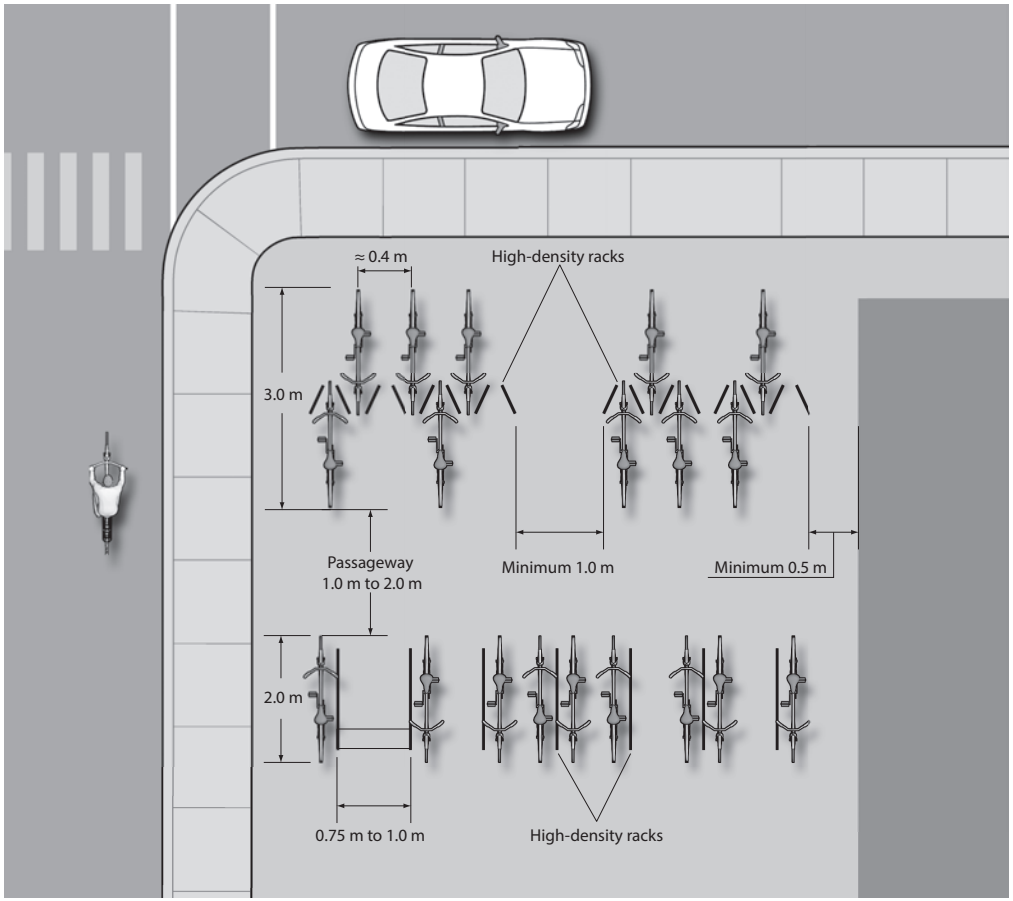
Recommendation 6
Municipalities should ensure that school bicycle parking requirements for elementary schools, secondary schools, and school staff provide an appropriate base rate of bike parking and reflect local demand.

Recommendation 7
Schools should monitor usage of bicycle parking and increase capacity if necessary.

References & Resources

- Transport Canada (2010) Bicycle End-of-Trip Facilities: A guide for Canadian Municipalities and Employers http://data.tc.gc.ca/archive/eng/programs/environment-urban-menu-eng-1887.htm
- City of Vancouver (2012) Parking By-law Section 6: Off-street bicycle space regulations http://bylaws.vancouver.ca/parking/sec06.pdf
- Vélo Québec (2010). Planning & Design for Pedestrians and Cyclists. Montreal : Vélo Québec Association.

Figure 5. Recommended clearances for layout of bicycle parking areas



Source: Vélo Québec 2010

2.3.2. END-OF-TRIP FACILITIES

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

Secondary school students and elementary or secondary school staff with relatively long commutes may wish to change and shower upon arrival. They may also need a place to store their clothes and cycling equipment, such as helmets, water bottles, and lights. Like any other major employer, a school can provide dedicated change rooms, showers, and lockers for bicycle commuters. These can be clustered with secure, indoor bicycle parking (Figure 6).

It is noted that the provision of showers may, in some cases, be prohibitively expensive for school boards. Opportunities to partner with municipalities, the Region, and other entities should be explored in these instances.

KEY CONSIDERATIONS

Use of Existing Facilities

Secondary schools students who cycle can use existing gymnasium change rooms and showers and can store clothes and equipment in their regular lockers. However, schools do not necessarily provide dedicated change rooms and showers for staff, who may not wish to use student facilities.

Provision of New Facilities

Municipalities across North America are increasingly requiring that building owners provide end-of-trip facilities for cyclists at places of employment, including schools. Typically, the required number of shower and change room facilities is related to required number of bicycle parking spaces. The City of Vancouver, for example, has been enforcing such a requirement since 2003 (Table 1).

Recommendations

Recommendation 8

All schools should provide one male and one female change room for employees, each with at least one toilet, one sink, and one shower per gender for every 30 secure bicycle parking spaces.

Figure 6. Indoor bicycle parking facility with lockers and showers

Table 1. City of Vancouver requirements for shower and change room facilities

Secure Bicycle Parking Stalls	Number of Toilets*	Number of Sinks*	Number of Showers*
0-3	0	0	0
4-29	1	1	1
30-64	2	1	2
65-94	3	2	3
95-129	4	2	4
130-159	5	3	5
160-194	6	3	6
Over 194	+1 for each additional 30 bike spaces or part thereof	+1 for each additional 60 bike spaces or part thereof	+1 for each additional 30 bike spaces or part thereof

References & Resources

- Transport Canada (2010) Bicycle End-of-Trip Facilities: A guide for Canadian Municipalities and Employers http://data.tc.gc.ca/archive/eng/programs/environment-urban-menu-eng-1887.htm
- City of Vancouver (2014) By-law No. 7481 http://vancouver.ca/files/cov/bylaw-7481-building-shower-facilities.pdf

2.4. VEHICULAR ACCESS

2.4.1. SCHOOL BUS

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

Where school buses drop off and pick up students on the school site, safety must be carefully considered. School buses are large vehicles with big blind spots and their presence on and around school sites has an impact on the safety and comfort of active travelers.

School buses can be accommodated in the following ways:

- On-street laybys
- Exclusive on-site loops for school buses only
- Shared on-site loops, used also for parent drop-offs and pick-ups

Most guidelines for school site design recommend exclusive bus loops as they allow for efficient school bus operations and reduce traffic impacts on the streets near the school. On-street laybys are typically used only for constrained school sites in urban areas where there is insufficient open space on the school site to accommodate a loop.

KEY CONSIDERATIONS

Site Size and Urban Context

The type of facility selected to accommodate buses depends largely on the site size. In a denser, more urban environment where buildings are set close to the street and the school site is more compact, a layby along the school's street frontage could be preferable, or even necessary.

On constrained school sites, where there is not enough room to accommodate two loops—one for buses and one for parent drop-offs and pick-ups, a possible compromise is one loop to be used for both. The drawback is that parent drop-offs and pick-ups in the bus loop may impact bus operations.

Capacity

The loop or layby should be dimensioned to accommodate the expected number of buses. The number of buses a school requires depends on a variety of factors:

- Type of school and urban context:
  - Elementary schools: regardless of whether they are in a urban, suburban or rural context, they generally have a significant share of students eligible for school bus service
  - Secondary schools: in an urban or suburban context, they generally do not have many students eligible for bus service; in a rural context the reverse may be the case
- Eligibility and catchment area:
  - How many children require bus service depends on the given school board's policy with respect to school bus eligibility and the size of the school's catchment area (Table 2)
  - Rural schools tend to have larger catchment areas and therefore a larger proportion of students eligible for bussing than suburban and urban schools
- School bus routing: routes followed by school buses can be optimized to maximize the number of students per bus in order to minimize the number of buses
- Scheduling: bus arrival times can be staggered to reduce the number of buses simultaneously dwelling in a layby or loop

Table 2. York Region school bus eligibility thresholds by age and by school board

Grade	Eligible Distance from School for School Bus Service	
	York Region District School Board	York Catholic District School Board
Kindergarten	1.2 km or more	1.2 km or more
1 to 3	1.2 km or more	1.2 km or more
4 to 6	1.6 km or more	1.6 km or more
7 to 8	1.6 km or more	1.6 km or more
9 to 12	3.2 km or more if no public transit service is available	3.2 km or more if no public transit service is available 4.8 km or more if public transit is available

Loop Design

A large school site in a suburban or rural location may have sufficient space to accommodate a dedicated school bus loop. If a loop is to be included on the school site, the following configuration is recommended:

- Single-file, right wheel to the curb
- One-way operation in a counter-clockwise direction to ensure that the loading/unloading of students occurs from the right-hand side of the vehicle, adjacent to the building
- Does not require backward movement by buses
- Does not require children to walk between buses
- Does not straddle a pedestrian crossing

A sample loop design, including pavement markings and signage intended to reduce the chance of a parent entering the school bus loop, is shown in Figure 7.

Sharing the Loop

Allowing parent drop-offs and pick-ups in the bus loop may impact bus operations. To mitigate conflicts with school, the times at which parent drop-offs and pick-ups in the loop are allowed can be made to be distinct from bus arrival and times. Usually, in the morning, drop-offs in the loop would be allowed only before school buses begin to arrive. After school dismissal, pick-ups in the loop can be authorized after school buses have departed. This can be reinforced through no entry signs customized to reflect the hours when passenger cars are not permitted.

In the case of shared loops, signage designating space within the loop solely for school bus loading and unloading should be used (Rb-55 - OTM).

Recommendations

Recommendation 9

Exclusive bus loops should be provided where space is available on the school site. If space is insufficient, a layby for buses should be provided.

References & Resources

- Institute of Transportation Engineers (ITE) (undated) "School On-Site Design" in Safe Routes to School Briefing Sheets http://library.ite.org/pub/e2660aa0-2354-d714-510d-6a9aed049d40
- Marshall Macklin Monaghan (MMM) (1999). York Region Safety and Traffic Circulation at School Sites Guidelines.w

Figure 7a. Sample school bus loop

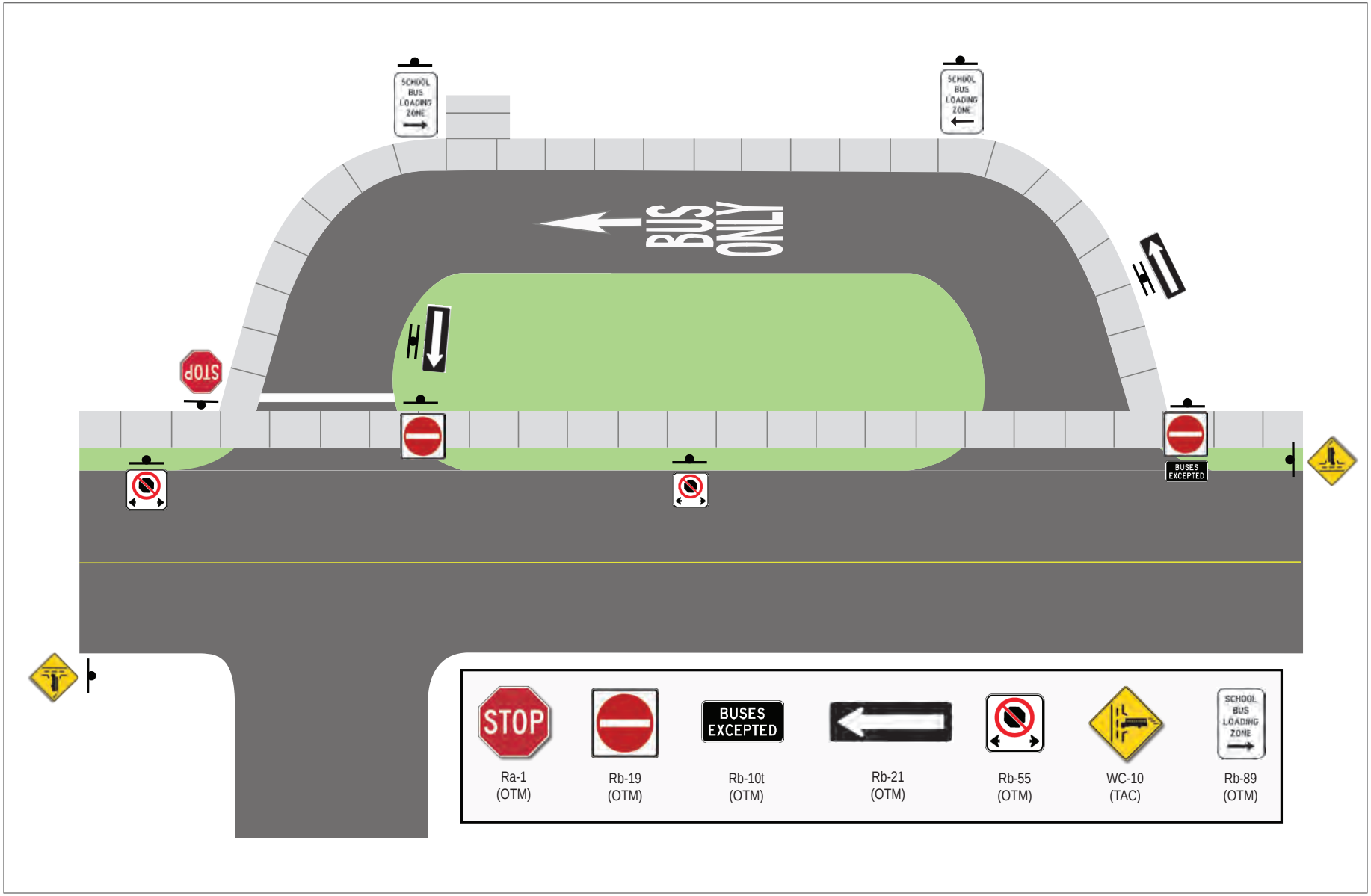


Figure 7b. Sample school bus loop

Source: Google

Figure 7c Sample school bus loop (shared with pick-up / drop-off)

Source: IBI Group

2.4.2. PARENT DROP-OFF AND PICK-UP

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

Students traveling to school by private car need to be dropped off and picked up safely at designated location within or near the school site, where they do not interfere with school buses and endanger students walking or cycling to school.

Parent drop-off and pick-up facilities on the school site can include:

- On-street laybys
- Exclusive on-site loops, for parent drop offs and pick-up only
- Shared on-site loops, also used by school buses
- Loops within the school parking lot

Shared loops and loops within school parking lots are usually only found on constrained school sites, where space is insufficient for separate facilities.

KEY CONSIDERATIONS

Site Size and Urban Context

The choice of type of facility to accommodate parent drop-offs and pick-ups depends largely on the site size. In a denser, more urban environment where buildings are set close to the street and a school site might be smaller than average, a layby along the school's street frontage could be preferable. (Figure 9)

On constrained school sites, where there is not enough room to accommodate an exclusive loop for parent drop-offs and pick-ups, potential compromises include allowing drop-offs within the school parking lot or within the bus loop.

Drop-off/Pick-up Facility Size

The dimensions of the drop-off and pick-up layby or loop must be sufficient to accommodate expected vehicle volumes and avoid spillover onto the street and, consequently, impacts on school bus movements and on the safety of children arriving by walking or cycling. The suggested minimum curb length for a layby or loop is 30 m for smaller elementary schools.

No stopping signs, covering school arrival and dismissal hours may need to be added on both sides of streets around the school to discourage parents from dropping off or picking up children at unsanctioned locations.

Where there are challenges with parents making unsafe turns, no u-turns signs can also be added to restrict movements at intersections and midblock.

Congestion and Conflicts

A high volume of parent cars dropping-offs or picking-up students can contribute to creating traffic congestion and conflicts between vehicles, pedestrians, and cyclists. Conflicts tend to occur within school driveways, where vehicles cross paths with school-bound pedestrians and cyclists (Figure 8). Drop-offs and pick-ups on the street rather than in a loop within the school site is a way to avoid creating this type of conflict.

A strategy to reduce congestion and conflicts in front of schools, currently used around metropolitan Montreal, is to restrict drop-offs directly in front of the school. This is accomplished through the installation of signs prohibiting vehicles, other than school buses and resident's cars, and from using the street segments immediately adjacent to the school. One or more designated drop-off and pick-up sites are established within a short walk from the school. Crossing guards and school staff can be deployed to the drop-off sites to supervise drop-offs and pick-ups and shepherd students towards the school.

Figure 8. Pedestrian and vehicle traffic crossing in a school driveway

Source: Vélo Québec

Figure 9. Parking lay-by

Source: Google

Recommendations

Recommendation 10

Laybys should be considered instead of on-site drop-off and pick-up loops at more compact school sites.

References & Resources

- City of Toronto (2016) Elementary School Design Guidelines 1.0 http://www.tdsb.on.ca/AboutUs/FacilityServices/ElementarySchoolDesignGuideline.aspx

2.4.3. ON-SITE PARKING

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

Schools are obligated by municipal by-laws to provide some parking spaces for employees and visitors. However, an abundance of free, on-site parking is a key factor encouraging staff and licensed secondary school students to drive to school. Consequently, limiting the supply of on-site parking, or possibly charging fees for its use, are potential strategies for encouraging staff and students to choose other modes of transportation.

York Region Official Plan (ROP) Policy 5.2.10 stipulates that secondary plans and zoning by-laws shall, in consultation with the Region and related agencies, incorporate parking management policies and standards that include:

- Reduced minimum and maximum parking requirements that reflect the walking distance to transit and complementary uses
- Shared parking requirements where possible, reflecting variances in parking demand between complementary uses on a time-of-day, weekday/weekend, and monthly basis
- Site design that orients the main building entrance(s) to face the public street(s), provides a pedestrian friendly urban form, and where appropriate, as determined by the local municipality, does not permit the placement of surface parking spaces between the main building entrance and the major street
- The design of surface parking to support redevelopment and retrofitting
- Preferential locations for carpooling and car-sharing spaces and bicycle storage requirements

KEY CONSIDERATIONS

Parking Demand

The York Region Safety and Traffic Circulation at School Sites Guidelines (1999) study found that parking demand at schools correlates fairly strongly with the number school staff members. At elementary schools, parking demand was established to be in the range 0.7 to 1.3 spaces per staff member. At secondary schools, parking demand was established to be in the range of 1.6 to 1.9 spaces per staff member.

Flexible Parking Standards

Municipal parking standards could be adjusted on a case-by-case basis for schools taking into consideration the following:

- Proximity & frequency of transit service to the school
- Availability of on-street parking
- Transit pass program for staff (elementary and secondary) and students (secondary)

On-street Parkings

Some of the parking demand generated by the school can be accommodated with on-street parking. On-street parking can have a positive impact for pedestrians, creating a buffer between them and moving vehicles. It can also act as a traffic calming feature by narrowing the perceived width of the road.

Shared Parking

Schools and other adjacent public facilities can share off-street parking areas. This works well when the adjacent facilities' peak hours are complementary with school hours—i.e., they are busy on weekday evenings and on weekends.

Accessibility

Despite the guidance presented in this section, some parking is required near building entrances in accordance with AODA requirements. Best practices suggest parking spaces for those with mobility impairments be located within 30m of accessible entry ways (which can be provided at the main or alternative entry points).

Layout

York Region's Official Plan Policy 5.4.9 stipulates that surface parking must not be situated between the main building entrance and the major street on which the building is fronting. As outdoor play areas are typically located behind the school building, parking is usually provided on a side of the school building that does not front on a street (Figure 10).

Other considerations for the layout of surface parking include:

- Avoiding layouts that encourage students to cross vehicle paths
- Considering location of access routes
- Considering location of snow storage and removal
- Separating parking area from play area and walkways with fencing

Recommendations

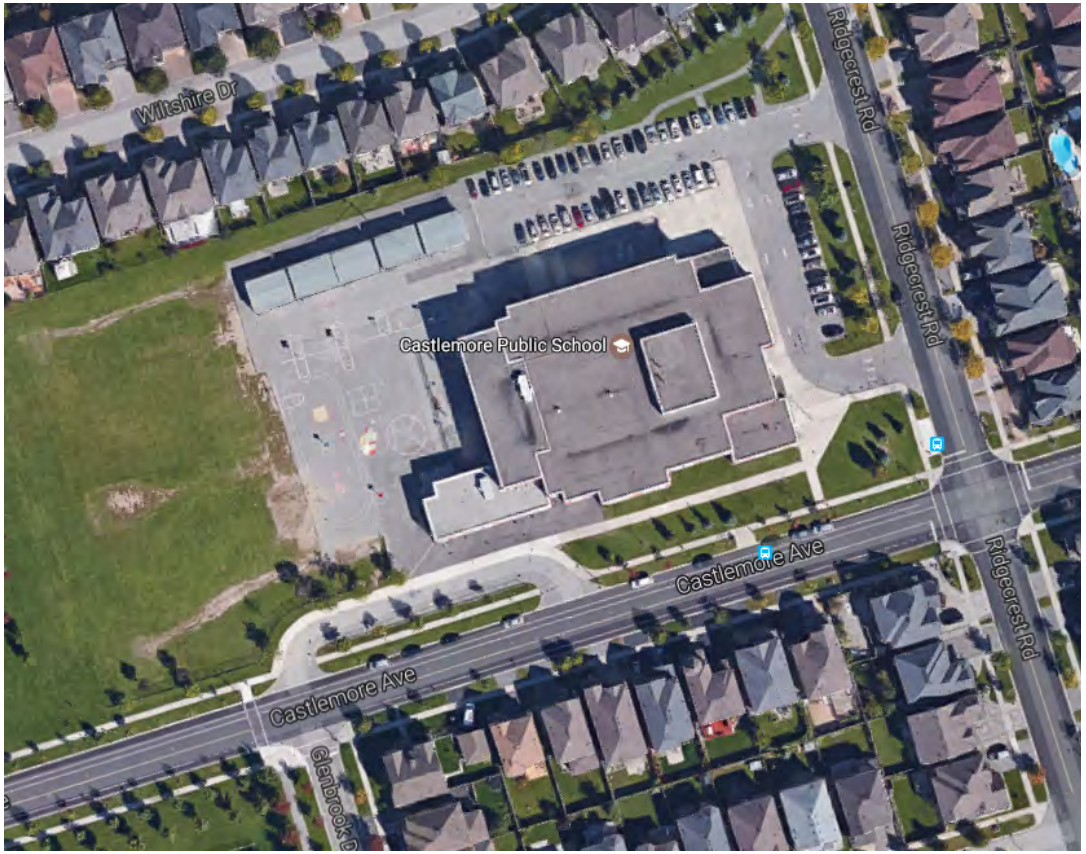
Recommendation 11

Where possible, parking areas should be located along a side of the school that does not front on a street.

Recommendation 12

Where possible, off-street parking should be shared with an adjacent public facility to minimize the total supply of surface parking in the school area.

Figure 10. Playground behind and parking beside the school building at Castlemore Public School in Markham



Source: Google

References & Resources

- City of Toronto (2016) Elementary School Design Guidelines 1.0 http://www.tdsb.on.ca/AboutUs/FacilityServices/ElementarySchoolDesignGuideline.aspx
- Marshall Macklin Monaghan (MMM) (1999). York Region Safety and Traffic Circulation at School Sites Guidelines.

2.4.4. DRIVEWAYS

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

Bus loops, drop-off and pick-up loops, and on-site parking are connected to surrounding streets through driveways. Wherever a driveway crosses a sidewalk or cycling facility, there is a potential for conflicts between vehicles and pedestrians or cyclists. Driveways need to been laid out and designed with care to reduce these potential conflicts.

KEY CONSIDERATIONS

Location

Driveways for entering and exiting the drop-off areas and parking should be:

- located along the school frontage
- located away from transit stops
- located away from on-street parking
- aligned with street intersections where possible

When driveways cannot be aligned with an intersection, they should be setback a certain distance from the nearest intersection to avoid creating conflicts. The setback depends on the nature of the street and of the nearby intersection.

Where possible, pedestrian paths from the street to the school should be designed to allow students and staff walking to school to avoid crossing school driveways.

Drivers are required to yield to pedestrians crossing driveways. If there are issues with driver compliance, stop or yield signs can be added in advance of the crossing to reinforce the need for drivers to yield.

Recommendations

Recommendation 13
The width and the turn radii of school driveways should be reduced to the smallest values permitted by municipal engineering standards.

Recommendation 14
Sidewalks should not be lowered or interrupted through school driveways.

Geometry

The speed at which vehicles enter and exit a driveway is influenced by its width and turn radii. School driveways should have the narrowest possible width and smallest corner radii that can still accommodate school buses and emergency vehicles. To maximize pedestrian safety, it is preferable that entrance and exit driveways be one-way and be one lane wide so that vehicles enter and exit in single file. Similarly, two-way driveways should have one lane in each direction so that vehicles enter and exit in single file. While potentially slower for vehicles, it is safer for pedestrians and cyclists who are less likely to be hidden from a motorists view by another vehicle.

Materials

Driveways that cross sidewalks should be designed to ensure pedestrian safety by reminding drivers that they are crossing a sidewalk.

The following principles should be applied to driveway design:

- The sidewalk should continue across the driveway at the same elevation
- The portion of the sidewalk crossing the driveway should be made of the same material as the rest of the sidewalk

Figure 11. Sidewalk continued through driveway at Aurora Heights Public School in Aurora, ON

References & Resources

- City of Toronto (2016) Elementary School Design Guidelines 1.0 http://www.tdsb.on.ca/AboutUs/FacilityServices/ElementarySchoolDesignGuideline.aspx
- Institute of Transportation Engineers (ITE) (undated). Safe Routes to School Briefing Sheets: School Site Selection and Off-site Access. http://library.ite.org/pub/e265efc5-2354-d714-5129-d2fe40a9c014

2.5. LAYOUT

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

In laying out school sites, designers must include all required facilities for pedestrian, bicycle, and vehicular access described in the previous sections. In addition, they must take in to consideration York Region's Official Plan Policy 5.4.9, which stipulates that all new building sites:

- Must front on the major street
- Provide a pedestrian friendly urban form
- Must not have surface parking between the main building entrance and the major street

KEY CONSIDERATIONS

Building Orientation

The Region's Official Plan requires that the school building face the "major" street. In the case of primary school, this means that if one of the streets around the school site is a collector while the others are local streets, the building must be oriented towards the former.

If a school site is located at an intersection, the building should be sited at the corner of the site to address both street frontages. The main building entrance should be located at the corner near the intersection if feasible.

Recommendations

Recommendation 15

Whenever possible, Schools should be oriented towards the most major street on which they are fronting.

Parking

Staff and guest car parking lots should be placed on the side or at the back of the school property. In contrast, outdoor bicycle parking should be placed at the front of the school property where it is visible from the street (see Section 2.3.1).

Play area

Play areas at elementary schools and outdoor sports facilities at secondary schools are typically located furthest from the major street around the school site, typically at the back of the school building. Pathways linking the school bus and parent drop-off and pick-up areas to the play area are required. The play area should directly be linked to sidewalks along the minor streets around the school site or any pathways nearby.

References & Resources

- City of Toronto (2016) Elementary School Design Guidelines 1.0 http://www.tdsb.on.ca/AboutUs/FacilityServices/ElementarySchoolDesignGuideline.aspx
- Institute of Transportation Engineers (ITE) (undated) "School On-Site Design" in Safe Routes to School Briefing Sheets http://library.ite.org/pub/e2660aa0-2354-d714-510d-6a9aed049d40

3.0 School Neighbourhood

3.0 School Neighbourhood

The built environment has a profound influence on residents' transportation choices, including school transportation choices. To encourage active travel to school and other destinations within a community, the built environment must be planned and designed with the safety, comfort, and convenience of pedestrians and cyclists in mind.

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Creating communities that support walking and cycling is one of the key policy objectives of the York Region Official Plan (ROP), which contains a number of policies to this effect. These notably include:

- **Policy 5.2.3:** Communities must be designed to ensure walkability through interconnected and accessible mobility systems. These systems will give priority to pedestrian movement and transit use, provide pedestrian and cycling facilities, and implement the York Region Pedestrian and Cycling Master Plan.
- **Policy 5.2.8:** New developments must employ the highest standard of urban design, which:
    - Provides pedestrian scale, safety, comfort, accessibility and connectivity
    - Complements the character of existing areas and fosters each community's unique sense of place
    - Promotes sustainable and attractive buildings that minimize energy use
    - Promotes landscaping, public spaces and streetscapes
    - Ensures compatibility with and transition to surrounding land uses
    - Emphasizes walkability and accessibility through strategic building placement and orientation
    - Follows the York Region Transit-Oriented Development Guidelines; and
    - Creates well-defined, centrally-located urban public spaces.
- **Policy 5.4.9:** New buildings shall front the major street. Reverse lotting on the street is not permitted and site design shall orient the main building entrance(s) to face the public street(s) and provide a pedestrian friendly urban form and where appropriate,

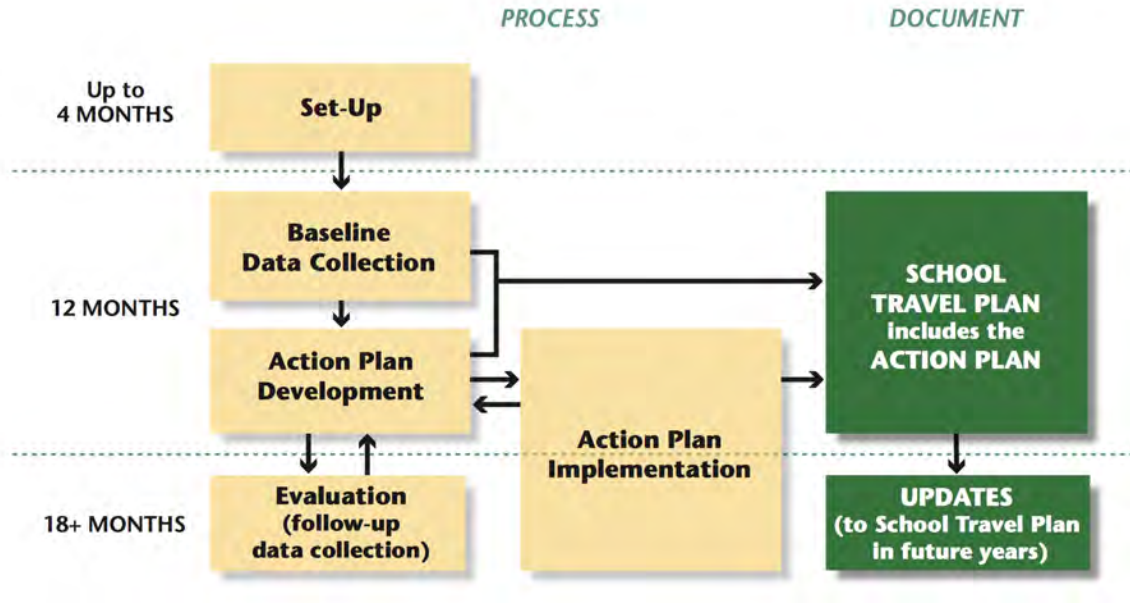
- **Policy 7.2.57:** Local municipalities are required to design street systems to accommodate pedestrian, cycling and transit facilities.

The following sections are focused on creating a neighbourhood environment conducive to walking and cycling, with a focus on active travel to school. The guidelines below apply to new communities as well as to existing communities.

In the case of a new community, these guidelines should be considered while developing a secondary plan and the required mobility plan for a new community.

In the case of an existing community, these guidelines can be seen as a toolbox of potential interventions for school areas to enable more active travel. These potential interventions should be considered when developing an Action Plan as part of the School Travel Planning (STP) process (Figure 12).

Figure 12. School Travel Planning process flowchart



Source: Canada Walks

3.1. STREET LAYOUT

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

York Region's New Communities Guidelines (2013) recommend that new developments should:

- Provide an unobstructed, continuous and safe circulation system that serves the same destinations as served by the local road system
- Provide a pedestrian network (including sidewalks) that connects to other mobility networks including cycling, natural heritage trails and transit
- Have a fine-grained street pattern with short, walkable blocks or provide mid-block pedestrian crossings on longer blocks

KEY CONSIDERATIONS

Block Length

Block lengths should generally range from 150 to 250 m to promote walkability within the community. Where block lengths exceed 250 m, a mid-block crossing should be provided.

Directness

A fine-grained, grid of paths and streets will tend to minimize walking and cycling distances, including the distance to school (Figure 13). This in turn can encourage a greater number of students to walk and cycle to school.

Connectivity

A grid of paths and streets that offers more route choices to pedestrians and cyclists than to cars is more likely to encourage walking and cycling. With more route choices, pedestrians and cyclists are more likely to find an optimal route to the school and other destinations in the neighbourhood.

Recommendations

Recommendation 16

New neighbourhoods should be designed with fine-grained, grid like network of streets and paths with a higher connectivity for pedestrians and cyclists than for vehicles.

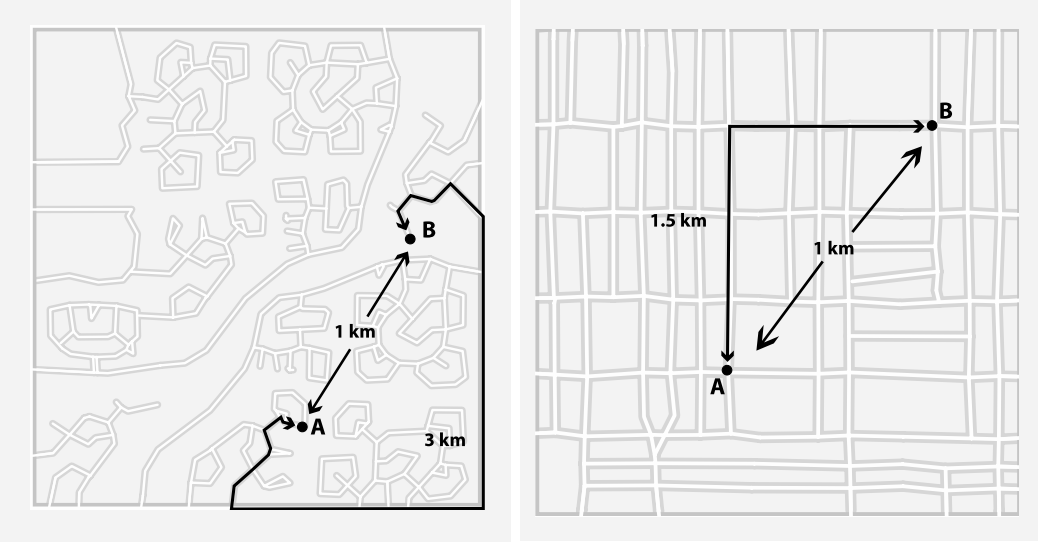
Recommendation 17

In existing neighbourhoods with curvilinear street patterns, midblock paths linking parallel streets should be added to increase connectivity and permeability for pedestrians and cyclists.

Filtered Permeability

Diverters and street closures (cul-de-sacs), which make vehicle movements less direct without affecting the directness of pedestrian and cyclist movements, can be implemented at strategic locations on the street grid. These can help to restrict traffic volumes on local streets, making them safer and more comfortable for pedestrians and cyclists. Furthermore, making vehicle routes more circuitous while keeping pedestrian and cycling routes direct can help tilt residents travel behavior towards more walking and cycling (see section Section 3.2.3 on Traffic Calming for more details).

Figure 13. Straight-line distance versus actual walking or cycling distance



References & Resources

- York Region (2013) New Communities Guidelines http://www.york.ca/newcommunities
- NACTO (2013) "Volume Management" in Urban Street Design Guide, http://nacto.org/publication/urban-bikeway-design-guide/bicycle-boulevards/volume-management/
- York Region (2006) Transit-Oriented Development Guidelines, http://candc.york.ca/en/yorkresources/resources/York%20Region%20TOD%20Guidelines.pdf

3.2. STREET DESIGN

3.2.1. SIDEWALKS

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

To encourage access by walking, a grid of safe, attractive and direct sidewalks and paths between the school site and surrounding residential areas, as well as through parks and greenways, are needed. This section covers the design of sidewalks. Off-street paths are covered in Section 3.3 and pedestrians crossing along sidewalks and paths are covered in Sections 3.4.

To ensure that sidewalks are safe, convenient, and attractive to pedestrians, they must:

- Be on both sides of the street along designated school routes
- Be sufficiently wide
- Minimize pedestrians' exposure to the nuisances generated by vehicular traffic
- Provide a pleasant landscape to walk through
- Provide street lighting

KEY CONSIDERATIONS

Width

The Accessibility for Ontarians with Disabilities Act (AODA) requires that walkways have a minimum clear width of 1.5 m. However, most contemporary guidelines recommend a preferred minimum width of 1.8 m.

On street segments along school frontage, wider sidewalks may be required to accommodate peak pedestrian flows converging around the school site arrival and dismissal hours. Additional widths may also be necessary for sidewalks providing access to public transit stops on the school's periphery.

Exposure to Traffic

Setting sidewalks back from the roadway can reduce pedestrians' exposure to the noise and air pollution generated by vehicular traffic. The buffer between vehicle travel lanes and the sidewalk can be used for a variety of functions, including one or several of the following:

- Planting
- Street furniture

- Cycling facility
- Car parking

Another strategy for mitigating exposure to traffic is to reduce its volume. This can be accomplished through the implementation of physical measures such as street closures, diverters, and various other traffic calming along designated School Routes (see Section 3.6).

Streetscape

Beyond providing good quality on-street and off-street infrastructure for walking and cycling, it is also important to create a built environment that makes the use of active transportation attractive and pleasant. The shape, size and orientation of buildings, the provision of street furniture, trees and other vegetation plays and important role in shaping an environment that invites walking and cycling.

This is reflected in Regional Official Plan Policy 5.2.8, which directs municipalities to employ the highest standard of urban design in order to achieve various goals, including to:

- Provide pedestrian scale, safety, comfort, accessibility and connectivity
- Promote landscaping, public spaces and streetscapes
- Emphasize walkability and accessibility through strategic building placement and orientation

Driveway Design

Driveways that cross sidewalks should be designed to ensure pedestrian safety by reminding drivers that they are crossing a sidewalk. The following principles should be applied to driveway design:

- The sidewalk should continue across the driveway at the same elevation
- The portion of the sidewalk crossing the driveway should be made of the same material as the rest of the sidewalk

The number of driveways providing access to commercial zones and public facilities should be kept to a minimum. They should be as narrow as possible and should have tight turn radii to limit the distance over which pedestrians are exposed to crossing vehicles and to force vehicles to cross the sidewalk at lower speeds.

Street Lighting

Street lighting improves pedestrian visibility and personal security. On streets densely planted with trees, street lighting scaled to pedestrians (i.e., lower to the ground) may be required to illuminate the sidewalk. Although most school travel occurs during daylight hours, the morning school trip in the middle of winter may occur during hours of darkness, as may the trip home after school for students involved in after school activities. School staff travel is also likely to occur during hours of darkness.

Maintenance

In the winter, walking to school can become more effortful and potentially unsafe if sidewalks and paths leading to the school site are not cleared of snow and properly deiced. Snow clearance and deicing operations must be completed before the morning walk to school and, if a snow event occurs during class hours, in time for the afternoon walk home. For this reason, it may be preferable for the municipality to clear and deice sidewalks near the school and along designated walking routes to the school (see Section 3.6) rather than depending on residential property owners along the route to do this.

Recommendations

Recommendation 18
Sidewalks should be provided on both sides of the street along the streets surrounding the school site.

Recommendation 19
Sidewalks surrounding the school site and along designated School Routes should be maintained by the municipality to be accessible during the entire school year.

References & Resources

- York Region. Pedestrian & Cycling Planning and Design Guidelines (Expected 2017).
- Access ON. (April 2014). A Guide to the Integrated Accessibility Standards Regulation. Available online: https://dr6j45jk9xcmk.cloudfront.net/documents/4845/guidelines-to-iasr-english.pdf
- GAATES. (2014). Illustrated Technical Guide to the Accessibility Standard for the Design of Public Spaces (DOPS). Available online: http://gaates.org/DOPS/default.php
- ITE. (2010). Designing Walkable Urban Thoroughfares: A Context Sensitive Approach. Available online: http://library.ite.org/pub/e1cff43c-2354-d714-51d9-d82b39d4dbad

3.2.2. CYCLING FACILITIES

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

Regional Official Plan Policy 7.2.57 requires municipalities to design street systems that accommodate cycling. However, merely accommodating cycling may not be enough to encourage cycling to schools, especially to elementary schools. In order to create facilities which are inviting for children and youth, cycling facilities must be designed to a high standard of comfort and safety.

Conventional on-road cycling facilities, such as sharrows and bicycle lanes demarcated by paint only, may not be appropriate for elementary-school-aged children, even if accompanied by an adult. Bicycle lanes are subject to encroachment from on vehicles and, if they run along on-street parking, can expose cyclists to collisions with car doors. The risk of encroachment of vehicles into a bicycle lane and door collisions may be higher near a school due to the frequency of parent drop-offs and pick-ups at arrival and dismissal hours.

Current best practice is to systematically create new cycling facilities, and upgrade existing facilities, to be appropriate for cyclists of All Ages and Abilities (AAA), an approach championed notably by the City of Vancouver and neighbouring municipalities. The AAA approach is more stringent with respect to the speeds and volumes at which cycling without physical separation from vehicles is tolerated. An AAA cycling network is essentially composed of three types of facilities:

- Local street bikeways: 30 km/h, low volume streets with extensive traffic calming
  - 95th percentile of practiced speed must be under 40 km/h
  - volume must be less than 500 vehicles/day and less than 50 vehicles/hour at the peak hour
- Separated bike lanes: on-street bike lanes that are physically separated from vehicle lanes
- Paths: off-street paths, either shared with pedestrians or exclusive to bicycles if required

Additional guidance on separated bike lanes and paths is available in York Region's Planning & Design Guidelines for Pedestrians & Cyclists.

Figure 14 Cycling facilities for All Ages & Abilities (AAA)

Source: City of Vancouver (2013)

KEY CONSIDERATIONS

Appropriateness for Elementary School Students

According to Ontario Traffic Manual Book 18 - Cycling Facilities, children under the age of 11 "may lack the necessary skills and cognitive abilities to operate a bike on a roadway with motor vehicle traffic". In other words, bicycle facilities on the roadway that do not physically separate cyclists from vehicles may not be appropriate for young children. Some York Region municipalities have by-laws that allow children up to a certain age to ride on sidewalks, recognizing they ride at a slower speed and may lack the skills and judgment to ride on the road.

Appropriateness for Secondary School Students

Secondary school students are generally more autonomous and able to operate in cycling facilities alongside vehicular traffic. Nevertheless, exposure to high volumes of motor vehicles travelling at high speeds can create safety risks and can be stressful for inexperienced cyclists. This may prevent secondary students from choosing to cycle to school. The provision of an AAA cycling network is also relevant for encouraging secondary school students to cycle.

New Communities

In new communities, an AAA cycling network, appropriate for use by elementary school students, could be implemented by design. This could be achieved through a combination of street geometry and extensive use of traffic calming devices (see Section 3.2.3). On busier collector streets, where traffic speeds and volumes are planned to exceed the limits for a local street bikeway, the municipality could require the provision of protected cycling facilities. These should be complemented by a system of off-street paths that maximizes connectivity (see Section 3.1).

Existing Communities

In existing communities, it maybe possible to create an AAA cycling network through retrofits. On local streets, speed limits would need to be reduced to 30 km/h and extensive traffic calming measures would be need to implemented to obtain the desired conditions for a local street bikeway. On busier streets, protected bikeways would need to be provided, with appropriate treatments at driveways and intersections.

Possible implementation strategies could include:

- Implementing protected bike lanes on the road if sufficient width can be obtained through lane narrowing, lane reductions, or parking reductions
- Implementing protected bike lanes in the boulevard if there is sufficient space in the public right-of-way
- Widening the sidewalk to 3.0 m or to converting it to a multi-use path

Appropriate interventions are also required to create safe crossings at intersections—see Section 3.4 for further details.

Maintenance

Good maintenance of cycling facilities may encourage some staff and students to ride to school later into the fall and to start cycling again earlier in the spring. If the cycling network is regularly cleared of snow and deiced, some staff and students may continue riding through the winter.

To facilitate cycling year-round, the following basic maintenance operations must be performed on separated bike lanes:

- Summer: trimming vegetation and sweeping
- Fall: sweeping fallen leaves
- Winter
  - o Anti-icing
  - o Snow clearing
  - o Snow removal
- Spring:
  - o Sweeping
  - o Surface repairs
  - o Replacement of damaged separation devices
    - Delineators
    - Bollards
    - Planters
    - Precast curbs
  - o Replacement of worn markings

On-street bikeway winter maintenance operations should be coordinated with maintenance operations on off-street paths to ensure that the full network is useable and the level of service is consistent.

Figure 15. Point Grey Road in Vancouver designed to accommodate cyclists of all ages and abilities

Photo: Chris Bruntlett/Modacity)

Recommendations

Recommendation 20

In new communities, create a cycling network appropriate for cyclists of all ages and abilities by design.

Recommendation 21

In existing communities, upgrade the cycling network to create routes to schools that are appropriate for cyclists of all ages and abilities.

References & Resources

- York Region. Pedestrian & Cycling Planning and Design Guidelines (Expected 2017).
- Ministry of Transportation of Ontario (MTO) (2013) Ontario Traffic Manual Book 18: Cycling Facilities http://www.raqsb.mto.gov.on.ca/techpubs/eps.nsf/0/825810eb3ddd203385257d4a0063d934/$FILE/Ontario%20Traffic%20Manual%20-%20Book%2018.pdf
- National Association of City Transportation Officials (NACTO) (2014) Urban Bikeway Design Guide. http://nacto.org/publication/urban-bikeway-design-guide/
- Federal Highway Administration (FHWA) (2017). Small Town and Rural Multimodal Networks. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/small_towns/fhwahep17024_lg.pdf
- York Region (2008) Pedestrian and Cycling Master Plan. http://www.york.ca/wps/portal/yorkhome/yorkregion/yr/plansreportsandstrategies/pedestrianandcyclingmasterplan/!ut/p/a0/04_Sj9CPykssy0xPLMnMz0vMAfGjzOI9Hd09PTy8Dbz8TSycDRwN_B29jMwtDCy8zfULsh-0VAc66hOY!/
- City of Vancouver (2016). All Ages and Abilities AAA Network in Vancouver. https://www.chilliwack.com/main/attachments/Files/2676/Vision%20chilliwack%2Epdf
- City of Vancouver (2013). Transportation 2040 Implementation Report: Walking and Cycling Safety & Active Transportation Corridors. http://council.vancouver.ca/20130612/documents/cfsc2presentation.pdf

3.2.3. TRAFFIC CALMING

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

The volume and speed of vehicular traffic around schools directly impacts the safety and comfort of children walking and cycling to school. An increasingly common practice is to lower speed limits on streets adjacent to school sites to 30 km/h and to implement physical measures that reduce traffic volume and operating speeds. Collisions between vehicles and vulnerable pedestrians and cyclists are less frequent and their consequences are less severe when operating speeds are reduced.

At 30 km/h, a motorist should have sufficient reaction time and braking distance to avoid a collision with a vulnerable users as little as 15 m away (Figure 16). At higher speeds, collisions are more likely to occur and the vulnerable user's probably of survival decreases.

Figure 16. Vehicle speed, reaction and braking time, and pedestrian survivability

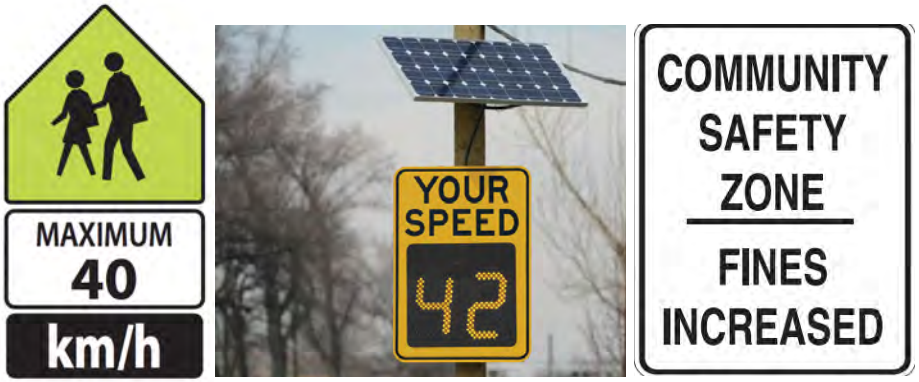
Speed (km/hr)	Stopping Distance (m)	Crash Risk (%)	Fatality Risk (%)
15-25	7.5	5	2
30-40	12	15	5
50-55	22	55	45
65+	36	90	85
Stopping Distance include perception, reaction and braking time			

Adapted from the NACTO Urban Street Design

Figure 17. These images show the narrowing field of vision for drivers as vehicular speeds increase

Source: NACTO Urban Street Design Guidelines

Figure 18. Commonly used signs for speed control around schools



KEY CONSIDERATIONS

Enforcement

A common intervention on streets around schools is to reduce posted speed limits. However, when the lower speed limit is not accompanied by physical changes to the affected streets, actual vehicle operating speeds might not change.

Some municipalities try to resolve this issue in the following ways:

- Speed limit signs reminding motorists that they are in a school zone
- Radar speed signs to make motorists aware of their actual speed
- Designation of community safety zones, which result in higher fines for speeding (Figure 18)

Ultimately, in the absence of strict, ongoing enforcement, these measures may not achieve a sufficient reduction in the operating speed of vehicles. Physical traffic calming measures may be warranted in this case. Note that any traffic calming measures are subject to each municipalities' review.

Operating Speed

Streets can be designed to bring operating speeds closer to the desired speed limit. This can be accomplished through a combination of the following:

- **reduced lane width:** narrower lanes induce motorists to drive slower
- **increased lateral friction:** setting buildings, street furniture, and vegetation close to the street to limit motorist's visual field
- **reduced turn radii:** smaller radii of corners at driveways and intersections narrow the width of pedestrian crossing and induce motorists to turn at lower speeds

The traffic-calming potential of the above measures can be further enhanced through the systematic use of measures such as:

- Vertical deviation (Figure 19)
  - Speed humps
  - Raised crossings
  - Raised intersections
- Horizontal deviation (Figure 20)
  - Curb extensions
  - Chicanes
  - Traffic islands
  - Traffic circles.

These measures are described in more detail in Table 3 below.

Measures that entail a vertical deviation of the vehicle, namely speed humps, raised crossings, and raised intersections, cannot currently be implemented on streets with York Region Transit (YRT) routes. The horizontal deviation measures described above can also be accomplished through inexpensive, temporary measures involving the use of bollards, planters, and precast curbs and other moveable objects (Figure 21).

Figure 19. Vertical deviation traffic calming measures

Speed hump (Source: Vélo Québec)

Raised crossing (Source: NACTO)

Raised intersection (Source: NACTO)

Figure 20. Horizontal deviation traffic calming measures

Traffic island (Source: City of Toronto)

Chicane (Source: NACTO)

Curb extension (Source: NACTO)

Traffic circle (Source: Vélo Québec)

Figure 21. Choke point created with flexible bollards (Newmarket, ON)

Source: Town of Newmarket

Table 3. Common traffic calming measures

		Road Type		Benefits			
Measure	Description	Local	Collector	Speed	Volume	Conflicts	Cost
Vertical deviation (Figure 17)							
Speed humps	Speed humps are raised sections of the roadway designed to discourage motor vehicle drivers from travelling at excessive speeds	√		○	◒	◒	$1,000-$5,000
Raised crossings	Raised crossings are pedestrian crossings placed atop a speed hump	√	√	●	◒	◒	$2000-$5000
Raised intersections	A raised intersection is one that is constructed at a higher elevation than the adjacent roadway. Pedestrian crossings are placed atop the raised part of the intersection.	√	√	◒	○	◒	$50,000-$100,000
Horizontal deviation (Figure 18)							
Curb extensions	A curb extension is a horizontal intrusion of the curb into the roadway, resulting in a narrower cross-section. If combined with a pedestrian crossing, it increases the visibility of pedestrians preparing to cross and reduces the distance over which pedestrians are exposed to vehicles	√	√	◒	○	●	15,000-$50,000
Traffic islands	Traffic Islands have the effect of narrowing the road and reducing the speed of passing traffic. They are not intended for pedestrians, as they have no dropped curbs and tactile paving.	√		◒	○	◒	$5,000-$15,000
Chicane	A chicane is a series of curb extensions or traffic islands on alternate sides of a roadway that narrow it and require drivers to steer from one side to the other when traveling through	√		●	◒	◒	$50,000-$100,000
Traffic circles	A traffic circle is a raised island located in the centre of an intersection. Vehicles must travel through the intersection in a counter-clockwise direction around the island. It used to calm roads with relatively low volumes of traffic.	√		●	◒	○	$15,000-$50,000

Source: adapted from Traffic Calming Guide for the City of Toronto (2016)

Volume

Traffic volumes on local streets can be limited through a variety of measures. The key is to discourage the use of designated School Routes (see Section 3.6) and other streets adjacent to elementary schools by through traffic. The traffic calming measures listed in Table 3 can indirectly discourage the use of a street by through traffic, particularly if faster alternative routes exist.

More direct volume-restricting measures, which force vehicles onto an alternative route, include the following:

- Diverters that force vehicles to turn at an intersection
  - Should be designed to selectively filter—i.e., allow pedestrians and cyclists to go straight through (Figure 22)
- Limiting access to street segments around schools
  - On a permanent basis, with diverters or partial street closures
  - On a periodic basis – i.e., at school arrival and dismissal hours (Figure 23)

Figure 22. A diverter with selective filtration near an elementary school on Gilford Street in Montreal

Source: Vélo Québec

Recommendations

Recommendation 22
In new neighbourhoods, design local streets for 30 km/h and collectors for 40 km/h. Minimize lane widths and include a mix of traffic calming measures to achieve desired operating speeds by design.

Recommendation 23
In existing neighbourhoods, lower local street speed limits to 30 km/h. Retrofit streets with a variety of traffic calming measures to obtain the desired operating speed and reduce the need for enforcement.

References & Resources

- City of Toronto (2016), Traffic Calming Guide for the City of Toronto, http://www.toronto.ca/legdocs/mmis/2016/pw/bgrd/backgroundfile-94207.pdf
- NACTO (2013), "Street Design Elements" in Urban Street Design Guide, http://nacto.org/publication/urban-street-design-guide/street-design-elements/

Figure 23. Temporary street closure at school arrival and dismissal hours

Source: Vélo Québec

3.2.4. ROUNDABOUTS

APPLICABILITY

SCHOOL TYPE:

ELEMENTARY SECONDARY

DEVELOPMENT CONTEXT:

NEW EXISTING

NEIGHBOURHOOD CONTEXT:

URBAN SUBURBAN RURAL

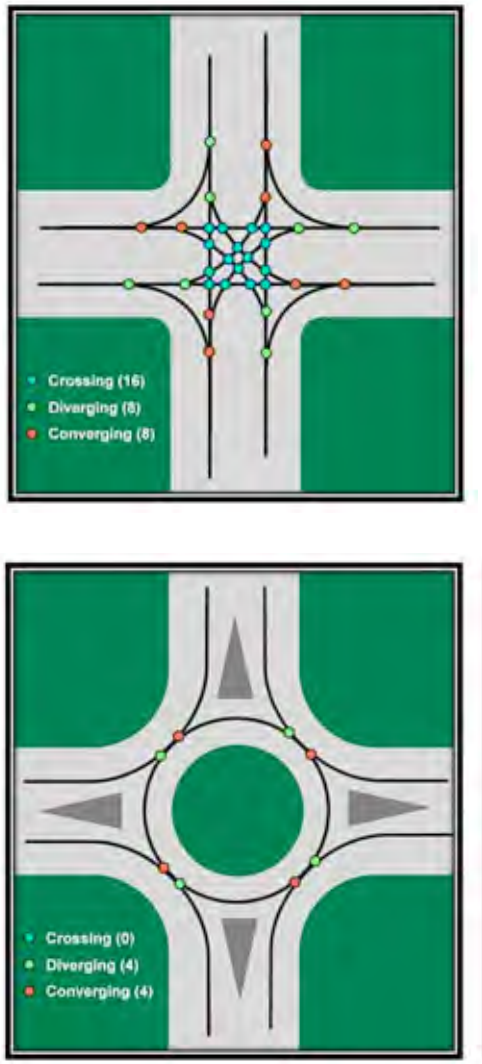
BACKGROUND

Roundabouts can be safer for all users than conventional intersections. They have fewer conflict points (Figure 24) and, with radii under 15 m, can significantly reduce vehicle speeds. This decreases the frequency and severity of collisions, including vehicle-vehicle, vehicle-pedestrian, and vehicle-cyclist collisions.

Due to their safety benefits, roundabouts may be worth considering at intersections in the vicinity of schools where traffic signals or stop signs are undesirable or unwarranted. However, given that schools generate significant pedestrian and vehicle volumes at arrival and dismissal hours and that roundabouts can fail for vehicles when pedestrian volumes are high, a traffic study should be conducted to verify that:

- The roundabout provides significant safety advantages to pedestrians and cyclists
- That traffic delays during school arrival and dismissal hours are acceptable

Figure 24. Conflict points at a single lane roundabout and a conventional four-way intersection



Source: Corhiran et al. 2013

KEY CONSIDERATIONS

Impact on pedestrians

While small roundabouts are generally safe, they do entail some inconveniences for pedestrians. They generally entail longer walking distances than conventional intersections because they force pedestrians to deflect outward. This "bending out" at intersections can also be disorienting and difficult to navigate for people with a visual impairment[2].

Impact on cyclists

Small, single-lane roundabouts, with radii under 15 m, are generally considered safe and comfortable for cyclists due to their traffic calming effect and their encouragement of yielding. Cyclists are usually required share the lane with vehicles in small roundabouts. Separation between bicycles and vehicles is dropped on the approaches to the roundabout (Figure 25).

Impact on vehicles

For vehicles, roundabouts have better flow and higher capacity than conventional intersections when there are few pedestrians. When pedestrian volumes are heavy, the flow of vehicles through the roundabout may be disrupted and may result in congestion. However, the traffic calming and safety benefits of the roundabout will remain.

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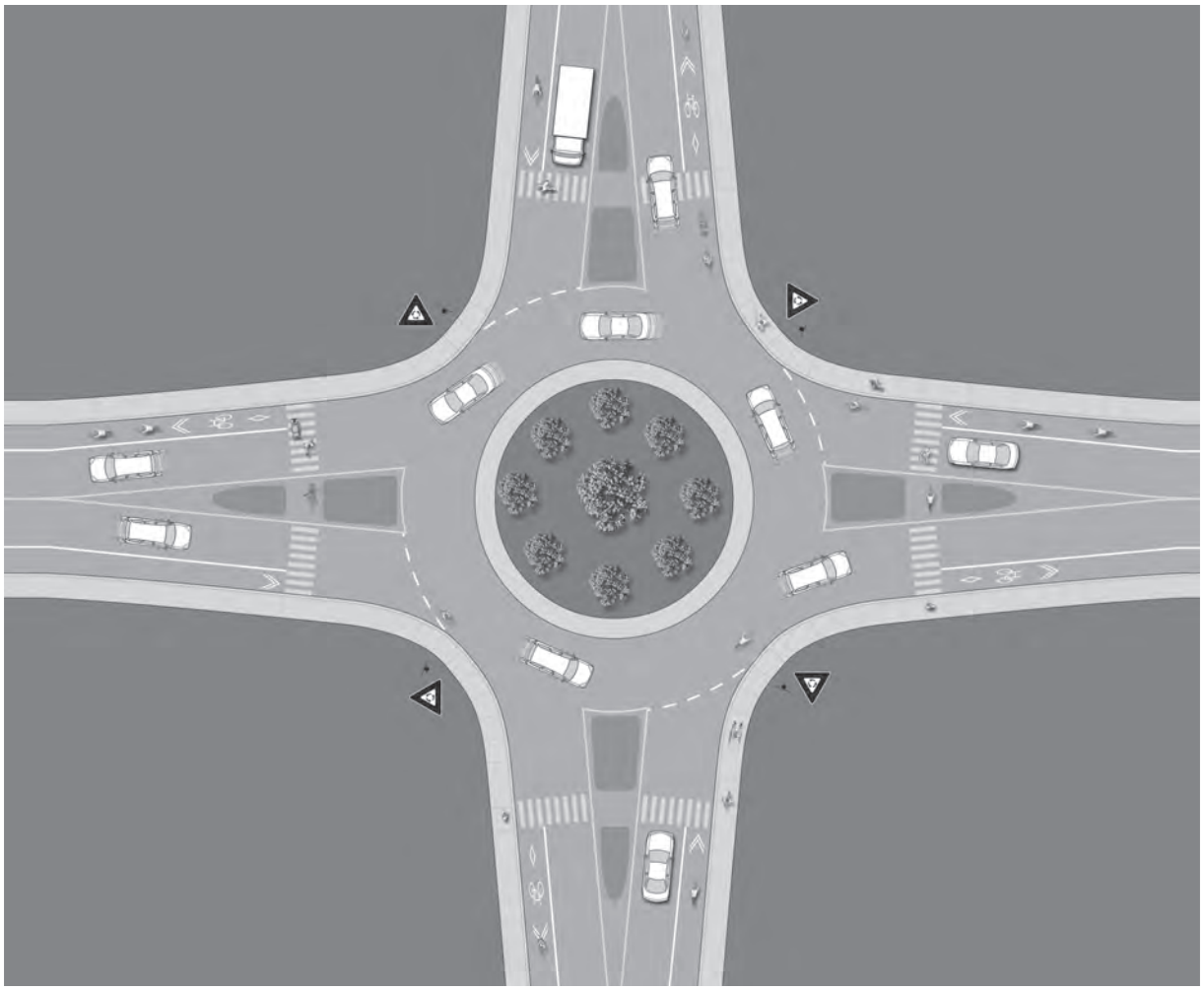
2 This does not apply to miniature roundabouts, known as traffic circles (see Section 3.2.3), at the intersection of two low-volume residential streets. This traffic calming measure typically does not entail setting back crosswalks and does not require a deflection of pedestrians' paths.

Figure 25. Single-lane roundabout



Source: Vélo Québec

Recommendations

Recommendation 24

Only single lane roundabouts with a radius of 15 m or less should be implemented in the vicinity of schools. A traffic study should be carried out prior to implementation to verify safety benefits for pedestrians and cyclists and the acceptability of vehicle traffic impacts.

References & Resources

- Roundabout Resources (2017). Roundabouts Near Schools. http://www.roundaboutresources.org/roundabouts-near-schools.html
- Corhiran, D., Parentela E.M. & Plotnik, M. (2013). A Framework for Assessing Roundabout near a School Zone. http://www.westernite.org/annualmeetings/13_Phoenix/Papers/Session%205D%20-%20Plotnik.pdf
- Vélo Québec (2010). Planning & Design for Pedestrians and Cyclists. Montreal : Vélo Québec Association

3.2.5. ON-STREET PARKING

APPLICABILITY

SCHOOL TYPE:

ELEMENTARY SECONDARY

DEVELOPMENT CONTEXT:

NEW EXISTING

NEIGHBOURHOOD CONTEXT:

URBAN SUBURBAN RURAL

BACKGROUND

Cars parked along the side of a street create "lateral friction"— i.e., their presence slows traffic. Parking creates a physical barrier between the sidewalk and traffic lanes and, as a result, insulates pedestrians from vehicular traffic.

KEY CONSIDERATIONS

Sight Lines

Parked cars can act as a visual barrier, preventing motorists from seeing people on the sidewalk, especially smaller children. For this reason, parking is usually prohibited near intersections and pedestrian crossings. It is also a common practice to prohibit on-street parking and stopping near schools at arrival and dismissal hours.

The drawback of periodically prohibiting parking is that the effective width of the streets increases and the lateral friction provided by parked cars disappears. The wider field of view can induce motorists to exceed speed limits (Figure 26).

Figure 26. Motorists' field of view increases in the absence of parked cars

Design

Bay parking is generally considered preferable to a parking strip along the edge of the roadway. It limits the effect width of the street, which helps to limit vehicles speeds in the absence of parked cars.

In new communities, layby parking should be created by design. Layby parking should be demarcated with special pavement treatment to distinguish the parking lane from the roadway and visually minimize pavement width.

A parking layby can be created on an existing street through the construction of curb extensions into the parking lane. Another possibility is to set up a virtual curb extensions, using bollards, planters, and precast curbs.

Recommendations

Recommendation 25

Provide on-street parking in laybys to limit effective street width.

References & Resources

- Vélo Québec (2010). Planning & Design for Pedestrians and Cyclists. Montreal: Vélo Québec Association.

3.3. PATHS

APPLICABILITY

SCHOOL TYPE:

ELEMENTARY SECONDARY

DEVELOPMENT CONTEXT:

NEW EXISTING

NEIGHBOURHOOD CONTEXT:

URBAN SUBURBAN RURAL

BACKGROUND

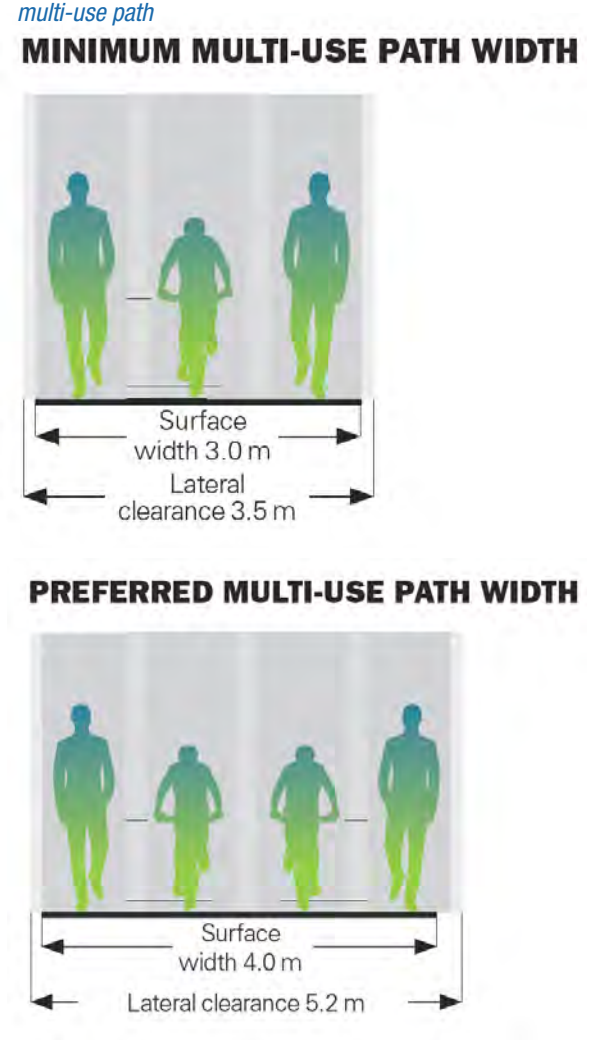
Off-street paths can increase the connectivity of the pedestrian and cycling networks. By increasing connectivity, paths can help to shorten walking or cycling distances to a school. Off-street, multi-use paths are generally considered safe and appropriate for use by cyclists of all ages and abilities, including elementary-school-age children, provided that they are well designed.

KEY CONSIDERATIONS

Width and Clearance

The minimum width for a multi-use path designed for use by cyclists and pedestrians travelling in both directions is 3.0 m and the recommended width is usually 4.0 m. It is also recommended that at least 0.25 m and preferably 0.6 m of clearance be provided on either side of the path. (Figure 27).

Figure 27. Required widths and clearances for a multi-use path



Source: York Region Pedestrian & Cycling Planning & Design Guidelines (2017)

Separation of Uses

In some instances, separate pedestrian and cycling separate facilities are preferred to multi-use paths. For example, where heavy usage is expected, or where there are many intersections and driveways along the road. However, where the context is appropriate for a multi-use path, it is rarely necessary to physically separate pedestrians and cyclists on off-street paths. Separation can also be warranted when a trail runs along a body of water or if there is a significant landscape feature on one side of the trail. In this case, a separate pedestrian path is placed closer to the body of water of landscape feature.

Material

In suburban and urban settings, paths used year-round for commuting to schools and other nearby destinations should be paved to be maintainable during the winter. Unpaved paths cannot be plowed down to a bare surface and are subject to rutting in wet conditions. Asphalt is the most commonly used paving material. It is relatively inexpensive, provides a smooth ride for cyclists and people using mobility assistance devices.

Lighting

As with streets, lighting of off-street paths improves the visibility and personal security of users. Although most school travel occurs during daylight hours, the morning school trip in the middle of winter may occur during hours of darkness, as may the trip home after school for students involved in after school activities. School staff travel may also occur during hours of darkness.

On off-street multi-use paths, an average illumination of 5 lux and a uniformity coefficient of 3:1 or is recommended. Lampposts should be placed at least 1.0 m from the edge of the path and should between 3 m and 6 m tall to concentrate enough light on the path while limiting glare (Vélo Québec, 2010). Lighting will be required to meet the standards of the municipality or Region where the multi-use paths are located within road rights of way.

Vegetation

The types and quantity of trees and vegetation planted along off-street paths should be carefully selected to ensure that the path remains visible from nearby streets and buildings to provide passive surveillance. In general, multi-stemmed or low-branching trees and conifers should be avoided. High branching trees are preferable as they obstruct the eye level view less while providing ample shade during the warm months. Vegetation will be required to meet the standards of the municipality or Region where the multi-use paths are located within road rights of way.

Recommendations

Recommendation 26
Off-street paths should be paved, lit, and maintained during all seasons.

Maintenance

If off-street paths are to be an integral part of the walking and cycling network and used for access to schools, they should be maintained throughout the school year. Basic maintenance operations include:

- Summer
  - Trimming grass and vegetation encroaching into paths lateral clearance
  - Trimming vegetation that obstructs the visibility of the path
- Fall:
  - Sweeping fallen leaves
  - Planting markers to guide snowplows
- Winter:
  - Snow clearing
  - De-icing
- Spring
  - Removal of snowplow guide markers
  - Sweeping
  - Surface repairs and replacement of worn markings

Winter maintenance operations in particular should be coordinated with on-street operations to ensure that whole network is useable and consistently maintained.

References & Resources

- York Region. Pedestrian & Cycling Planning and Design Guidelines (Expected 2017).
- City of Toronto (2014) Toronto Multi-use Trail Guidelines. https://www1.toronto.ca/City%20Of%20Toronto/Transportation%20Services/Cycling/Files/pdf/TORONTO%20MULTI-USE%20TRAIL%20DESIGN%20GUIDELINES-December%202014_Fina_4.pdf
- Vélo Québec (2010). Planning & Design for Pedestrians and Cyclists. Montreal : Vélo Québec Association.

3.4. CROSSINGS

3.4.1. INTERSECTIONS

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

Intersections are the most challenging points in the transportation network, with the greatest opportunity for conflicts and collisions. Various users travelling in different directions must cross paths and negotiate competing demands.

The following are factors have an impact on the safety of pedestrians and cyclists at all intersections:

- The length of the crossing
- The visibility of pedestrians and cyclists to motorists
- The frequency and speed at which vehicles make turns at the intersection

These factors can be modified through changes to intersection geometry. Crossing safety can also be improved with markings that increase motorists' awareness of pedestrians and cyclists as well as through the use of signs and signals to control the different streams of traffic crossing the intersection.

KEY CONSIDERATIONS

Geometry

Intersection geometry can be altered to decrease the length of crossings, increase the visibility of pedestrians and cyclists, and decrease vehicle operating-speeds. The following are geometric features that can be used to achieve these goals:

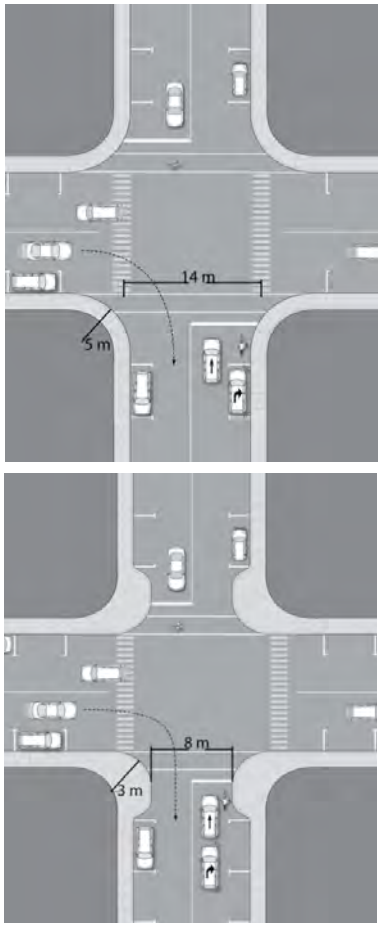
- Curb extensions (Figure 28)
    - Reduce crossing distance
    - Increase pedestrian visibility
    - Slow down vehicles
- Smaller corner radii (Figure 28)[3]
    - Reduce crossing distance
    - Slow down turning vehicles
- Raised crossings or raised intersection
    - Act like a speed hump to slow down vehicles
    - Reinforce pedestrian priority and encourages yielding

Longer pedestrian and bicycle crossings, with four or more vehicle lanes to be crossed, can be broken up into two or more stages by wide medians, called refuge islands. (refer to Figures 31 & 32 for illustrations). Refuge islands should preferably be 3.0 m across and at minimum be 2.0 m across to accommodate a bicycle, according to Ontario Traffic Manual (OTM) Book 18. Refuge islands are especially valuable at uncontrolled crossings as they help pedestrians and cyclists find gaps in the traffic stream long enough to allow them to safely cross. They can also improve safety by giving vehicles at the far side of the crossing a better chance to see crossing pedestrians or cyclists and yield to them.

Pedestrian Crossing Treatments

Crosswalks at signalized intersections must be at least 2.5 m wide and can be marked with two parallel lines, or ladder crosswalks. Ladder crosswalks are recommended in the immediate vicinity of schools and along any designated School Routes (see Section 3.6). As noted in OTM Book 15, the contrast created by these markings enhances the visibility of the crosswalk and thereby increases motorists' awareness of potential conflicts.

Figure 28 Example of Reducing crossing distance with curb extensions and small turn radii



Source: Vélo Québec 2010

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3 Corner radii are subject to municipal engineering standards.

Bicycle Crossing Treatments

Marked crossings which allow cyclists to ride through an intersection are called crossrides. There are several types of markings that can be used for crossrides:

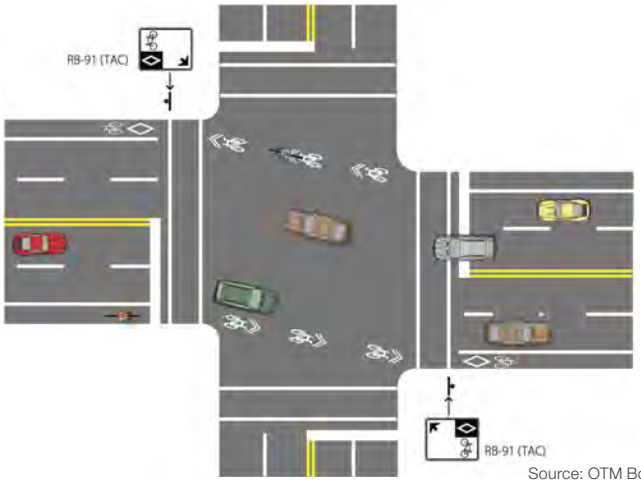
- Elephant's feet
  - Required for crossrides for in-boulevard cycle tracks and multi-use paths
  - Not used for on-road cycling facilities
- Bicycle symbols
- Directional arrows
- Chevrons
- Green surface treatment

For on-road cycling facilities, OTM Book 18 leaves the choice of intersection markings up to practitioners. It recommends only that markings be used consistently throughout a municipality.

It is generally preferable that markings that make motorists aware of the presence and direction of travel of cyclists be used. For example, a sequence of bicycle symbols and chevrons (sharrows) through an intersection can achieve this effect (Figure 29). At intersections with a high volume of vehicles making turns, a green surface treatment may be warranted to further enhance motorists' awareness. In addition, turning vehicles yield to bicycles (RB-37) signs can be added ahead of intersection. These treatments are typically determined on a case by case basis at the project implementation stage by municipal staff.

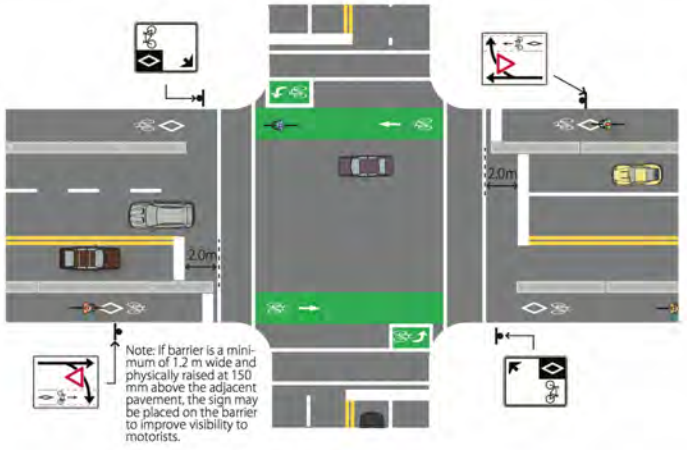
Typical treatments for Regional Roads are presented in the York Region Planning and Design Guidlines for Pedestrians and Cyclists.

Figure 29. Sharrows for marking crossrides



Source: OTM Book 18

Figure 30. Green surface treatment in a crossride

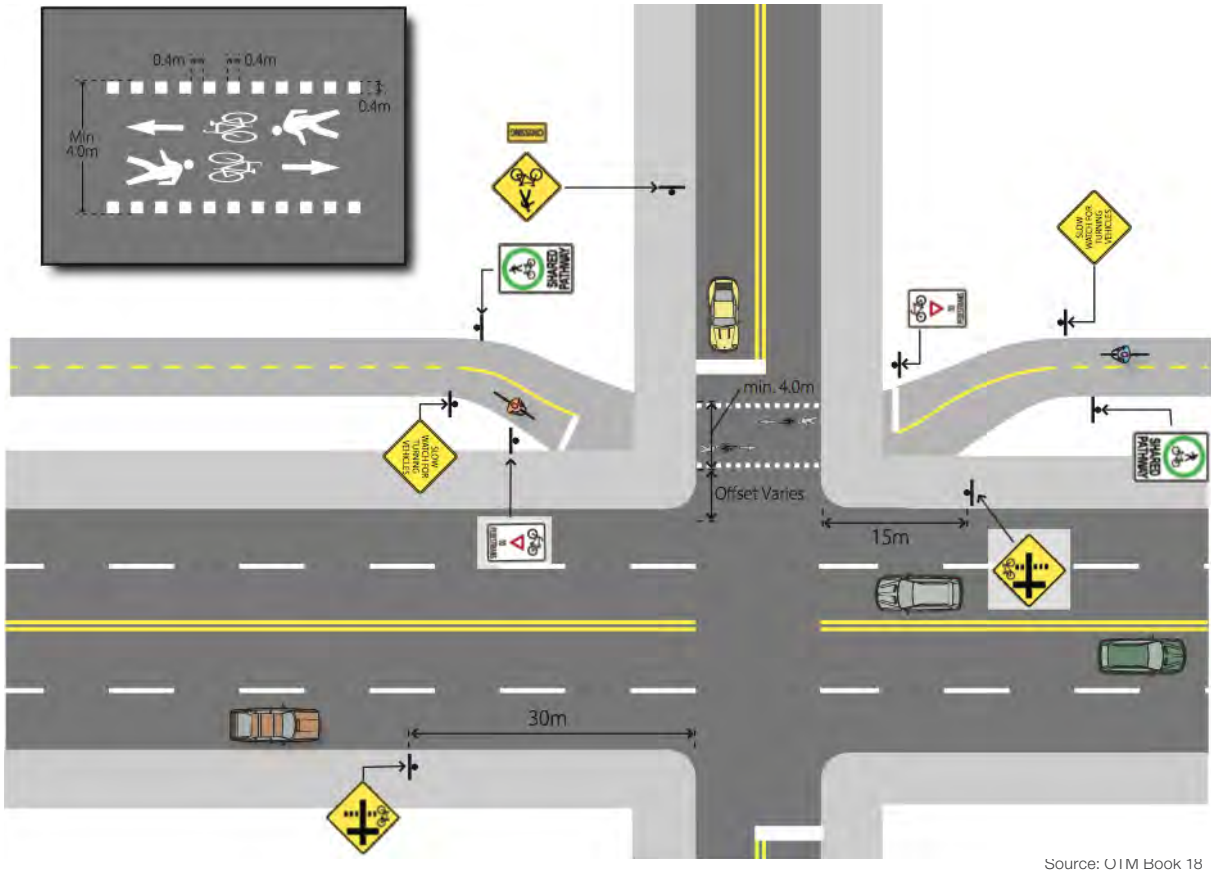


Source: OTM Book 18

Multi-use Path Treatments

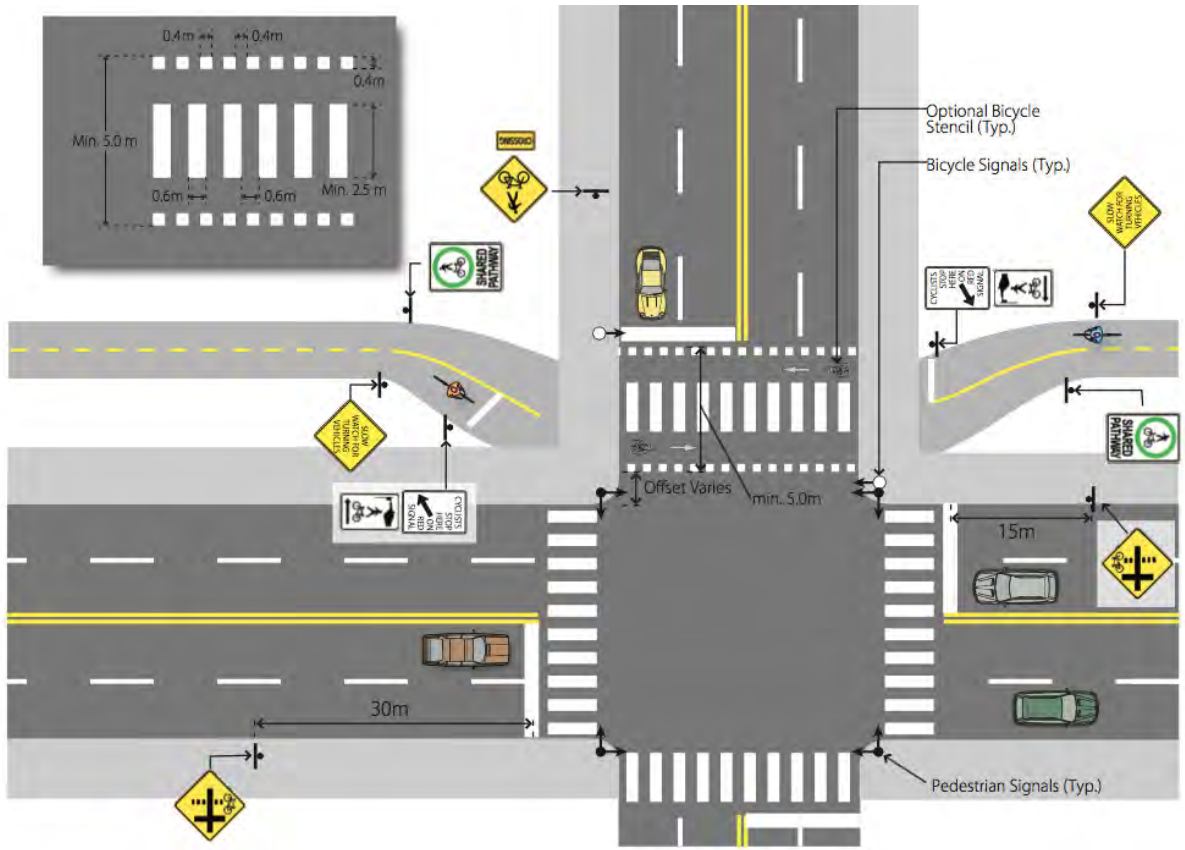
Combined pedestrian and cyclist crossings along multi-use paths can either be outlined by elephant's feet and contain pedestrian and bicycle symbols (Figure 31) or a combination of elephant's feet and zebra markings (Figure 32). In the latter case, bicycles symbols and directional arrows can be included to remind motorist to look out for cyclists.

Figure 31. Mixed pedestrian and cyclist crossride for an unsignalized intersection



Source: OTM Book 18

Figure 32. Combined pedestrian and cyclist cross ride for a signalized intersection



Source: OTM Book 18

Delays

To encourage active travel to school, students must be able to cross streets safely, without incurring long delays. Delays occur in the following situations:

- At uncontrolled crossings, when pedestrians or cyclists must wait a long time for a gap in the traffic flow that allows them to cross safely
- At signalized intersections with very long signal cycles

Delays at uncontrolled crossings can be reduced in the following ways:

- Adding a median refuge island
  - Splits the crossing in two and reduces wait times for safe gaps in traffic
  - Can be implemented only where space and road geometry allows

- Converting to a pedestrian crossover
  - Obligation for motorists to yield
  - May include rapid rectangular flashing beacon or push button activated flashing amber lights

- Adding stop signs if another stop-sign-controlled intersection is not too close
- Adding traffic signals if another signalized intersection is not too close
- Posting a crossing guard to supervise the crossing before and after school hours (see Section 3.4.3)

Delays

Most municipalities have warrants based on pedestrian volumes or pedestrian delay to determine where pedestrian signals should be added. These warrants can take into consideration the number of children using a particular crossing. A common approach is to double count children towards the minimum pedestrian volume required by the warrant.

Pedestrian signals on school routes must have an appropriate duration for young children, whose typical walking speed is 0.9 m/s.

Universal Design

At intersections, all sidewalks must have AODA compliant curb ramps and tactile detection strips at the bottom of the ramps. In the case of signal-controlled intersections, accessible pedestrians signals (APS), which deliver sounds that indicate when pedestrians may begin crossing an intersection and in which direction, are required.

Cost

The costs of the above-described improvements to pedestrian and cyclist crossings vary widely. Approximate cost ranges are shown in table 4. Costs will vary widely depending on site context.

Recommendations

Recommendation 28
Minimize the length of crosswalks and cross rides through the use of curb extensions and smaller turn radii.

Recommendation 29
Add zebra markings to maximize the visibility of pedestrian crossings and to increase motorists' awareness of pedestrians.

Recommendation 30
Take measures to reduce delays incurred at intersections by pedestrians and cyclists.

Table 4. Cost ranges for pedestrian crossing improvements

Markings	**Cost Range**
Zebra or ladder crosswalk	$350-$1000
Elephants feet crossride	$500-$1000
Combined pedestrian and cyclists crossride (zebra and elephants feet)	$750-$1000
Bicycle symbols or sharrows	$50 - $200
Green crossride	$500 - $1000
Green two-stage left turn box	$500 - $750
Signs	**Cost Range**
Stop signs or yield signs (2-way)	$500-$1000
Stop signs of yield signs (4-way)	$1500-$2000
Yield sign with rapid rectangular flashing beacon (2-way)	$5000-$10000
Signals	**Cost Range**
Flashing amber crossover signals	$50000-$150000
Full traffic signals with APS	$150,000 - $300,000+

References & Resources

- Vélo Québec (2010). Planning and Design for Pedestrians and Cyclists. Montreal: Vélo Québec Association
- Ministry of Transportation of Ontario (MTO) (2016) Ontario Traffic Manual Book 15: Pedestrian Crossing Treatments https://www.library.mto.gov.on.ca/SydneyPLUS/Sydney/ViewRecord.aspx?template=Books&record=fa5caef1-9963-4786-b3c9-4b5e50e70321&lang=en-US
- Ministry of Transportation of Ontario (MTO) (2013) Ontario Traffic Manual Book 18: Cycling Facilities http://www.raqsb.mto.gov.on.ca/techpubs/eps.nsf/0/825810eb3ddd203385257d4a0063d934/$FILE/Ontario%20Traffic%20Manual%20-%20Book%2018.pdf

3.4.2. MIDBLOCK CROSSINGS

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

Midblock crossings are an effective way to reduce walking distances when there are significant distances between adjacent signalized intersections. They may also be used where an off-street path crosses a road.

There are two general types of midblock crossings:

- Uncontrolled midblock crossings – pedestrians and cyclists must wait for a gap in traffic to cross the road
- Controlled midblock crossings – signs or signals require vehicles to stop to allow pedestrians and cyclists to cross

The safety factors at midblock crossings are similar to those at intersections. They include:

- The length of the crossing
- The visibility of pedestrians and cyclists to motorists
- The speed at which vehicles approach the crossing

These factors can be modified through changes to intersection geometry. Crossing safety can also be improved with treatments, including markings, signs, and signals, which encourage or require motorists to yield to crossing pedestrians or cyclists.

KEY CONSIDERATIONS

Warrants

Midblock crossings are typical implemented based on the warrant system presented in OTM Book 15. Some municipalities may have their own more detailed warrant system in addition to the warrants in Book 15, but the guidance is relevant in evaluating the potential need for a midblock crossing. It is noted that in the case of Regional Roads, York Region has a warrant policy for mid-block pedestrian signals. More information about the Region's signal program can be found online (refer to 'Resources & References' section).

Geometry

A midblock crossing's geometry can be altered to decrease the length of crossings, increase the visibility of pedestrians and cyclists, and decrease vehicle operating-speeds. The following are geometric features that commonly used to achieve these goals:

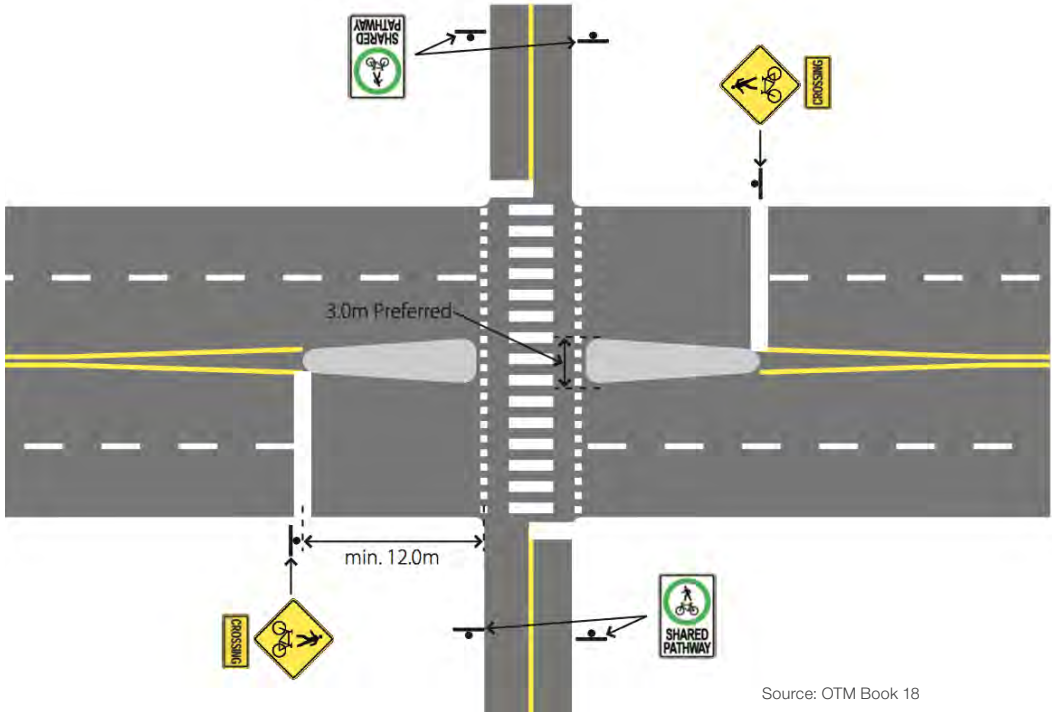
- Curb extensions
    - Reduce crossing distance
    - Increase pedestrian visibility
    - Slow down vehicles
- Raised crossings (Figure 33)
    - Act like a speed hump to slow down vehicles
    - Reinforce pedestrian priority and encourages yielding
- A refuge island
    - Creates two short crossings
    - Increases pedestrian visibility

Refuge islands should preferably be 3.0 m across and at minimum be 2.0 m across to accommodate a bicycle according OTM Book 18 (Figure 34). Gates that force pedestrians to zigzag through the refuge island are not recommended.

Refuge islands are especially valuable at uncontrolled crossings on wide roads, with four lanes or more, as they help pedestrians and cyclists find gaps in the traffic stream long enough to allow them to safely cross. Refuge islands also help motorist at the far end of wide crossing to see and avoid pedestrians and cyclists using the crossing.

Figure 33. Midblock raised crossing with refuge island

Figure 34.Sample configuration for a midblock multi-use path crossing



Source: OTM Book 18

Crossing Treatments

As with crosswalks at intersections, midblock crossings for pedestrians must be at least 2.5 m wide and can be marked with two parallel lines, zebra stripes, or a combination of the two, forming a ladder. Zebra or ladder crosswalks are recommended in the immediate vicinity of schools and along designated School Routes (see Section 3.6).

A flexi post reminding motorists to yield to pedestrians can be placed at the roadway centerline. If the crossing is long, additional flexi-posts can be added to make the crossing more visible and to create a pinch point that channelizes and calms traffic approaching the crossing (Figure 35). Note that this type of treatment is more likely to be appropriate along a collector roadway, than along an arterial or Regional road.

Combined pedestrian and cyclist crossings along multiuse paths can either consist of two rows of elephant's feet with pedestrian and bicycle symbols or a combination of elephant's feet and zebra markings.

Samples of some of the types of pedestrian midblock crossings avilable for use in Ontario are shown in Figure 36.

Figure 35. Midblock crossing with in-street signage

Signs and Signals

In case of significant pedestrian volumes or delays, the municipality may add signs or signals to control traffic at a midblock crossing. These include:

- Adding a yield to pedestrians sign, with optional rapid rectangular flashing beacons
- Adding push button activated flashing amber lights
- Posting a crossing guard before and after school hours (see Section 3.4.3)

In the latter case, the duration of flashing amber signal must take into account the typical walking speed of a child, which is 0.9 m/s.

Recommendations

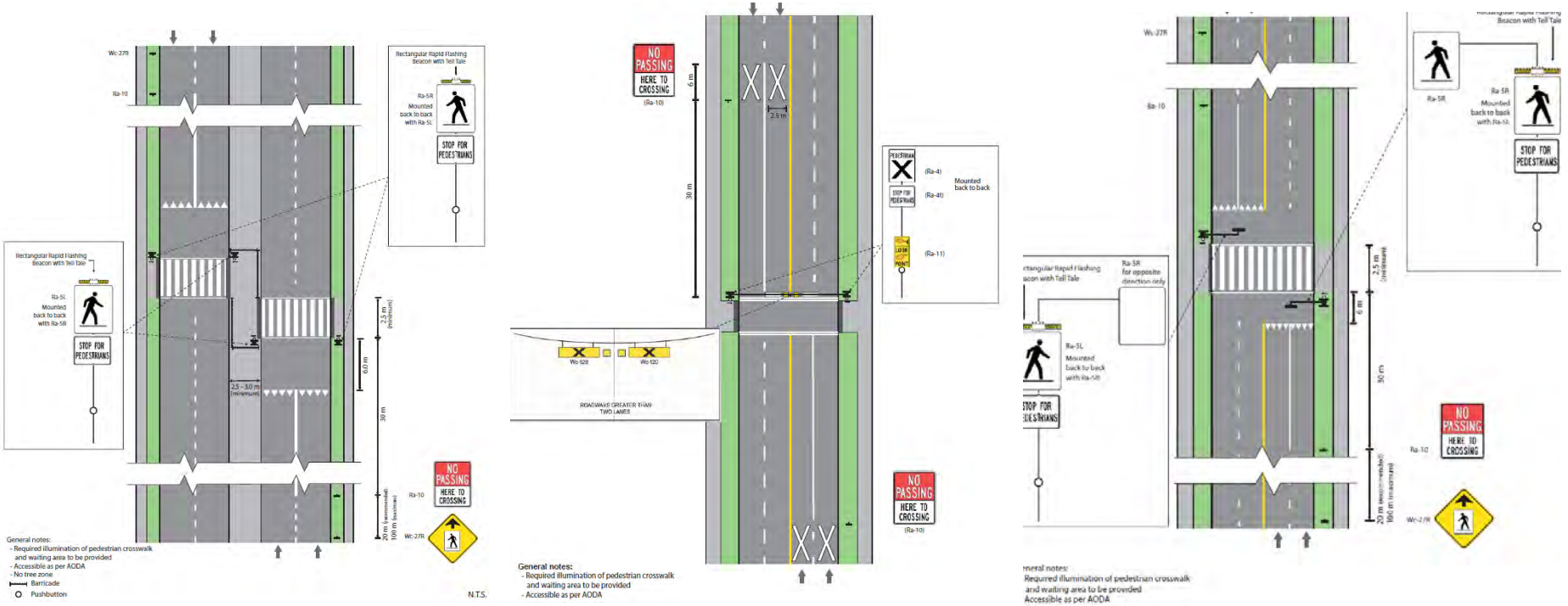
Recommendation 31
Minimize mid-block crossing distances through the use of curb-extensions.

Recommendation 32
Add central refuge islands to mid-block crossings on four-lane or wider roads.

References & Resources

- Vélo Québec (2010). Planning and Design for Pedestrians and Cyclists. Montreal: Vélo Québec Association
- Ministry of Transportation of Ontario (MTO) (2016) Ontario Traffic Manual Book 15: Pedestrian Crossing Treatments https://www.library.mto.gov.on.ca/SydneyPLUS/Sydney/ViewRecord.aspx?template=Books&record=fa5caef1-9963-4786-b3c9-4b5e50e70321&lang=en-US
- Ministry of Transportation of Ontario (MTO) (2013) Ontario Traffic Manual Book 18: Cycling Facilities http://www.raqsb.mto.gov.on.ca/techpubs/eps.nsf/0/825810eb3ddd203385257d4a0063d934/$FILE/Ontario%20Traffic%20Manual%20- %20Book%2018.pdf
- Additional information on signal warrants along Regional roads can be found online here: http://www.york.ca/wps/portal/yorkhome/transportation/yr/traffic/trafficandpedestriansignals

Figure 36 - Sample of pedestrian crossovers from OTM Book 15



Source: OTM Book 15

3.4.3. SUPERVISED CROSSINGS

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

A crossing guard can supervise any marked pedestrian crossing, regardless of whether it is a designated school crossing.

Crossing guards are most effective when deployed to uncontrolled crossings that:

- are regularly crossed by a significant number of elementary school students
- tend to have few gaps in the flow of vehicular traffic long enough to allow students to safely cross the street

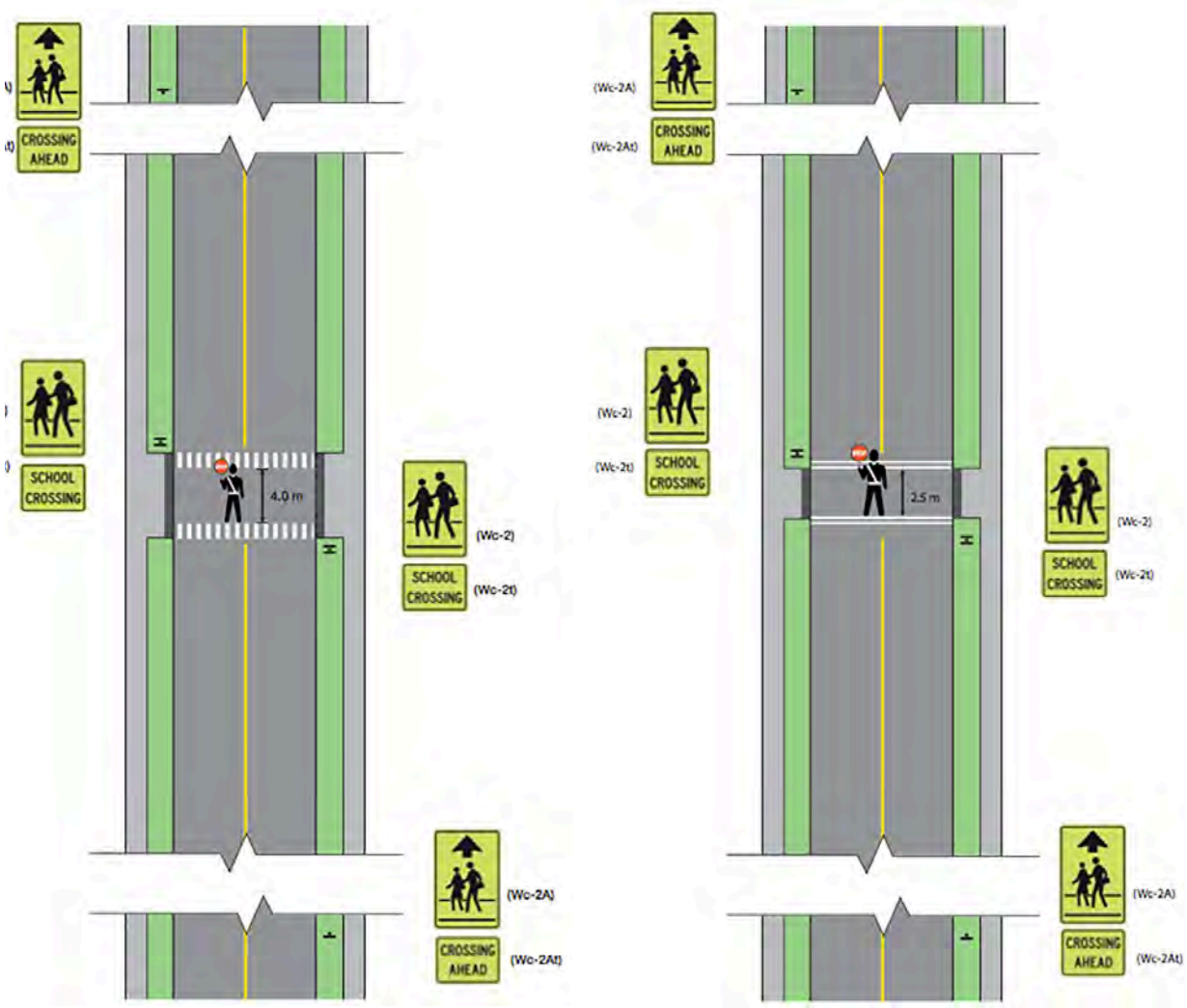
Crossing guards can also be deployed to controlled intersections. They may be warranted at intersections where a significant number of vehicles make turns. In this case, the crossing guard's role is to prevent conflicts between students crossing the street and vehicles turning left of right on a green light or turning right on a red light.

A municipality may designate an uncontrolled crossing in the vicinity of a school or along a designated school route as an official school crossing. A designated school crossing must have the following features, as specified by OTM Book 15:

- A crossing guard during school arrival and dismal periods
- School crosswalk markings for supervised crossing
  - o specified in OTM Book 11
  - o different requirements for urban and rural locations (see Figure 37)
- School crossing signs and tabs (WC-2 and WC- 2t)
- School crossing ahead sign and tab (Wc-2A and Wc- 2At)
- Parking and other sight obstructions prohibited within at least 30 m of crossings
- Stopping prohibited for a minimum of 15 m on each approach to the crossing, and 10 m following the crossing

It is important to note that outside school arrival and dismissal periods, when the crossing guard is not on duty, the designated school crossing will function as an uncontrolled crossing.

Figure 37. Required markings and signage for designated school crossings in urban (left) and rural (right) settings



Source: OTM Book 15

KEY CONSIDERATIONS

Cost

Employing crossing guards entails significant ongoing costs for municipalities. It is therefore generally preferable to manage vehicular traffic around the school and to design pedestrian crossings to reduce the need for crossing guards. Ideally, crossing guards would only be used as a stopgap measure until traffic flows are altered and pedestrian crossings are modified to allow students to safely cross without assistance. However, in practice, these changes can be difficult to implement for technical and political reasons and crossing guards may need to be deployed on a long-term basis.

Warrants

Municipalities may wish to establish a warrant for crossing guards. The Ontario Traffic Council has published a set of guidelines the School Crossing Guard Guide (2017) to help municipalities develop warrants for crossing guards. Two types of warrant systems are presented in the guidelines:

- Exposure Index Method
- Gap Study Method

The exposure index draws on local conditions and is customized to reflect each municipality's local context. The gap study method is objective, but is recommended only for use at minor street stop controlled intersections and midblock uncontrolled locations.

At new schools, where pedestrian flows cannot be predicted, municipalities can deploy crossing guards by default on a one-year trial basis. After a year, if there are fewer than 40 children crossing and no particular conflicts are observed, the crossing guard may be removed. This is currently the practice in the City of Vaughan.

Recommendations

Recommendation 33
Deploy crossing guards on a one-year trial basis at key intersections around new schools.

Recommendation 34
Modify traffic patterns or pedestrian crossing geometries and control devices to eliminate the conditions that warrant a crossing guard.

Decommissioning

If a school closes or if traffic patterns around a school change significantly and the conditions warranting the crossing supervision disappear, the municipality may wish to decommission the crossing guard. In the case of designated school crossings, the municipality must cancel the designation and remove the associated signs and markings before decommissioning the crossing guard. At intersections without school crossing designations, crossing guards can be decommissioned at any time.

References & Resources

- Ministry of Transportation of Ontario (MTO) (2016) Ontario Traffic Manual Book 15: Pedestrian Crossing Treatments https://www.library.mto.gov.on.ca/SydneyPLUS/Sydney/ViewRecord.aspx?template=Books&record=fa5caef1-9963-4786-b3c9-4b5e50e70321&lang=en-US
- Ontario Traffic Council, School Crossing Guard Guide (2017) http://www.otc.org/wp/wp-content/uploads/2017/05/OTC-School-Crossing-Guard-Guide-2017.pdf
- City of Vaughan, Crossing Guard Policy and Procedure Review (2011) http://meetingarchives.vaughan.ca/committee_2011/pdf/WS0621_4.pdf Ontario Traffic Council, School Crossing Guard Guidelines (2017 – Projected)
- City of Vaughan, Crossing Guard Policy and Procedure (2011) https://www.vaughan.ca/services/residential/crossing_guard/VaughanDocuments/Crossing%20Guard%20Policy%20Procedure.pdf

3.5. PUBLIC TRANSIT FACILITIES

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

Staff at elementary and secondary schools are potential transit users, as are secondary school students who live beyond walking or cycling distance from the school. The availability of public transit in close proximity to a school is essential for encouraging its use by staff and students.

Public transit contributes to active travel to school insofar as its users must walk from their to point of origin to the departure transit stop and from the arrival transit stop to the destination—in this case, the school. An indirect contribution of public transit to active travel to school is its capacity to reduce vehicular traffic volumes on streets surrounding the school, making them safer and more comfortable for walking and cycling. Greater reliance on public transit can also translate to lower demand for on-site parking at the school.

KEY CONSIDERATIONS

Proximity

Transit stops should be located as close as possible to a school to minimize walking distance. If a transit line runs along one of the streets that frame the school site, a stop should be provided along the school frontage but not too close to school driveways to avoid creating conflicts with the other modes of access to the school.

On bus lines running on streets near the school, stops should be provided at intersecting streets that lead directly to the school. Similarly, if a transit line crosses an off-street path that leads to the school, stops should be provided near the path. Where transit users need to cross any busy streets on their walk between the transit stop and the school, safe pedestrian crossings that reduce delays should be provided.

School boards, local municipalities, and York Region Transit should cooperate on selecting bus stop locations in school areas.

Capacity

The concrete pads at bus stops near secondary schools should be large enough to accommodate a bus shelter and significant numbers of students waiting for the bus after school. Where students regularly overflow from the existing pad, they may damage surrounding vegetation and encroach on private properties (Figure 38).

Figure 38. Students overflowing from the bus pad

Safety

Buses can be a hazard to cyclists and pedestrians. In particular, buses dwelling at stops can interfere with site lines between pedestrians, cyclists, and other vehicles. For this reason, bus stops should be located away from school driveways and pedestrian crossings used to access the school.

On streets with bicycle lanes or cycle tracks, conflicts can also arise between cyclists, buses, and bus passenger at stops. Rather than allowing buses to encroach into the cycling facility to access a bus stop, it is preferable to insert a platform between the lane in which the bus stops and the bicycle lane. This is known as a floating or island bus stop (Figure 39). Bus passengers can safely get off or on the bus and then subsequently cross the bicycle lane to get to the sidewalk. To comply with AODA requirements, the bicycle lane must either be raised to the same level as the sidewalk and bus platform or the bus platform must ramp down where pedestrians are intended to cross to the sidewalk, which itself must also have a ramp. See NACTO (2016) for design details of flooting bus stops.

Figure 39. Floating bus stop

Source: Human Transit

Recommendations

Recommendation 35
Avoid placing transit stops near school driveways and at busy pedestrians crossings around the school.

Recommendation 36
Create floating bus stops on streets with bicycle lanes or cycle tracks.

References & Resources

- NACTO (2016) "Side Boarding Island Stop" in Transit Street Design Guide. http://nacto.org/publication/transit-street-design-guide/stations-stops/stop-configurations/side-boarding-island-stop/

3.6. DESIGNATED SCHOOL ROUTES

APPLICABILITY

SCHOOL TYPE:

DEVELOPMENT CONTEXT:

NEIGHBOURHOOD CONTEXT:

BACKGROUND

The primary walking and cycling routes to schools can be officially designated as School Routes. The municipality can focus its efforts for improving the safety and comfort of pedestrians and cyclists along these routes. Efforts can include a combination of the measures presented in the previous sections, including:

- Sidewalk improvements
- Bicycle facility improvements
- Pedestrian and bicycle crossing improvements
- Traffic calming.

Identifying Routes

The main routes used by students to walk to the school can be determined through the School Travel Planning (STP) process. Children and parents can self-report the routes used to walk to school or the routes can be determined through field observations.

Signs

The designated school routes can be identified with signs (Figure 40). As there are no provincially mandated standard signs for school routes, municipalities can develop their own branding for school routes. It is generally recommended that one school route sign be consistently used throughout the municipality, with preference to standardize the signage across York Region.

Figure 40. School Route sign in Brampton, ON

Source: Human Transit

Recommendations

Recommendation 37
During the School Travel Planning process, primary walking routes to school can be identified and designated as official Routes to School.

Recommendation 38
Pedestrian and cycling improvements should be focused along designated Routes to School.

References & Resources

- City of Brampton (undated), School Walking Program. http://www.brampton.ca/EN/residents/Roads/pedestrian-driver-safety/Pages/School-Walking-Route-Program.aspx
- Metrolinx (2013) Active and Sustainable School Transportation in Ontario: Barriers and Enablers. http://www.metrolinx.com/en/projectsandprograms/schooltravel/ASST_Barriers_and_Enablers-Full_Report_EN.pdf

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4.0 Supporting Policies, Programs, and Resources

4.0 Supporting Policies, Programs, and Resources

In conjunction with changing the physical environment around schools, complementary policies and programs are needed to help encourage active travel to school. This section summarizes and provides links to key policies, programs, and available information resources intended to help the two York Region school boards and municipalities influence school travel behaviour.

4.1. SCHOOL TRANSPORTATION POLICY

4.1.1. STUDENT TRANSPORTATION

School bussing policy can play a role in encouraging active travel to school as eligibility for school bus service can be a disincentive for walking or cycling to school. Although bus eligibility distances in York Region are already fairly high consideration should be given to re-visiting the standards in the future as participation rates increase in York Region due to the other on-going initiatives. This could be done through changes to eligibility criteria, by age gradients, or perhaps seasonally providing a greater service in the winter months, reducing services in better weather. This would have to be implemented with the full cooperation of other community partners to ensure other programs are in place to assist residents with their trip to and from school.

For students living too far from the school to walk, being bussed need not completely preclude some walking. Students are expected to walk a certain distance from their homes to the nearest bus stop.

Currently, the Student Transportation Services of York Region's current policy is that students walk the following distances to the nearest school bus stop:

- Elementary schools: less than 400 m
- Secondary schools: less than 600 m

When there is barrier between a residential area and a school, such as a freeway or major arterial road or a railway, a common practice is to provide school bus service to safely take children across the barrier, even if they live within walking or cycling distance from the school. In many cases, this is a permanent measure. From the perspective of encouraging safe and active travel to school, it is preferable to take steps to remove the barrier rather than to bus children across it.

4.1.2. STAFF TRANSPORTATION

Being among the largest employers in York Region, school boards can play a role in promoting active transportation by encouraging its use by school staff members. As school staff members are role models for students, they are in a position to influence students current and future travel choices by example.

To encourage school staff to use active transportation, the two school boards (in cooperation with area municipalities and the Region) can:

- Implement an awareness program
- Provide secure bicycle parking spaces and end-of-trip facilities (see Section 2.3)
- Limit the number of vehicle parking spaces
- Encourage staff to carpool to reduce parking demand

In addition to the school boards, both municipalities and higher orders of governments can encourage teachers to use active transportation. Some additional initiatives for future consideration may include:

- Offering financial incentives to employees that walk or cycle to work
- Offering tax credits to employees that walk or cycle to work

4.2. ACTIVE TRANSPORTATION PROMOTION PROGRAMS

4.2.1. SAFE ROUTES TO SCHOOL PROGRAMS

School Travel Planning (STP) is a community-based approach that aims to increase the number of students and adults choosing active and sustainable transportation to get to and from school. This approach addresses concerns about safety, physical activity, and the environment. Key community stakeholders, including the school boards, the municipality, police, public health professionals, parents and guardians, administrators, educators, and children, work together to identify and to solve their school transportation needs.

The STP process involves five steps:

- Set-up
- Baseline data collection
- Action Plan development
- Implementation
- Evaluation

STP has been initiated at several schools in York Region and should eventually be implemented at all schools throughout the region. The information provided in the previous section of this guide should be used in the third step of the STP process, the development of an Action Plan.

Recommendations

Recommendation 39
Continue to implement the school travel planning process at schools across York Region, with the aim to eventually implement the program at all schools throughout the region.

Recommendation 40
Continue to implement and support school-based safe cycling training programs across York Region.

4.2.2. SAFE CYCLING TRAINING

As not all parents are cyclists themselves, children do not necessarily have the opportunity to learn to ride a bicycle safely in an urban environment. The objective of a safe cycling program is to qualify students to ride their bike safely and more autonomously. Children who undergo the training are more likely to cycle to school with their parents consent.

Typically, a school-based safe cycling training program will include:

- In-class theoretical lessons focusing on road safety;
- On-bicycle practical lessons with a physical education teacher or a cycling instructor in a safe environment, such as the gym or school yard, to develop the children's cycling abilities through games and exercises;
- Bicycle circuit in the neighbourhood led by qualified and certified cycling instructors
- An individual on-road practical exam

Examples of safe cycling training program in Canada include:

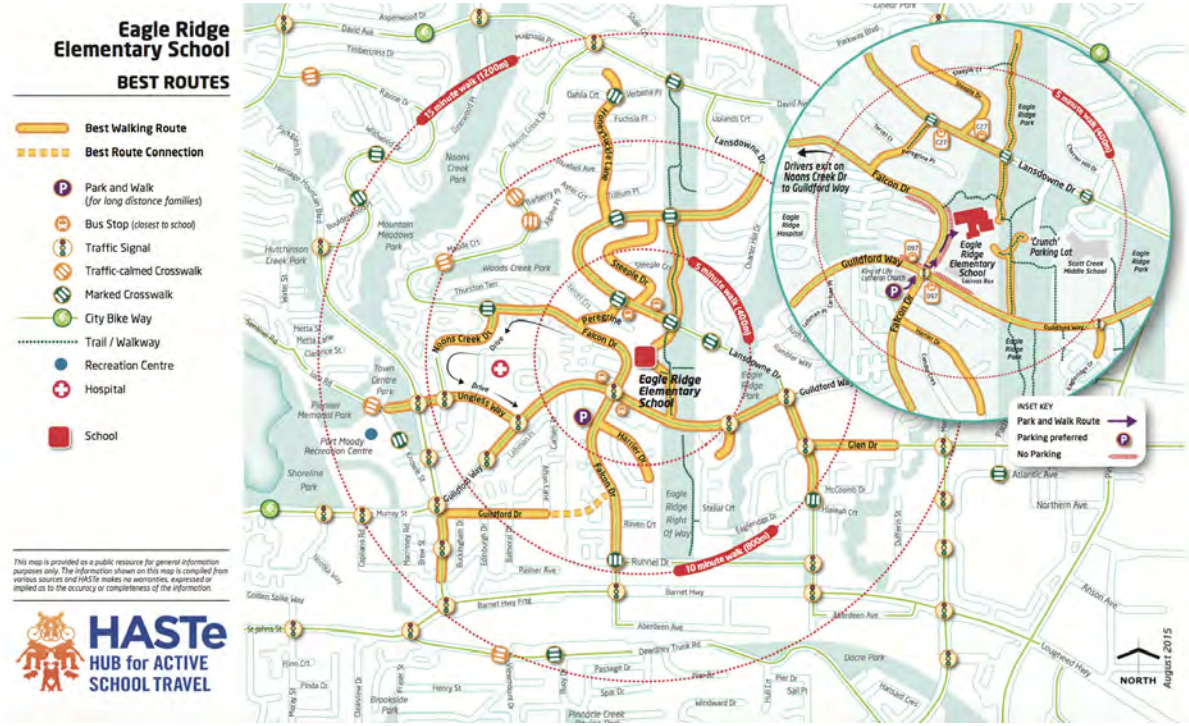
- York Region's Making Tracks Program (see section 4.3.1)
- Vélo Québec's Cycliste averti Program: www.velo.qc.ca/transport-actif/CyclisteAverti/Programme

4.2.3. SCHOOL-SPECIFIC SAFETY INFORMATION SHEETS

Sending school-specific walking and cycling safety information sheets and maps to parents rather than a generic, city- or region-wide information sheet, allows the information to address safety concerns specific to the given school and its community.

As part of the STP process, schools in York Region could develop school-specific safety information sheets, with specific information about walking and cycling routes in the given school's catchment area. A standardized form, with placeholders for local maps and other school- and community-specific information, should be developed.

Figure 41. School-specific map of best routes to a school



SUCCESS STORY

International Walk to School Day at John McCrae P.S.

On Wednesday October 5th John McCrae P.S. participated in International Walk to School Day by encouraging all of our students to walk to school. Our Kiss and Ride was closed for the morning and everyone who usually gets a drive to school was asked to park on a side street and 'walk a block' to the school.

We had a ton of fun outside the school before the start of our day. Students were encouraged to sign our wall to acknowledge they walked to school, and there were lots of services like York Region Police, Paramedics and Public Health. Representatives from the region set up educational booths for our students and families to learn from.

After the school day started, our entire school went on a walk together to celebrate International Walk to School Day. Our JMPS Healthy School Committee would like to encourage all of our families to make Walking Wednesdays a regular thing. Let's see more people walking and biking to school!

4.3. RESOURCES

4.3.1. YORK REGION RESOURCES

Active & Safe Routes to School - Principal Resource Kit

The York Region District School Board and the York Catholic District School Board have jointly developed an information package for school principals. The package informs principals of the school boards' Active & Safe Routes to School Initiative and invites them to get their school community involved in developing a school travel action plan.

The package includes a few printed documents as well as a USB with a number of electronic documents, which are presented to principals as:

- **Information Tools:** information about School Travel Planning (STP), Active Travel and the Active and Safe Routes to School Program
- **Communication Tools:** documents designed for sharing information with the school community
- **Implementation Tools:** documents to assist in implementing school travel plans and school events
- **Data Collection Tools:** documents to assist with data collection on travel top school by different modes

The Principal Resource Kit is available by request from the school boards or the Region's Public Health department.

Healthy Schools Toolkit

York Region has a Healthy Schools Toolkit that seeks to improve the health and well being and academic performance of students by creating a healthier social and physical environment. With regards to the latter, the toolkit focuses on the school building and grounds, routes to and from the school, and the materials and equipment used in school programs. The toolkit provides a process for analyzing and improving the physical environment, including routes to school.

Website: https://www.york.ca/wps/wcm/connect/yorkpublic/a6a0d03e-acea-4684-b2ea-d6d8fc74cd9a/Healthy+Schools+Committe+Handbook.pdf?MOD=AJPERES

Student Transportation Services of York Region

The Student Transportation Services of York Region website has a page for the public titled Active and Safe Routes to School. Active Transportation and School Travel Planning key issues, benefits, documents, and links, specific to York Region as well as external resources, are provided.

Website: net.schoolbuscity.com/active-safe-route-to-school

Heading to School Brochure

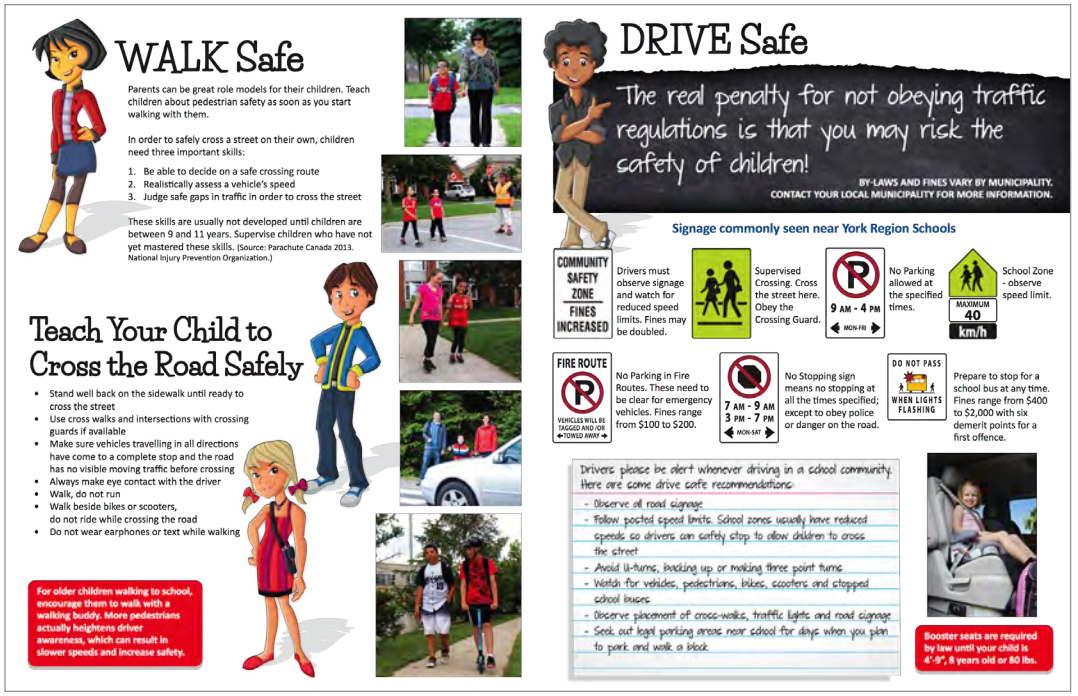
The Heading to School brochure was developed by York Region, in partnership with York Region Police and the two school boards, to inform parents of elementary school students of their school travel planning options and to increase awareness of various safety issues. Tips are provided for safe walking, safe street crossing and safe driving to and from school. The brochure also includes definitions of common signage around schools (Figure 42).

Making Tracks

Making Tracks helps children and youth develop active transportation skill competency, confidence and safety, encouraging them to choose active transportation as a means to travel within their communities. Using an educational leader training model (train-the-trainer), Making Tracks enlists the help of adults in teaching children and youth safety skills in walking, cycling, in-line skating, scootering or skateboarding. York Region currently offers cycling, walking, and scooter training to elementary school students through the Making Tracks program. The program is provided at schools where teachers have been trained for its delivery.

Additional information on cycling in York Region can be found at york.ca/cycling

Figure 42. Inside the York Region "Heading to School" brochure



4.3.2. PROVINCIAL RESOURCES

Metrolinx School Travel Resources

Metrolinx has funded several studies and reports on school travel in general and active travel in particular. Topics covered have included:

- Cost and benefits of school travel planning initiatives
- Active and sustainable school travel strategy
- Scan of school travel policies, implementation barriers and enablers
- Successes and lessons in school travel planning in Ontario
- School travel planning in the Greater Toronto and Hamilton Area

The study reports and related documents are available online on the Metrolinx website.

Website: http://www.metrolinx.com/en/projectsandprograms/schooltravel/school_travel_resources.aspx

Cycling

The province has a provincial cycling strategy #CycleON which identifies a series of action items, programs and policies that are being implemented across Ontario.

Website: ontario.ca/cycling

4.3.3. OTHER RESOURCES

Active & Safe Routes to School

Active & Safe Routes to School is a community-based initiative that promotes the use of active transportation for the daily trip to school, addressing health, physical activity, and traffic safety issues while taking action on air pollution and climate change. It is a growing movement that promotes and celebrates children's active school travel in Canada.

Many resources, including Green Communities Canada's new guide, Creating Safe Routes for Active School Transportation, can be found through their website.

Website: www.saferoutestoschool.ca

Creating Safe Routes for Active School Transportation

Green Communities Canada prepared this document on behalf of the Ontario Traffic Council Active Transportation Committee. The report describes the important role that School Crossing Guards have in supporting Active School Transportation (AST) and summarizes the key programs and initiatives being implemented in school communities across Ontario to promote AST.

Website: http://www.otc.org/wp/wp-content/uploads/2017/07/OTC-Creating-Safe-Routes-for-AST-FINAL.pdf

Summary of Recommendations

Summary of Recommendations

Recommendation 1
During the secondary planning process, the local municipality must ensure that optimal sites are reserved for schools.

Recommendation 2
The school site should front on streets on all four sides. If a slope is present on one side of the school site, residential uses can be placed there.

Recommendation 3
A wide concrete walkway should be provided from the street sidewalk to the main building entrance.

Recommendation 4
Asphalt walkways from the corners of the site to the play areas at the rear of elementary school buildings or to secondary entrances of secondary school buildings should be provided.

Recommendation 5
Secure, highly-visible bicycle parking should be provided on all school sites to support cycling amongst both staff and students.

Recommendation 6
Municipalities should update their school bicycle parking requirements for elementary schools, secondary schools, and school staff as needed to reflect the guidance presented in this document.

Recommendation 7
Schools should monitor usage of bicycle parking and increase capacity if necessary.

Recommendation 8
All schools should provide one male and one female change room for employees, each with at least one toilet, one sink, and one shower per gender for every 30 secure bicycle parking spaces.

Recommendation 9
Exclusive bus loops should be provided where space is available on the school site. If space is insufficient, a layby for buses should be provided.

Recommendation 10
Laybys should be considered instead of on-site drop-off and pick-up loops at more compact school sites.

Recommendation 11
Where possible, parking areas should be located along a side of the school that does not front on a street.

Recommendation 12
Where possible, off-street parking should be shared with an adjacent public facility to minimize the total supply of surface parking in the school area.

Recommendation 13
The width and the turn radii of school driveways should be reduced to the smallest values permitted by municipal engineering standards.

Recommendation 14
Sidewalks should not be lowered or interrupted through school driveways.

Recommendation 15
Schools should be oriented towards the most major street on which they are fronting.

Recommendation 16
New neighbourhoods should be designed with fine-grained, grid like network of streets and paths with a higher connectivity for pedestrians and cyclists than for vehicles.

Recommendation 17
In existing neighbourhoods with curvilinear street patterns, midblock paths linking parallel streets should be added to increase connectivity and permeability for pedestrians and cyclists.

Recommendation 18
Sidewalks should be provided on both sides of the street along the streets surrounding the school site.

Recommendation 19
Sidewalks surrounding the school site and along designated School Routes should be maintained by the municipality to be accessible during the entire school year.

Recommendation 20
In new communities, create a cycling network appropriate for cyclists of all ages and abilities by design.

Recommendation 21
In existing communities, upgrade the cycling network to create routes to schools that are appropriate for cyclists of all ages and abilities.

Recommendation 22
In new neighbourhoods, design local streets for 30 km/h and collectors for 40 km/h. Minimize lane widths and include a mix of traffic calming measures to achieve desired operating speeds by design.

Recommendation 23
In existing neighbourhoods, lower local street speed limits to 30 km/h. Retrofit streets with a variety of traffic calming measures to obtain the desired operating speed.

Recommendation 24
Only single lane roundabouts with a radius of 15 m or less should be implemented in the vicinity of schools. A traffic study to should be carried out prior to implementation to verify safety benefits for pedestrians and cyclists and the acceptability of vehicle traffic impacts.

Recommendation 25
Provide on-street parking in laybys to limit effective street width.

Recommendation 26
Off-street paths should be paved, lit, and maintained during all seasons.

Recommendation 28
Minimize the length of crosswalks and cross rides through the use of curb extensions and smaller turn radii.

Recommendation 29
Add zebra markings to maximize the visibility of pedestrian crossings and to increase motorists' awareness of pedestrians.

Recommendation 30
Take measures to reduce delays incurred at intersections by pedestrians and cyclists.

Recommendation 31
Minimize mid-block crossing distances through the use of curb-extensions.

Recommendation 32
Add central refuge islands to mid-block crossings on four-lane or wider roads.

Recommendation 33
Deploy crossing guards on a one-year trial basis at key intersections around new schools.

Recommendation 34
Modify traffic patterns or pedestrian crossing geometries and control devices to eliminate the conditions that warrant a crossing guard.

Recommendation 35
Avoid placing transit stops near school driveways and at busy pedestrians crossings around the school.

Recommendation 36
Create floating bus stops on streets with bicycle lanes or cycle tracks.

Recommendation 37
During the School Travel Planning process, primary walking routes to school can be identified and designated as official Routes to School

Recommendation 38
Pedestrian and cycling improvements should be focused along designated Routes to School.

Recommendation 39
Continue to implement the school travel planning process at schools across York Region, with the aim to eventually implement the program at all schools throughout the region.

Recommendation 40
Continue to implement and support school-based safe cycling training programs across York Region.

Appendix A: Checklists

Appendix B: Demonstration Plans


IBI


VQ
Vélo Québec


York Region