Final Report

School Site Design Guidelines for Active & Sustainable Transportation

City of Hamilton Guidelines

Prepared for City of Hamilton
by IBI Group
With Vélo Québec Association
November 30, 2022

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1.0 Introduction

1.1 Purpose & Scope of the Guidelines

This guide is intended to support the City's efforts to grow the use of active and sustainable travel modes to school, both for students and staff. This document will complement and supplement the existing studies and guidelines around Active Transportation (AT) and Transportation Demand Management (TDM).

In addition, the City has engaged in several workshops and forums around healthy community and school planning that inform these guidelines.

The strategies presented in this guide are applicable to:

- Elementary and secondary schools;
- New and retrofit schools; and
- In urban and suburban contexts.

The concepts and recommendations presented in this document are intended to encourage active and sustainable modes of travel to school, recognizing the need for partnerships in the delivery of these elements. Whenever possible, the school boards and the City of Hamilton should consider partnering to advance recommendations that would otherwise be unachievable because of funding or resource limitations.

1.2 Intended Audiences

The **intended audience** for this guide includes but is not limited to planning and transportation practitioners, public health practitioners, and school leaders and school board officials. Guidelines are most relevant for the following audiences in each chapter:

- **Chapter 3 (Supportive Schools):** audiences involved in planning, designing, and retrofitting school sites.
- **Chapter 4 (Supportive Neighbourhoods):** City planners, engineers, and other professionals involved in planning new and existing communities.
- **Chapter 5 (Supportive Environments):** City and school officials, parents, and students collaborating on programming for schools post-occupancy.

1.3 How to Use the Guide

The information in this guide can be used during the following processes:

- **Designing new schools –** This guide can be used during the school site design process, in conjunction with school board guidelines, for identifying the amenities and design considerations that facilitate access to the school by different active and sustainable modes of transportation.
- **Planning new communities –**These guidelines can provide an important role during the secondary planning and/or subdivision application processes for choosing the school site, laying out the street grid, establishing planning and engineering standards, and building controls that will help to set up the school site for success.

- **Retrofitting existing school sites –** During renovations to school sites and buildings, or to address existing deficiencies identified through the School Travel Planning process, these guidelines can play a role in the delivery of site enhancements on their own or bundled with other site updates.
- **Retrofitting neighbourhoods –** During the School Travel Planning (STP) process, this guide can inform the Action Plan for changes to be made around the school site to facilitate active travel. In addition, as roads near school sites undergo routine upgrades, reconstruction or resurfacing, this tool can be used to inform the design of the new corridor to include improved pedestrian and cycling facilities.

The material in these guidelines is presented under four main headings:

- **Setting the Context** – This chapter informs the guidelines and recommendations by providing an overview of AT and TDM trends and further summarizing existing efforts to increase active and sustainable school travel (ASST) in Hamilton.
- **Supportive Schools: Siting & Site Design** – 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.
- **Supportive Neighbourhoods: Access around Schools** – This chapter focuses on the neighbourhood surrounding the school site, including guidance on traffic calming, street layout, intersections, integration with transit, and school routes.
- **Supportive Environments: Programming and Policies** – This chapter provides information and recommendations around a number of existing programs and policy initiatives throughout Hamilton.

Key recommendations throughout each section are summarized and numbered in **blue text.** Discussions specific to retrofitting existing schools or neighbourhoods are also noted in each section.

Case Studies from Québec

Throughout the document, case studies from across Montréal and Québec are included. These case studies were prepared by Vélo Québec in support of the background and innovative approaches review completed for these guidelines. They help to provide additional context, recognizing that these applications require customization to the local context.

Other City Plans, Policies & Guidelines

Throughout this guide, references are made to specific policies, guidelines, and recommendations from various City of Hamilton plans and policies. These guidelines are intended to provide a set of tools & guidelines that can be applied in a context-sensitive manner on a case-by-case basis, using professional judgement.

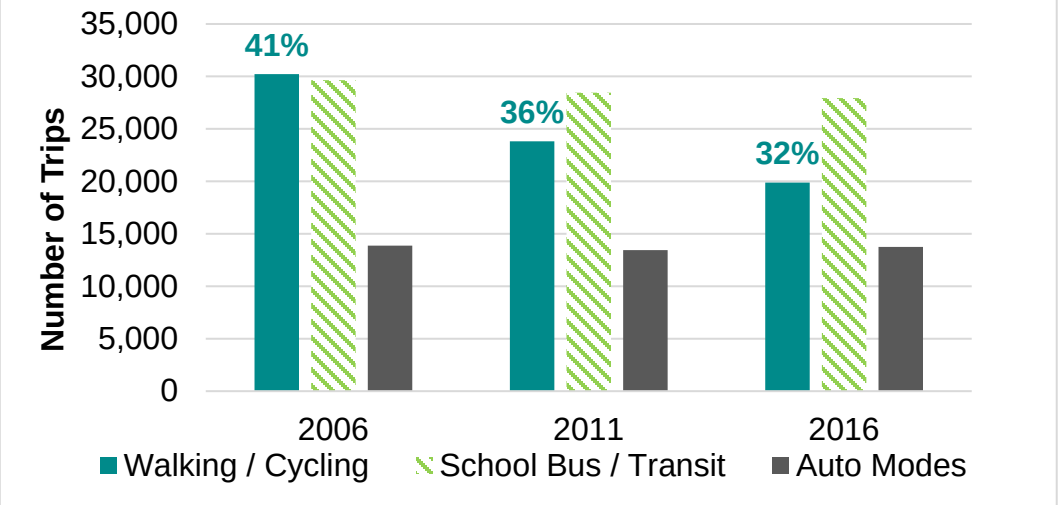
2.0 Setting the Context

2.1 The Case for Active and Sustainable School Travel

There is an urgent need to shift trips to walking, cycling and transit to address critical problems facing our schools and communities. 91% of Canadian children and youth are not getting the recommended levels of daily physical activity, and 26% of Canadian children and youth are considered overweight or obese[1].

Meanwhile, travel to school by active modes (walking and cycling) has steadily declined in Hamilton, despite efforts to encourage active and sustainable travel through a variety of avenues and partners. From 2006 to 2016, the share of students 16 years of age or younger walking or cycling to school has dropped from 41% to 32% while auto modes have increased from 19% to 22% (Exhibit 2-1). Key barriers to active school travel in the City of Hamilton include perceived safety concerns, the convenience of driving, and existing car-centric infrastructure and built form outside of the core.

Exhibit 2-1: City of Hamilton School Travel Modes (16 and under), 2006-2016



Source: Transportation Tomorrow Survey (TTS)

Increasing the popularity of active and sustainable travel modes to school has proven public health, safety, environmental, economic, financial, and community benefits, including the following:

- A person's risk of obesity is reduced by 5% for each kilometre walked per day and increases by 6% for each hour spent in a car per day[2]. By switching from driving to active modes of travel to school, both children and their parents are therefore dually reducing their risk of obesity and accompanying adverse health effects.
- Replacing a driving trip with walking or cycling saves an average of 0.85 kg of CO_2 per kilometre, not including the further reduction in emissions due to decreased congestion on the roads[3].

[1] Transport Canada, "Active Transportation in Canada; a resource and planning guide." 2011. Accessed April 24, 2020 from https://data.fcm.ca/documents/tools/GMF/Transport_Canada/ActiveTranspoGuide_EN.pdf
[2] Transport Canada, "Active Transportation in Canada; a resource and planning guide."
[3] Transport Canada, "Active Transportation in Canada; a resource and planning guide."

- Replacing car trips with active modes can save society $1.70 per kilometre in overall economic benefits such as time savings and health expenses while saving individuals and families $0.43 per kilometre in direct travel expenses[4].
- Almost 60% of cyclists and 46% of walkers reported enjoying their commute, compared to 37% of people commuting by car[5]. Increased active travel to school can therefore improve the quality of life of students, staff, and parents in a very real way.

2.2 Active Transportation & Transportation Demand Management for Schools: A Primer

Active Transportation (AT) refers to the movement of people or goods using primarily human-powered modes such as walking, cycling, scootering, in-line skating, and travel with the use of mobility aids and other power assisted devices moving at comparable speeds.

Transportation Demand Management (TDM) manages the demands placed on transportation infrastructure by influencing travel behaviour through the use of policies, programs, infrastructure improvements, and services. It encompasses a wide range of strategies including shifting travel modes, reducing the number of trips taken, and travelling more efficiently.

Both AT and TDM must be considered in the more specific context of school travel and site design. Children and youth are either too young to be capable of making their own decisions or are instructed or directly supervised by their parents about trips to school. Many parents are afraid to allow children to walk independently due to safety concerns around traffic and fear of abduction or assault[6]. Safe Kids Canada recommends that children under the age of eleven be supervised when dealing with traffic, as children face several challenges such as:

- Narrow fields of vision;
- Slower reaction time;
- Difficulty perceiving speeds and distances; and
- Reduced ability to see vehicles and dangers due to shorter height.

Shifting school travel trends towards cycling and walking therefore requires buy-in from both students and parents. The upside of this is when families decide to make the switch to active transportation, the health and wellness benefits will be realized by the parents along with the students.

Active and sustainable travel trends differ from elementary schools to secondary schools as students gain more independence. In 2016, 38.7% of Hamilton elementary school students (4-13 years old) walked to/from school compared to only 24.9% of secondary school students (14-16 years old), while secondary students were much more likely to take public transit home than elementary school students at 15.1% and 2.7% respectively. Secondary students bike to/from school slightly more than elementary school students (0.91% versus 0.72%). Both secondary and elementary school students are more likely to take active and sustainable modes of travel home from school than to school[7].

In addition to travel by students, it is important to consider that schools and school boards represent a large employment market in the city of Hamilton. Approximately 2,500 employees, including teachers and other team members based directly at school sites, work for the two largest school boards: Hamilton-Wentworth District School Board & the

[4] Transport Canada, “Active Transportation in Canada; a resource and planning guide.”
[5] Transport Canada, “Active Transportation in Canada; a resource and planning guide.”
[6] Victoria Transport Policy Institute, “School Transport Management”. 2018. Accessed May 7, 2020 from https://www.vtpi.org/tdm/tdm36.htm.
[7] Transportation Tomorrow Survey, 2016.

Hamilton-Wentworth Catholic District School Board. Encouraging sustainable employee travel is a key focus of the City's Smart Commute program. The Smart Commute program has identified lessons learned with respect to strategies to shift employee travel to active and sustainable modes including the importance of supportive physical infrastructure.

All of these trends are factors that must be considered when designing a school site to encourage ASST and inform the recommendations presented in this guide.

2.3 Climate Change Mitigation & Adaptation: The Role of ASST

On March 27, 2019 Hamilton City Council passed a motion **"That the City of Hamilton declare a climate emergency that threatens our city, region, province, nation, civilization, humanity and the natural world"**. The motion directed City of Hamilton staff to create a multi-department Corporate Climate Change Task Force to investigate new and existing actions, plans and policies to achieve net zero carbon emissions before 2050.

The Climate Task Force reported back to City Council on the Corporate Goals and Areas of Focus for Climate Mitigation and Adaptation which set out nine (9) main goals with additional areas of focus for every department to further investigate. The one main goal related to active transportation and getting citizens out of their single occupancy vehicles. Endorsed by council is Goal 2: **"To change the modal split and investigate strategies so that more trips are taken by active and sustainable transportation than single use occupancy vehicles."**

Transportation is a major source that needs to be addressed in order to meet Hamilton's long-term Greenhouse Gas (GHG) reduction targets. In Hamilton, the transportation sector represents the third largest source of GHG emissions at about 15% of total emissions. In 2019 the City's Climate Task Force reported the breakdown of transportation emissions. It reported that single occupancy vehicles in the form of light duty cars and light duty trucks (including SUVs) represented approximately 61% of Hamilton's total transportation emissions. Therefore, strategies to reduce SOVs can play a major role in addressing climate change targets.

These guidelines directly align with the Climate Change Corporate Goals by identifying strategies that will encourage active & sustainable transportation for children, parents and teachers when travelling to and from school. By following and implementing these guidelines, decision makers will help to ensure the infrastructure and programming are in place to shift people out of their vehicles and into more sustainable forms of transportation. This will not only reduce Hamilton's GHG emissions, but also help to improve local air quality by reducing harmful tail-pipe emissions and reduce sedentary lifestyle, improving overall population health.

2.4 Towards Active & Sustainable School Travel: Efforts to Date & Lessons Learned

The City has led a number of recent planning and programming initiatives of relevance to these guidelines. Recent efforts are summarized below, along with key takeaways:

- **Urban (2013) and Rural (2012) Hamilton Official Plans (OPs)** are guiding documents for the management of the City's communities over the next 30 years. Both plans contain policies around educational facilities (such as working with school boards to select sites to maximize pedestrian and cycling access), active transportation infrastructure, and transportation demand management.
- **City of Hamilton Transportation Master Plan (TMP, 2018)** is a strategic planning framework that provides direction for all transportation-related studies and decisions. The TMP identifies several actions to increase ASST, including

coordinating School Travel Plans across the city, engaging in TDM opportunities, and improving off-road facilities near school sites.

- **Pedestrian Mobility Plan (2012)** is a strategic framework that addresses how the City of Hamilton plans to achieve legislative and aspirational commitments to healthy, sustainable and complete communities. The Plan embeds a "routine accommodation" process within planning and design processes such that pedestrian amenities can be upgraded in tandem with surrounding roads.
- **Hamilton School Siting & School Site Design for a Healthy Community Forum (2012)** gathers together stakeholders from across the Greater Toronto and Hamilton Area (GTHA) in government, non-profit, and private sectors to discuss how school siting and design could better support ASST. Outcomes of this forum emphasized the importance of relationships, partnerships, and strong communication between stakeholders.
- **Transportation Demand Management Land Development Guidelines (2015)** provides requirements for developers to complete Transportation Demand Management memos or reports to demonstrate how their development (including school sites) encourages and supports the City's Transportation Demand Management efforts. It provides additional detail and clarifies implementation approaches for some of the requirements and interventions related to school sites.
- **Healthy Cities: School & Municipal Design Workshop: Supporting Active & Sustainable School Travel (2016)** brought together 105 participants from several regions and disciplines to learn about school travel trends, discuss innovations and barriers in school and municipal design, and establish collaborative, cross-sector next steps in implementation. These ideas informed ASST priorities for the City of Hamilton moving forward.
- **Hamilton-Wentworth District School Board (HWDSB) Elementary and Secondary School Design Guidelines** were developed to provide a framework and specific guidelines for the design and renovation of elementary and secondary schools, including pedestrian and bicycle circulation, lighting, and signage.

Each document/initiative has a different role to play to inform the recommendations of these guidelines. For example, the overarching policies in the Official Plan articulate the City's vision, but do not provide a roadmap to achieving these visions. More action and outcome-oriented documents like the Pedestrian Mobility Plan and TDM Land Development Guidelines provide relevant takeaways for these guidelines, but focus more on the physical interventions only within a neighbourhood, or school site, respectively. To this end, a summary of the existing guidance in each of the reference documents for the various topics included in these guidelines is presented in **Exhibit 2-2**. These guidelines are intended to summarize, compile and supplement recommendations for schools in a holistic manner considering the school site, surrounding area and programmatic interventions.

Exhibit 2-2: Overview of Existing Efforts by Topic

Reference Document	Supportive Schools: Siting & Site Design	Supportive Neighbourhoods: Access Around Schools	Supportive Environments: Programming & Policies
Urban (2013) and Rural (2012) Hamilton Official Plans	◑	◑	○
City of Hamilton Transportation Master Plan (2018)	○	●	●
Pedestrian Mobility Plan (2014)	○	●	◑
TDM Land Development Guidelines (2015)	●	◑	◑
Healthy Cities: School & Municipal Design Workshop: Supporting Active & Sustainable School Travel (2016)	●	◑	●
School Siting & School Site Design for a Healthy Community Forum (2012)	◑	◑	◑
HWDSB School Design Guidelines	●	○	○

Key: Low emphasis ○ ◑ ● High Emphasis

3.0 Supportive Schools: Orientation and Design

3.1 Introduction

The location where future schools are developed relative to residential land uses, public facilities, and public transportation, along with the layout of the site and amenities provided, can have significant impact on travel mode choice for students, parents and staff.

This chapter focuses on the selection and design of the school site, including the following areas:

- Optimizing school orientation and layout for active and sustainable transportation, including considerations such as placement within the community and building orientation.
- Improving site access for both pedestrians and cyclists, including pathways, end-of-trip facilities, and other amenities.
- Improving transit access to the school, including considerations such as transit stop access, waiting area amenities, and the provision of transit information.
- Providing motor vehicle access in such a way as to ensure the safety and comfort of pedestrians and cyclists.

3.2 School Orientation & Layout

Background & Supportive Policies

Optimizing the siting and layout of a new school for pedestrian and cycling access can have significant impacts on active travel to/from school. This direction is enforced through numerous policy & planning documents, as summarized in Exhibit 3-1.

Exhibit 3-1: School Orientation and Layout – Supportive Policies & Recommendations

Supportive Policies

The Rural and Urban Hamilton **Official Plans (OPs)** commit to working in cooperation with school boards to ensure that schools are located in close proximity to the population they are intended to serve to maximize pedestrian, cycling, and public transit access.

The OPs also lay out several specific guidelines related to school siting and layout, including street access and parking lot orientation.

The City of Hamilton **Site Plan Guidelines** emphasize the importance of:

- Enhancing the pedestrian-scale streetscape through thoughtful building layout; and
- Minimizing distances between buildings and the sidewalk.

In the **Active & Sustainable School Travel Charter**, the City and school boards also commit to:

- Locating schools on sites that meet community needs and anticipated future growth; and
- Implementing a collaborative approach to school siting that contributes to healthy communities.

School Siting

Centrality

Many studies show that the distance between home and school is the strongest predictor of whether students walk or bike to/from school. Both the Official Plans and the school boards' ASST charters highlight the importance of locating schools in close proximity to the populations they are intended to serve, maximizing opportunities for active and sustainable school travel. Ideally, a school is located at the centre of a neighbourhood such that as many students as possible are located within a 15-minute walk (800 m) from the 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 City of Hamilton, which creates secondary plans and approves subdivision plans (often in collaboration with developers), to ensure that centrally located sites near other community amenities and away from barriers to walking and cycling be reserved for schools.

Exhibit 3-2 illustrates the effectiveness of central school siting; the school is surrounded on all sides by residential neighbourhoods with convenient walking and cycling access to the school as indicated in orange arrows.

Exhibit 3-2: Centrally-Located School Placement in Neighbourhood

Image: Google Streetview

Barriers

Physical barriers, such as freeways, long blocks with few intersections, creeks and ravines, and railways can force long detours and discourage the use of cycling and walking modes. If the school cannot be located to avoid these barriers from transecting the service area, then safe and conveniently located crossings must be present along active routes to school.

Major roads with high traffic speeds and volumes are also obstacles for pedestrians and cyclists, especially children. Even in the presence of safe and convenient pedestrian crossings, the perceived risk of allowing young children to cross major roads may act as a barrier to active travel. Elementary schools should therefore not be located along major arterial or multi-lane roads. For existing schools located on arterial roads and undergoing a school travel plan or a renovation, there are design elements and retrofit solutions that can be implemented to partially mitigate the effects of close proximity to an arterial road.

SS-1: Ensure that centrally located sites near other community amenities and away from barriers to walking and cycling be reserved for schools.

Community Facilities

Many students do not travel directly between home and school; before or after class, students may need to access public facilities such as athletic or community centres, libraries, and parks for extra-curricular recreation programs. Locating schools near these community destinations can facilitate and encourage the use of active travel modes. In addition, some communities such as parks and natural areas can be located on directly adjacent or shared sites with schools, which can reduce the need to travel before or after class. However, when schools and public facilities are clustered, their sites need to be carefully laid out to ensure that these large buildings do not impede active travel.

Access

School sites fronting on streets on three or four sides can provide access from all directions. There are several benefits to multiple street frontages:

- Improved permeability (ability to access the school entrances by walking and cycling from multiple directions) and accessibility of the school site;
- Allowing access for different users and types of trips from different sides, e.g., loading/unloading/waste collection can access the site from a different side than primary pedestrian and cycling access; and
- Building in redundancy to allow for future site evolution and temporary uses; e.g., conversion of parking lot or loop driveways to site gardens or recreational uses (refer to Section 3.5).

The school shown in Exhibit 3-3 fronts on streets on all four sides, maximizing access from all directions. If street frontage cannot be provided, then off-road connections to the site from all sides can be used to mitigate the reduced site permeability in these cases (see Section 3.3).

SS-2: Wherever feasible, secondary schools should front on streets from three or four sides. All schools should front on streets from at least two sides.

Exhibit 3-3: Street Access from Four Sides

Image: Google Streetview

Layout

Building Orientation & Size

Buildings oriented to the street, with building mass maximized along the street edge of the most major street upon which it is fronting, provide several important advantages, including:

- Reducing walking and cycling distances to building entrances from sidewalks, transit stops, and other buildings;
- Reducing the need for on-site fire access routes - per the requirements of the Ontario Building Code, building entrances set back from the curb by 3-15 m do not need separate fire access routes, which can reduce the number of driveways on the school site and minimise the potential for conflicts between vehicles and pedestrians or cyclists; and

- Street-oriented buildings and entrances provide an overall community benefit by helping to animate the public right-of-way including sidewalks and streets while defining a clear public edge.

Therefore, locating the school building parallel to, and oriented along, the primary street is highly desirable. If a school site is located at the intersection of two similar streets, the building should be sited at the corner of the site adjacent both street frontages. In this case, the main building entrance should be located at the corner nearest that intersection, if feasible. This improves the ease of accessing the site for pedestrians from both directions and minimizes the need for pathways through the site.

Exhibit 3-4 shows a school layout with maximum building mass along the street edge. The main entrance is less than 10 m from the nearest major street, eliminating the need for a separate fire access route.

SS-3: Site layout should maximize the building mass along the edge of the most major street, with the main entrance located 3-15 m from the curb where feasible.

Exhibit 3-4: Building Mass Maximized Along Street Edge

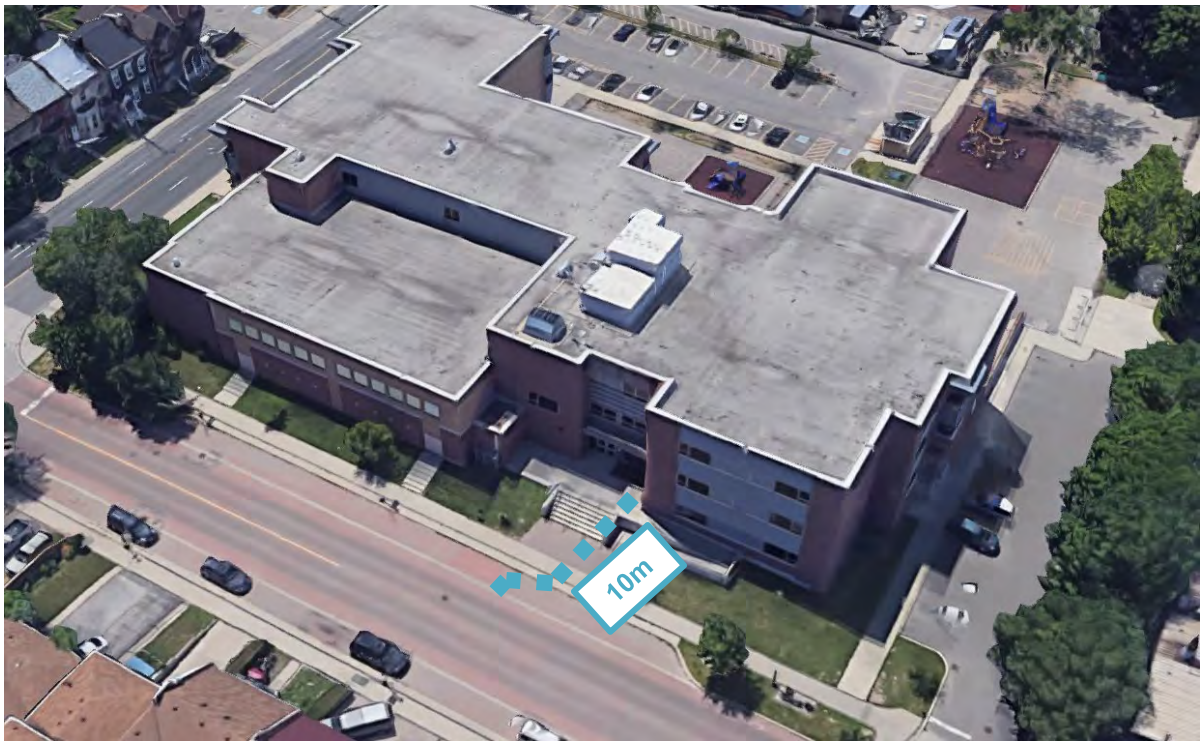


Image: Google

More compact building forms for schools have similar benefits including providing additional space for improved pedestrian and cycling access as well as enhanced outdoor and recreational amenities. Compact building forms refer to any strategies that reduce the building's overall footprint within the school site, such as building up (multiple storeys) rather than out and efficient use of indoor space. As a secondary benefit, this can also help reduce heating/cooling costs and reduce the building's climate change impact.

3.3 Active Transportation Access

Background & Supportive Policies

Providing high-quality pedestrian and bicycle access to school sites is critical to empower students and staff to walk and wheel to school. This direction is enforced through numerous policy & planning documents, as summarized in Exhibit 3-5.

Exhibit 3-5: Active Transportation Access – Supportive Policies & Recommendations

Supportive Policies

The Urban and Rural Hamilton **Official Plans** state that community facilities (including schools) shall:

- Be easily accessible by cycling and walking; and
- Integrate both pedestrian and cycling amenities into the site.

The **Transportation Master Plan** includes several overarching goals that encourage active transportation access, including to:

- Improve options for active transportation; and
- Reduce reliance on single-occupancy vehicles.

A central goal of the **Pedestrian Mobility Plan** is to improve pedestrian movement by focusing on access to community institutions such as schools.

The City of Hamilton **TDM Guidelines** emphasize the importance of measures on school sites to:

- Encourage walking by providing safe and attractive environments for all pedestrians; and
- Encourage more students and staff who cycle to school by increasing safety and opportunities.

In the **Active & Sustainable School Travel Charter**, the City and school boards also commit to:

- Encouraging the installation and all-season maintenance of cycling and walking facilities leading to and around school sites; and
- Ensuring site design guidelines and current best practices are implemented to maximize opportunities for walking and cycling.

Pedestrian Access

Pedestrian Entrances & Pathways

At each school site, an accessible main entrance is required in accordance with the Ontario Building Code / Accessibility for Ontarians with Disabilities Act. Main entrances must provide a stable, slip-resistant surface type, typically asphalt or concrete. While regulations typically require a minimum 1.5m wide path or sidewalk, wider pathways can better serve a school

entrance where it is anticipated many students or students with a variety of mobility needs may enter/exit the site simultaneously. For example:

- Pathways 1.8m wide allow two people in wheelchairs to pass each other
- Pathways 2.0-2.5m wide allow three people to walk side by side; and
- Pathway 3.0m or wider allow two-way pedestrian and cyclists to pass safely.

The HWDSB Elementary & Secondary School Design Guidelines suggest 2.0m pathways as a default.

SS-4: Provide wide (1.5m minimum, 1.8m preferred minimum, 2.0 – 3.0m+ preferred) accessible pedestrian pathways to school entrances using a stable, slip-resistant material.

In addition to paths leading to the school entrance, paths within the school site are needed to link community pathway connections and sidewalks to school entrances. It is generally recommended that pedestrian access be provided from all sides of a school site. This is particularly important in suburban communities where alternate routes to access the school may be significantly longer. A sample school site with access from the frontage road as well as from adjacent residential neighbourhoods is shown in Exhibit 3-6. By contrast, Exhibit 3-7 shows the circuitous routing that would be necessary to reach the school site if these pathways were not in place, illustrating the importance of these connections.

SS-5: Provide pathways and trails to the school site from all sides of the site to improve permeability and provide convenient and direct connections.

Exhibit 3-6: School Site with On-site Pathway Connections from Multiple Sides

Image: Google

Exhibit 3-7: Alternative Routes for Walking without On-site Pathways

Image: Google

Retrofit Considerations

At existing schools, pedestrian accessibility can be improved by adding paths through the school site to provide shortcuts to sidewalks and off-street paths surrounding the school. The school board may need to work with the City of Hamilton or other property holders to create legal pedestrian easements from the school building to any nearby paths and negotiate responsibilities for on-going maintenance. An example of a pathway added to a school site at Ancaster Meadow Elementary School site is shown in Exhibit 3-8 . In this location, this was particularly important to improve site access as the school fronts on only one street.

Exhibit 3-8: Example of a Pathway Added to a School Site

Image: Google

Widening existing pathways and/or providing rounded or chamfered edges for existing pathways can help to address wear and tear on adjacent sod or planting and improve the accessibility, functionality and aesthetics of the school site (refer to Exhibit 3-9).

Exhibit 3-9: Standard Pathway Without Chamfered Edges

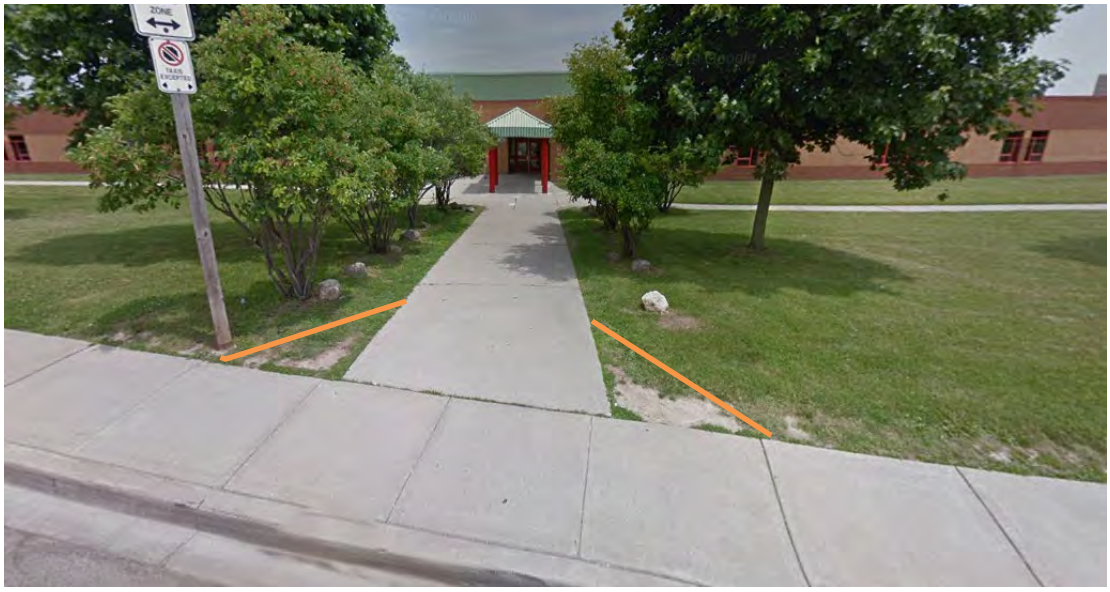


Image: Google Streetview

Exhibit 3-10: Widened & Chamfered Pathways to Improve Site Accessibility, Maintenance & Aesthetics

Image: Google Streetview

SS-6: Pathways at existing schools can be widened and new pathways added to improve accessibility, function, maintenance and aesthetics.

Pedestrian Amenities

Street furniture such as benches, waste and recycling receptacles, planters and shade trees are typically provided within the public right-of-way along the school frontage (for publicly maintained amenities), while school sites may provide their own amenities on-site (refer to Exhibit 3-11).

Exhibit 3-11: Example of Pedestrian Amenities on a School Site

Image: Google Streetview

In all cases, it is important that pedestrian amenities be implemented and installed without restricting or impacting the movement of pedestrians through the school site. Just as pedestrian zones in municipal rights-of-way provide a pedestrian clearway and distinct furnishing zone for amenities, site design should incorporate this principle and ensure that the travel path or clearway is free of obstructions distinct from amenity space (refer to Exhibit 3-12). Refer to the City's *Co-Ordinated Street Furniture Guidelines* (2015) for additional guidance.

SS-7: Amenities including tress, benches, shade structures and waste and recycling receptacles should be considered to enhance the pedestrian experience. Amenities & site furnishings should be located outside of the pedestrian clearway.

Exhibit 3-12: Clearway & Furnishing Zone Delineation

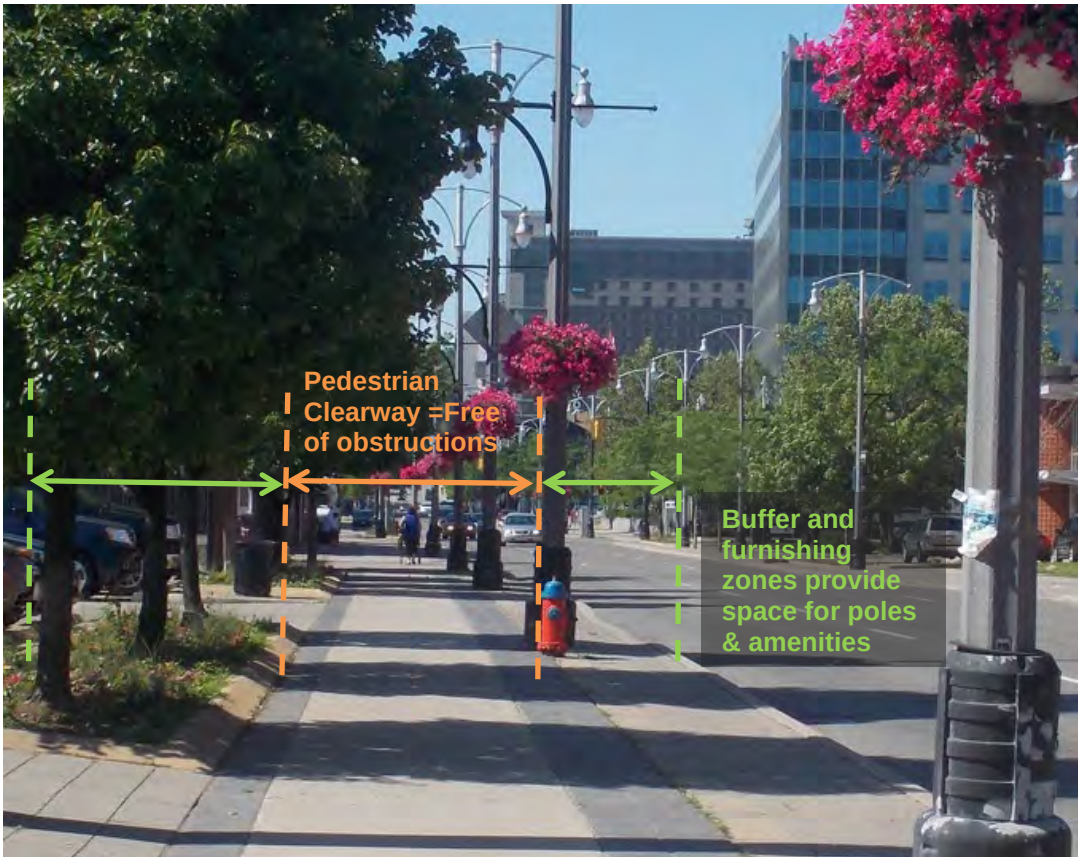


Image: IBI Group

Lighting

Lighting is important to provide year-round access to pathways and school entrances including during winter months when students may be arriving or leaving in low-light conditions, and to improve the safety and security of the site. Consideration should also be given to achieving vertical illuminance targets as well. The application of vertical illuminance can provide an improved sense of safety and security on the school site. Dark skies compliant fixtures are recommended to reduce unwanted, upward lighting.

SS-8: Provide human-scale integrated lighting focused on pathways and entrances which meets the City of Hamilton Site Design Guidelines lighting requirements.

Site Fencing

Fencing may be provided on an as-needed basis (particularly as needed for safety and security of school yards), but gates or openings should be provided at pedestrian pathways connections to ensure that fencing does not become a barrier to pedestrian entry. Where school sites share a boundary with a municipal park, the HWDSB Elementary School Design Guideline notes that a fence between the properties may not be necessary.

SS-9: If fencing of the school site is required, provide gates or openings at pedestrian connections.

Conflicts with Other Modes

Pedestrians safety and the perception of safety are influenced by the number of actual or perceived conflicts. On a school site, there are many potential conflicts between pedestrians and other modes, including motorized vehicles, transit, school buses and even cyclists. Strategies that minimize the number of conflict areas are important, including the following strategies:

- Foremost, limit the number of driveways, loop driveways or parking lots on site that must be crossed by pedestrians by consolidating or eliminating the need for multiple driveways.
- Minimize the width of driveways and control turning speeds through by providing the smallest feasible corner radii where they cannot be avoided to reduce the crossing distance and exposure.
- Emphasize pedestrian priority by carrying sidewalks continuously through driveways, providing raised crosswalks, high-visibility crosswalk markings and/or signage for drivers emphasizing pedestrian right-of-way.

Additional discussion on these strategies and interventions can be found in Section 3.5.

SS-10: Reduce opportunities for pedestrian conflicts with other modes of transportation by limiting and carefully designing driveways & crossings and separating from bicycle storage.

Universal Design & Site Accessibility

Compliance with the Accessibility Standard for the Design of Public Spaces (a regulation under the Accessibility for Ontarians with Disabilities Act) is required for all public sector organizations, including both the City of Hamilton and school boards, with regards to newly constructed and renovated public spaces such as school sites. These requirements cover a variety of design elements, including the following of particular relevance to school sites:

- Exterior Paths of Travel – Covers sidewalk/path routes, curb ramps, depressed curbs, stairs and other changes in grade
- Outdoor Play Spaces
- Accessible Off-Street Parking

Paths of travel within a site that provide access to the following are regulated under Ontario's Building Code,

- Barrier-free entrances
- Passenger loading zones
- Parking lots with barrier-free parking

The Ontario Building Code for barrier-free entrances are similar in intent to AODA and require minimum clearway widths and operating space for access.

SS-11: Ensure the site meets accessibility requirements under AODA and the Ontario Building Code for all required site elements.

Bicycle, Scooter and Skateboard Access

Bicycle & Scooter Parking & End of Trip Facilities

The provision of a sufficient supply of convenient and secure bicycle parking on the school site is an important consideration in site design. As noted in the City of Hamilton Transportation Demand Management (TDM) Guide for Development, bicycle parking needs to be included in the site in a manner that is convenient, secure and readily accessible, including the following considerations:

- **Convenient:** Locate within 15 m of building entrances (if multiple entrances, distribute to all main entrances). Where possible, install under an overhang from the building to add cover for the bike parking area.
- **Secure:** Bicycle parking should be located in a flat area and securely installed (via bolts, spikes, security nuts, anchors or similar), ideally visible from within the interior of the school building. Where possible, the parking should be in the view of the school's main office.
- **Practical:** High-quality bike parking incorporates the following criteria[8]
    - Supports bike upright without putting stress on wheels
    - Accommodates a variety of bicycles and attachments such as trailers, child seats, baskets, etc.
    - Allows locking of frame and at least one wheel with a U-lock
    - Provides security and longevity features appropriate for the intended location
    - How to use the rack is intuitive

Hamilton's Smart Commute Program has a bicycle rack seed program for schools. This program provides funding assistance to elementary schools that purchase bicycle racks. To be eligible, schools must have completed a School Travel Plan. See more in Section 5.0.

Preferred types of bike parking racks and bike parking to avoid, are described in Exhibit 3-13.

[8] APBP, Essentials of Bike Parking (Association of Pedestrian and Bicycle Professionals, 2015), 5.

Exhibit 3-13: Summary of Bike Parking Racks

Preferred Bike Parking Racks		
Inverted U 	Post & Ring 	Wheelwell-Secure 
Bike Parking Racks Type to Avoid		
Wave 	Wheelwell 	Spiral 
Comb / Grid 	Bollard 	Coathanger 
Swing Arm Secure 		

Source: Adapted from APBP's Essentials of Bike Parking (2015), Images: APBP's Essentials of Bike Parking (2015)

Scooter parking can also be useful, primarily for elementary schools. An example of an integrated bike and scooter parking area at Cootes Paradise Elementary School is shown in Exhibit 3-14.

Exhibit 3-14: Integrated Bike & Scooter Parking Area

Image: Google Streetview

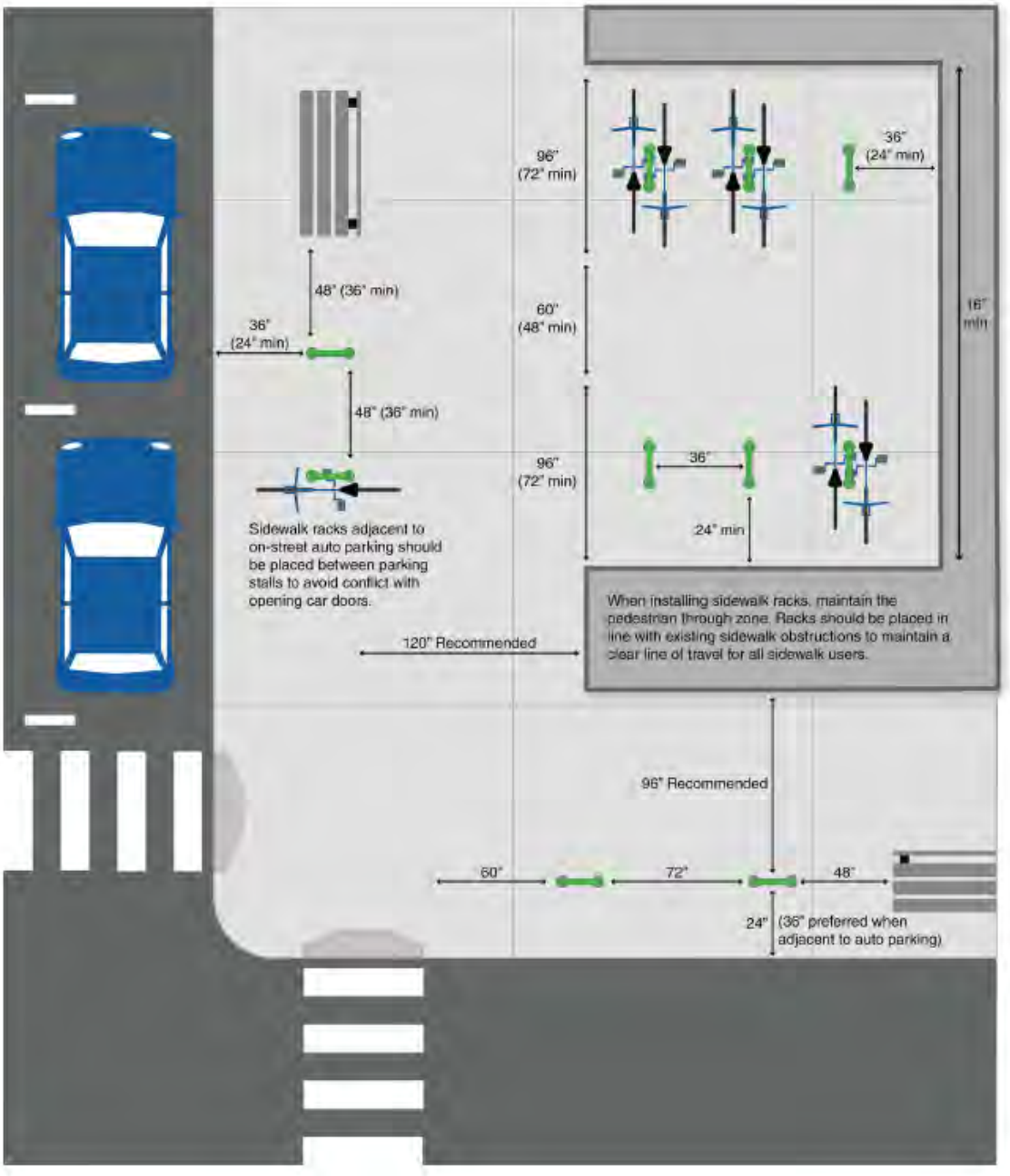
Staff members may prefer more secure bicycle parking, which can be provided indoors or in an outdoor shelter with limited access such as a bicycle enclosure.

Suggested quantities of bike parking for school sites are included in City of Hamilton Transportation Demand Management (TDM) Guide for Development, including:

- Long-term or more secure bike parking: 1 space/3-10 employees and 1 space/20 students (min 2 spaces) or 0.06-0.1 spaces/100m^2 of interior floor area; and
- Short-term bike parking racks: 0.5 - 3 spaces/10 students (min 2 spaces) or 3 (+) 0.06-0.1 spaces/100m^2 of interior floor area.

Bike racks need to be installed in such a way as to provide intuitive and easy circulation for locking bicycles, Recommended clearances and spacing between different types of racks are shown in Exhibit 3-15.

Exhibit 3-15: Recommended Clearance and Spacing around Short-Term Bicycle Parking Racks



Source: Adapted from APBP's Essentials of Bike Parking (2015)

In addition to bike racks, end-of-trip facilities such as showers and lockers can increase the attractiveness of cycling for staff.

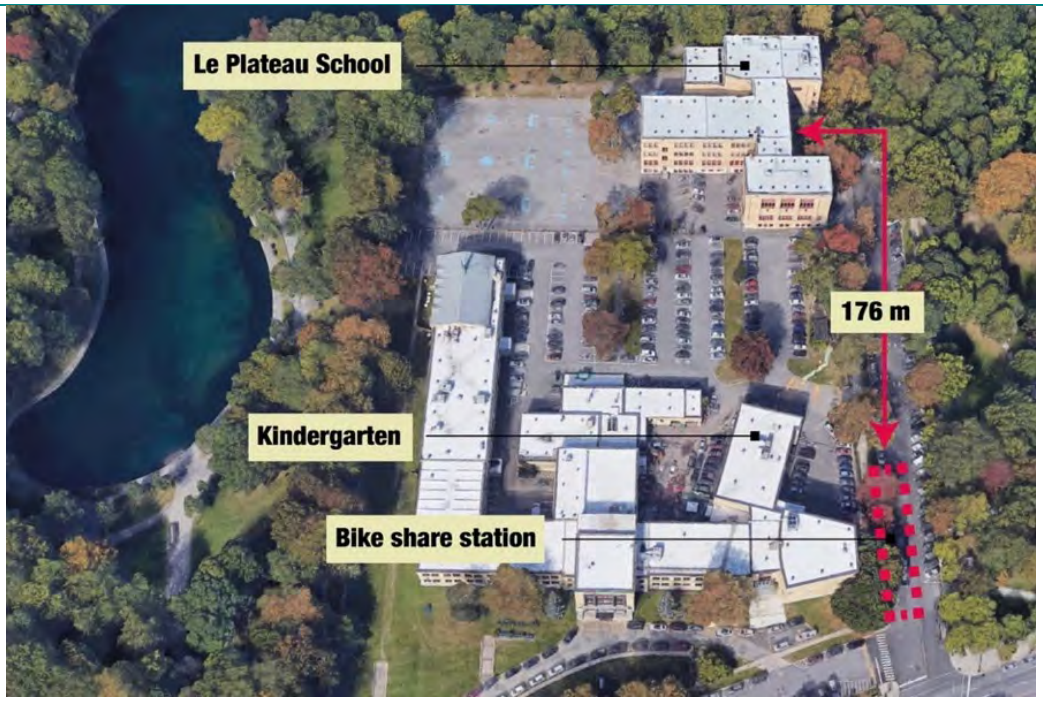
SS-12: Provide a convenient, secure and practical selection of on-site bicycle and scooter parking to accommodate existing and latent demand from staff and students. Bicycle parking quantities should be consistent with Hamilton's TDM Guidelines.

Bike Share

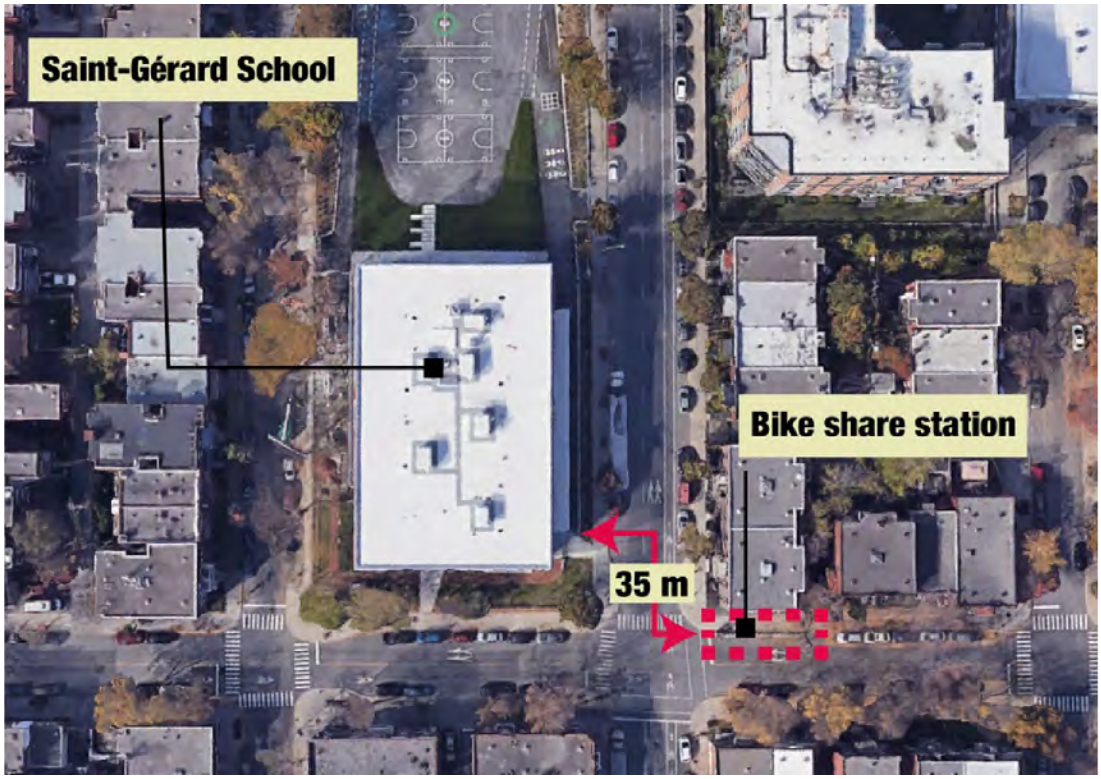
In communities with an established bike share system, like the City of Hamilton, it is important to consider the role of bike share in encouraging active transportation and investigate opportunities to integrate bike sharing with school travel. As the minimum age for Hamilton Bike Share is 16 years of age and older, the possibility to tie bike share trips to schools is most relevant for high school students and school employees. Since bike share stations are municipally maintained, it can be problematic to provide bike share stations on private sites, and the public right-of-way is preferred.

For these reasons, it is generally preferred that bike share stations not be provided directly on the school site, but instead be provided in close proximity to school sites. In some exceptional cases where it is not feasible to provide stations within the public right-of-way, it may be possible to place them directly on the school site in consultation with the City's Transportation Development review team. For additional information on bike share stations in the surrounding neighbourhood including more information on placement of bike share stations within the public right-of-way, refer to Section 4.2.

SS-13: For riders 16 years and older, provide bike share stations in close proximity to schools within the public right-of-way.

Montréal Case Study: Bike Share Integration	
Context & Implementation:	In Montréal, bike share integration directly within a school site is mainly associated with post high school institutions (i.e., universities or CEGEPS). Nevertheless, bike share stations can be useful for parents and school staff and provide good opportunities to promote intermodality. In urban areas of Montréal (central districts) for example, bike share stations are often implemented near schools. They are almost always located within the public right-of-way. This allow parents to drop their kids at school and grab a bicycle to go to work or to the closest subway station. In order to promote active transportation, BIXI (Montréal's bike share) offers a corporate discount of 15% on annual passes that is available to the 16,350 employees of the Commission scolaire de Montréal (CSDM), the biggest school board in Montréal. BIXI is also working with the CSDM to investigate the possibilities of implementing BIXI stations on school sites. However, bike sharing programs like BIXI are not suited for elementary-aged school children or young high school students. For example, many North American cities restrict the use of bikes to a minimum age due to the height and weight of the bike. In Montréal, BIXI is limited to those 14 years old of age or older.
	

Montréal Case Study: Bike Share Integration



Lessons Learned:

- In urban areas, **bike share stations are generally located within the public right-of-way**, not on school sites, where they would reduce the space for other uses, such as bike racks for employees and students. This is especially important at elementary schools since children are not allowed to use the bike sharing system.
- **Bike share stations on school sites** could facilitate maintenance and enable year-long system operation, but would take space that could serve other uses.
- If a bike share station is located within the public right-of-way along a school frontage, it should be **located away from the school pick-up/drop-off zone** in order to minimize conflicts between cars and cyclists.

3.4 Transit Access

Background & Supportive Policies

Providing high-quality transit access to school sites is critical to empower students and staff to consider public transit as a viable mode of travel to school. This direction is enforced through numerous policy & planning documents, as summarized in Exhibit 3-16.

Exhibit 3-16: Transit Access – Supportive Policies & Recommendations

Supportive Policies

The Urban and Rural Hamilton **Official Plans** state that community facilities (including schools) shall:

- Be easily accessible by public transit where provided; and
- Have transit stops or stations integrated into or adjacent to the site.

The **Transportation Master Plan** includes several overarching goals that encourage transit access, including to:

- Improve options for transit; and
- Promote accessibility.

The **Pedestrian Mobility Plan** emphasizes design solutions that make public transit an effective alternative mode of travel.

The City of Hamilton **TDM Guidelines** emphasize the importance of measures on school sites to:

- Prioritize connections and access to transit; and
- Encourage transit as a desirable mode choice.

In the **Active & Sustainable School Travel Charter**, the City and school boards also commit to:

- Work with public transit where applicable to provide timely and reliable service for students and staff; and
- Ensure site design guidelines and current best practices are implemented to maximize opportunities for transit use.

Transit Integration

Transit Stop Access

Connections from school entrances to nearby transit stops are important considerations in school site design, as the convenience and safety of these connections can impact the attractiveness of transit as a mode of travel to/from school. Key factors in optimizing these connections include:

- **Proximity**: Minimize the distance between the school and the transit network by locating building entrances as close as possible to nearby transit stops/stations;
- **Convenience:** Provide direct active transportation routes from building entrances to on-site or nearby transit stops;

- **Safety & Accessibility:** Ensure that pathways from the school to transit stops are well-lit and barrier-free; and
- **Flexibility:** Account for planned or possible transit infrastructure improvements in school site design, such as queue jumps lanes or enhanced bus stops at key intersections near the school.

Exhibit 3-17 demonstrates these principles. In the left example, the school site has been designed to minimize the distance between the transit stop and the nearest accessible entrance to 40 m; in the right example, however, the building is aligned away from the transit corridor such that the nearest transit stop is almost 200 m from an accessible entrance. The fence surrounding the school site in the right example also limits students from taking more direct routes from other building entrances and may result in students feeling as though they are “backtracking” to access the transit stop.

SS-14: Provide convenient connections from building entrances to transit stops using well-lit, direct, and barrier-free walkways.

Exhibit 3-17: Direct (left) and Indirect (right) Connection to Transit Stop

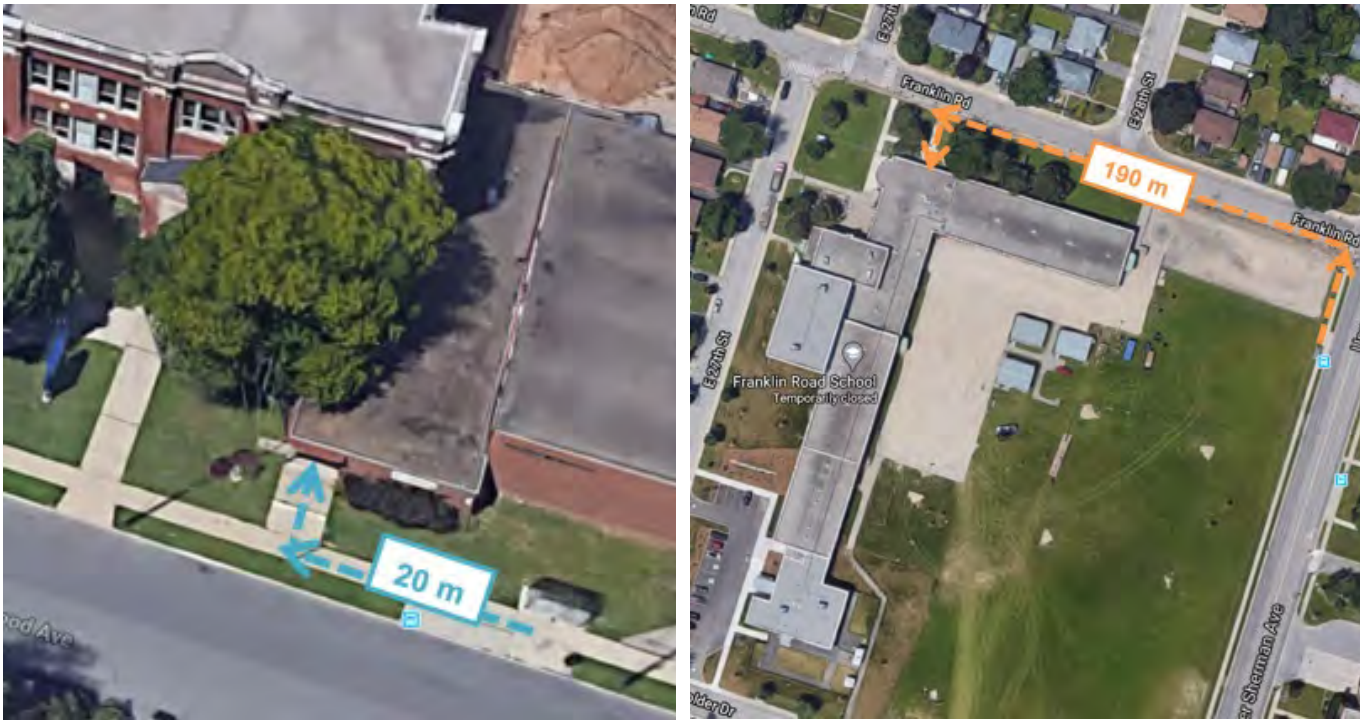


Image: Google Streetview

Waiting Areas and Amenities

Provision of comfortable waiting areas and adequate amenities at transit stops is a key component of encouraging transit use to and from school. Amenities that should be provided near transit stops where possible (in collaboration with HSR), as illustrated in Exhibit 3-18, include:

- Bicycle parking;
- Weather protection such as awnings or overhangs;
- Seating; and

- Trash receptacles.

SS-15: In consultation with HSR, provide comfortable and weather-protected waiting areas at all transit stops serving school sites.

Exhibit 3-18: Examples of Amenities at a Transit Stop

Image: Google Streetview

Transit Information

Information about nearby transit routes and schedules should be easily accessible to all staff and students in order to encourage transit use. Displays or kiosks can be incorporated into the design of building entrances to provide schedules or real-time transit information.

SS-16: Display transit route and schedule information at main entrances to the school.

3.5 Automobile Access

Background & Supportive Policies

There are noted benefits to discouraging and limiting vehicular access to school sites, including parking, school bus and parent pick-up and drop-off areas. Vehicular pick-up and drop-offs compromise the safety of the students by creating conflict points between pedestrians and vehicles in even the best of designs. This, in turn, creates a deterrent for students, parents and

staff to use sustainable modes of travel. On-site vehicular pick-ups and drop-offs also create the potential for concentrations of air pollution, especially for the most vulnerable students; and in general, contribute to poor air quality, high levels of particulate matter and increased green house gas emissions.

For that reason, much of the following discussion focuses on strategies to avoid these activities on the school site itself or to mitigate these effects where other options are not feasible. This approach is enforced through numerous policy & planning documents, as summarized in Exhibit 3-19.

Exhibit 3-19: Automobile Access – Supportive Policies & Recommendations

Supportive Policies

The Urban and Rural Hamilton **Official Plans** encourage:

- Pedestrian access to be prioritized over vehicles, with special consideration given to potential conflicts and pedestrian safety; and
- Designs such as shared parking and below-grade parking that reduce the space required by parking lots at the surface level.

One of the overarching goals of the **Transportation Master Plan** is to reduce reliance on single-occupancy vehicles.

The City of Hamilton **TDM Guidelines** emphasize the importance of measures on school sites to

- Reduce oversupply of parking and private vehicle trips; and
- Provide incentives for students, staff, and visitors who carpool.

In the **Active & Sustainable School Travel Charter**, the City and school boards also commit to

- Reducing speed limits near school sites; and
- Installing traffic calming devices where needed near schools.

School Bus Access

Design

Bus loading areas should be designed on street through the use of lay-bys, where possible, allowing the school to directly front onto the sidewalk rather than a loop driveway or similar vehicular facility. This approach reduces conflict areas, better integrates the school into the community and the pedestrian realm, allows fire routes to be on-street and prioritizes active school travel. For most urban and suburban school sites within Hamilton, this approach can be used to keep school bus loading out of the school site itself.

Where bus lay-bys are provided, they should be located downstream of the building entrance, providing drivers passing the school entrance an unobstructed view of pedestrians and cyclists who may be crossing to and from the school site at any school crosswalks or traffic control devices. Exhibit 3-20 shows an example of an on-street lay-by being used for school bus drop-off, while an overhead illustration is shown in Exhibit 3-21.

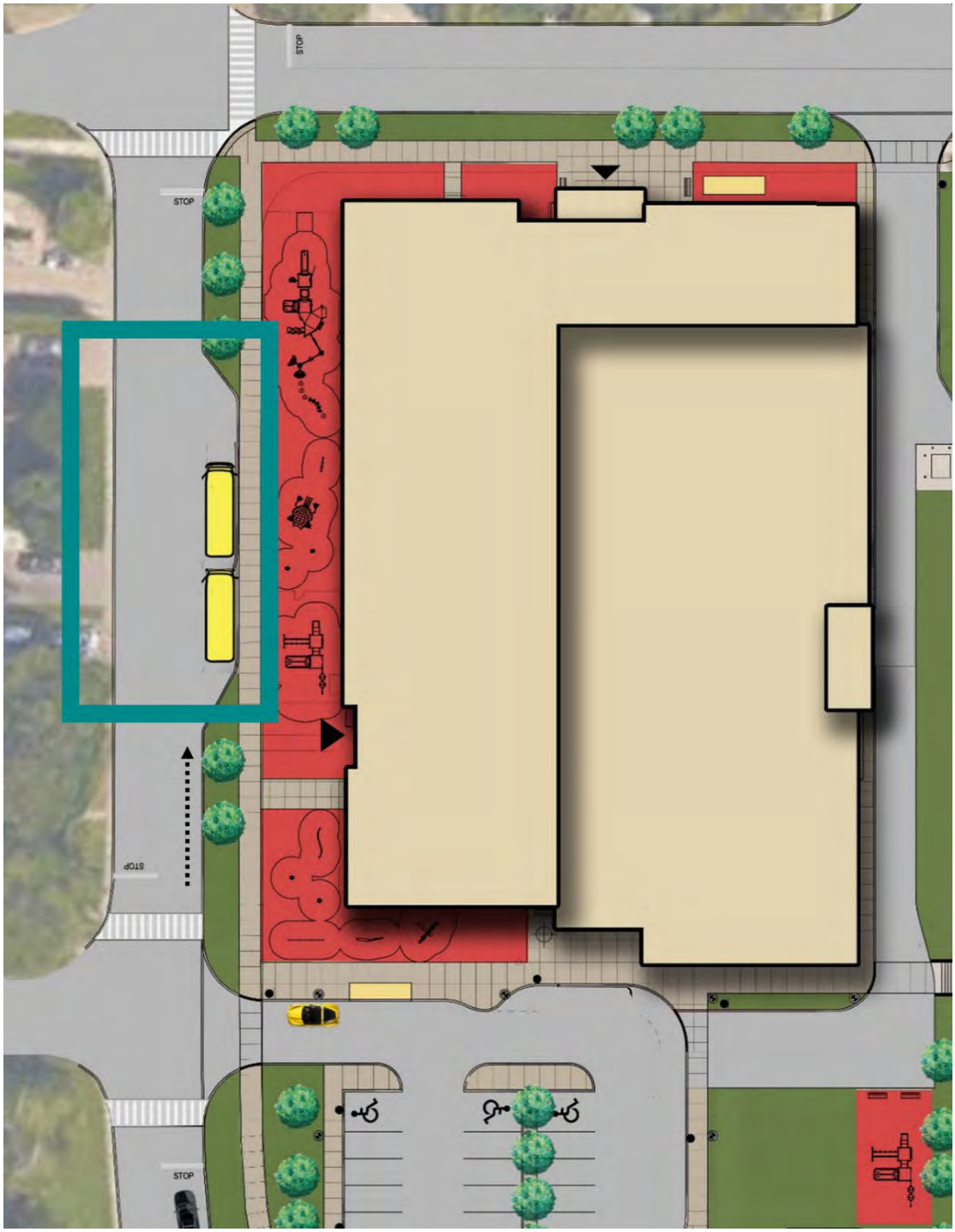
In cases where there is already on-street cycling infrastructure, the preferred approach is to provide a bus loading platform in the bike lane to remove potential conflicts between transit vehicles and cyclists. Where that is not feasible, the bike lane should pull away from the curb to provide space for bus loading as shown in Exhibit 3-20.

SS-17: Within urban and suburban areas, the use of on-street lay-bys for school bus operations is preferred. Lay-bys should by located downstream of the building entrance wherever possible.

Exhibit 3-20: On-street Bus Lay-by Example Downstream of Entrance

Image: Google Streetview

Exhibit 3-21: School Bus Lay-by located Downstream of School Crossing and Entrance



Where on-street lay-bys for school buses are not possible, an exclusive school bus loop can be considered as a less desirable option.

If a school bus loop is to be included on the school site, the configuration is recommended to include:

- Single-file, right wheel to the curb with width narrowed as much as practicable to reduce operating speeds and pavement width;
- 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; and
- Does not straddle a pedestrian crossing.

Bus loops shared with parent pick-up / drop-off are not recommended as they can create double-threat crossing scenarios and impact bussing operations.

SS-18: Where accommodated on rural school sites, exclusive school bus loops should operate single-file, one-way, in a counter-clockwise direction to provide improved operations and safety with width minimized to reduce footprint and impermeable surfaces.

Size and Capacity of Loading Areas

For school bus lay-bys or loops, the bus loading area should be sized to meet the anticipated number of school buses and no more. The number of buses required depends on several factors:

- Type of school and land-use context: students attending rural schools may be more likely to be bussed due to longer distances to schools and less walking and cycling accommodations, whereas a smaller percentage of students are likely to be bused in urban and suburban contexts.
- Eligibility criteria: school boards with stricter catchment areas for school bus eligibility typically require fewer buses. The bussing catchment area in Hamilton is 1.2-1.6 km and 3.2 km for elementary and secondary schools, respectively.
- School bus routing and scheduling: Bus routes that have been optimized to pick up more students per bus result in fewer buses needed overall; similarly, staggering bus arrival times can reduce the number of buses simultaneously dwelling in one area.

SS-19: Design school bus lay-bys and loops to accommodate the anticipated number of buses and no more to minimize their size.

Student Drop-off & Pick-up

Drop-off/Pick-Up Facilities

As these guidelines emphasize encouraging active and sustainable transportation, parent pick-up and drop-off via private vehicle on an on-going basis should be avoided when possible. However, recognizing that the transition to active and sustainable transportation will occur over time, various strategies for accommodating these pick-ups and drop-offs while mitigating their negative impact on the safety of the school site are presented in this section.

It is important that these vehicular pick-ups/drop-offs occur at designated locations so that they do not interfere with school buses or endanger students or staff walking or cycling to school. The

appropriate type, size, and location of facilities will vary by context. The approach to accommodating parent drop-off and pick-up facilities for schools can vary and may include:

- Off-site pick-up and drop-off zones on adjacent or nearby streets, with vehicle exclusion zones around the school (preferred); or
- On-street laybys (alternative – less preferred).

Vehicle Exclusion Zones / School Streets

Building on a common approach from across Europe, vehicle exclusion zones can be used around the school site to create a safer and friendlier environment for cyclists and pedestrians. In these cases, pick-up/drop-off zones are located off-site, typically on the closest perpendicular street. In some cases, cars are prohibited from parking or stopping along the roads fronting the school during school hours. In others, those streets are partially or completely closed. When selecting appropriate alternate off-site locations for pick-ups and drop-offs to occur it is important to consider:

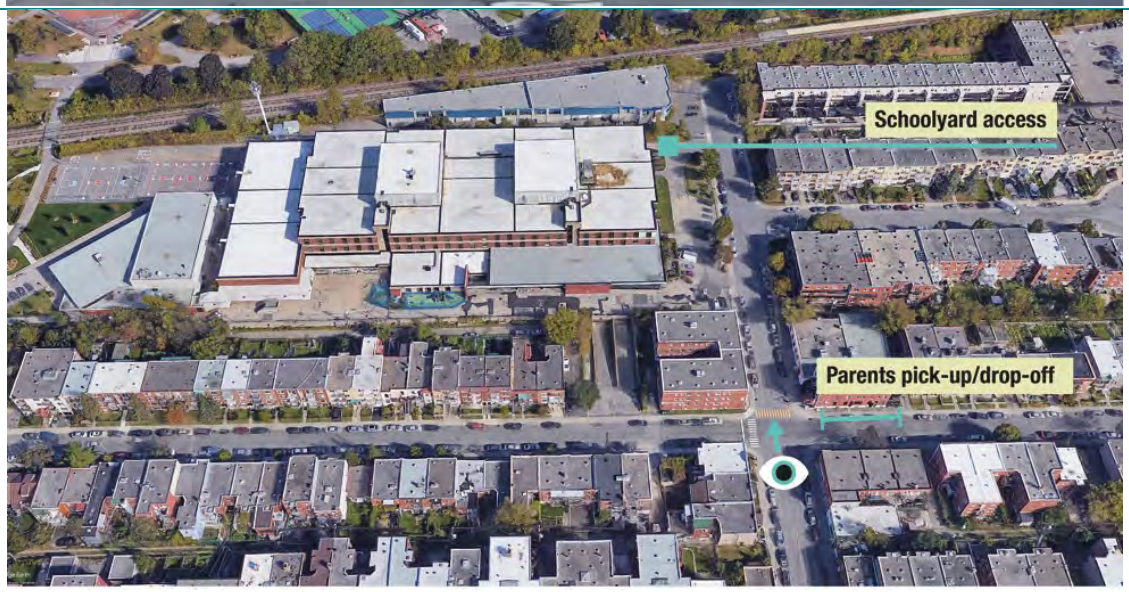
- **Parking & Stopping By-Laws:** Sites selection should permit stopping and/or parking to ensure that pick-ups and drop-offs can occur within existing by-laws; and
- **Proximity & Access to School Sties:** Off-site pick-up and drop-offs should occur at a location providing a continuous, accessible and connecting pedestrian facility to ensure safe access to the school site. Wherever possible, locations that reduce the need for students to cross the street should be selected to reduce conflicts with vehicles and the need for midblock crossings.

Locations such as near-by on-street parking lay-bys or near parks with trails leading to the school site may be good candidates.

SS-20: Consider implementing a vehicle exclusion zone around the school with off-site pick-ups and drop-offs to reduce conflicts between drivers, cyclists, and pedestrians.

Refer to the following case study (Exhibit 3-22) for detailed examples of how off-site pick-up and drop-off zones can be used in conjunction with vehicle exclusion zones to improve safety near a school. Additional information related to the development of a program of temporary vehicle exclusion zones and a complementary walk-a-block program is included in Section 5.2.

Exhibit 3-22: Case Study – Vehicle Exclusion Zones

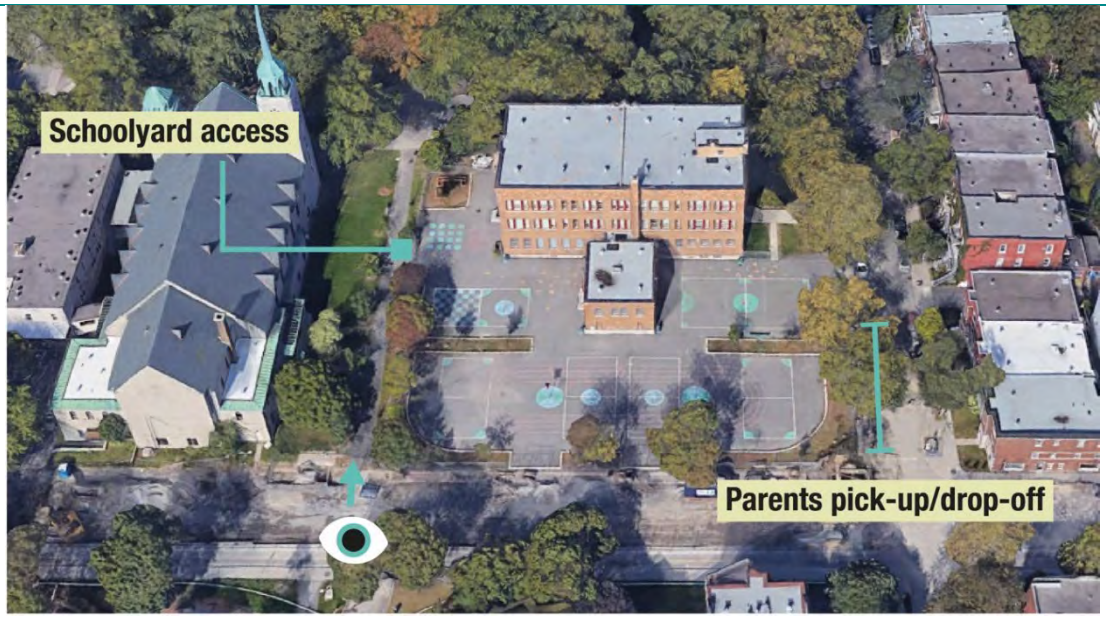
<table>
<tr><th colspan="2">Montréal Case Study: Vehicle Exclusion Zones and Street Closures</th></tr>
<tr><td>Overview:</td><td>Many boroughs of Montréal, rather than simply installing no parking or no stopping zones within the vicinity of school sites, completely or partially close a street segment immediately adjacent the school. The following examples show a variety of full or partial street closures.</td></tr>
<tr><td>Context 1: Through Traffic Restriction</td><td>For Barthélemy-Vimont Elementary School, the Borough of Villeray-Saint-Michel-Parc-Extension partially closed a street segment with the installation of no entry restrictions prohibiting vehicles (school buses excepted) from using the street segments immediately adjacent to the school. The pick-up and drop-off zone is located on the closest perpendicular street.
 
  </td></tr>
<tr><td>Context 2: Physical Street Closure</td><td>Other boroughs of Montréal physically close the street segment immediately adjacent to the school with the installation of a barrier or delineators.

One example is St. Gabriel Elementary School in the Borough Le Sud-Ouest. The Borough closed the street segment dividing two parts of the schoolyard. A barrier closes the one-way street segment during arrival and dismissal hours. No pickup/ drop-off zone around the school has been planned.</td></tr>
</table>

Montréal Case Study: Vehicle Exclusion Zones and Street Closures

Context 3: Complete Street Conversion

The borough Le Plateau Mont-Royal physically closed a street segment. The street historically linked a park to a major street of the borough. In order to secure both the park and the school access, the City officials converted the street into a pedestrian only path. Moreover, this measure was implemented to encourage active transportation.



Montréal Case Study: Vehicle Exclusion Zones and Street Closures

Context 4: Traffic Diverters

In Montréal, Le Plateau Mont-Royal borough implemented diverters on Gilford Street in order to make local streets safer for pedestrian and cyclists by limiting access to street segments around schools.

Paul-Bruchési Elementary School is located on Saint-Joseph Boulevard, a major artery of Montréal. With the help of McGill University, the Borough converted street segments to one ways and implemented two diverters on Gilford Street at the intersections of Chambord Street and Lanaudière Street that force vehicles to turn at the intersections but are designed to selectively allow pedestrians and cyclists to continue straight through. The reduced traffic volumes around the school have helped to create a safer environment.

Montréal Case Study: Vehicle Exclusion Zones and Street Closures	
Lessons Learned:	▶ A street segment physically closed by a barrier is considered to be the best alternative ▶ Even if a street segment is partially closed by a sign as in the case of Barthélemy-Vimont Elementary School, some parents or other vehicles may still try to get through ▶ Complete street closure is possible where there are no property accesses on that segment of the street. ▶ Closing a street segment is mainly relevant where there is a schoolyard or other important school access.

Lay-bys

For urban school sites within Hamilton where vehicle exclusion zones are not feasible, on-street lay-bys are preferred to facilities directly on the school site in order to minimize the number of driveways on-site and to minimize conflicts with pedestrians.

Where on-street lay-bys are provided, they should be located downstream of the building entrance and outside of transit stop limits, providing drivers passing the school entrance an unobstructed view of pedestrians and cyclists who may be crossing to and from the school site.

SS-21: Where vehicle exclusion zones are not feasible, the use of on-street lay-bys should be considered. Lay-bys should by located downstream of the building entrance.

There are some additional situations where an off-street lay-by could be considered for short-term pick-up and drop-off activities due to the proposed additional uses on a school site. For instance, in schools with a childcare facility (e.g. school-aged and non-school aged), guardians are typically required to walk children in and out during pick-up and drop-off times.

While people arriving at the site can travel by any mode, off-street lay-bys may be considered on a school site when:

- The catchment area of the additional use is large and not conducive to non-automobile modes of travel to/from the site;
- The nearby on-street parking supply is non-existent or limited, and relying on it could have an undue impact on the surrounding community (e.g. potential for illegal stopping on the street); and,
- The typical peak drop-off and/or pick-up times overlap with peak school parking demand (e.g. when parking designated for staff is expected to be at or near full utilization).

If a lay-by may be deemed appropriate based on the above considerations, the following should be contemplated in its design and operation:

- Curb-adjacent location with passenger door connecting to a pedestrian walkway, near the closest entrance of the area it is serving, with no need to cross vehicle travel lanes;
- Communication to users letting each know the purpose of the facility and who it is intended for;
- On-site signage to communicate expectations of the area (e.g. short-term use/15 minute parking, daycare drop-off/pick-up, please don't idle); and,

- Monitors at the parking lot entrance or in the lay-by area to help prevent misuse, especially when the two onsite uses have similar start times, such as in the mornings for childcare facilities, which will result in increased parking demand. This should be prioritized at the start of the school year to build good habits

On-site loop driveways shared with buses or dedicated for student pick-up/drop-off activities are generally not recommended.

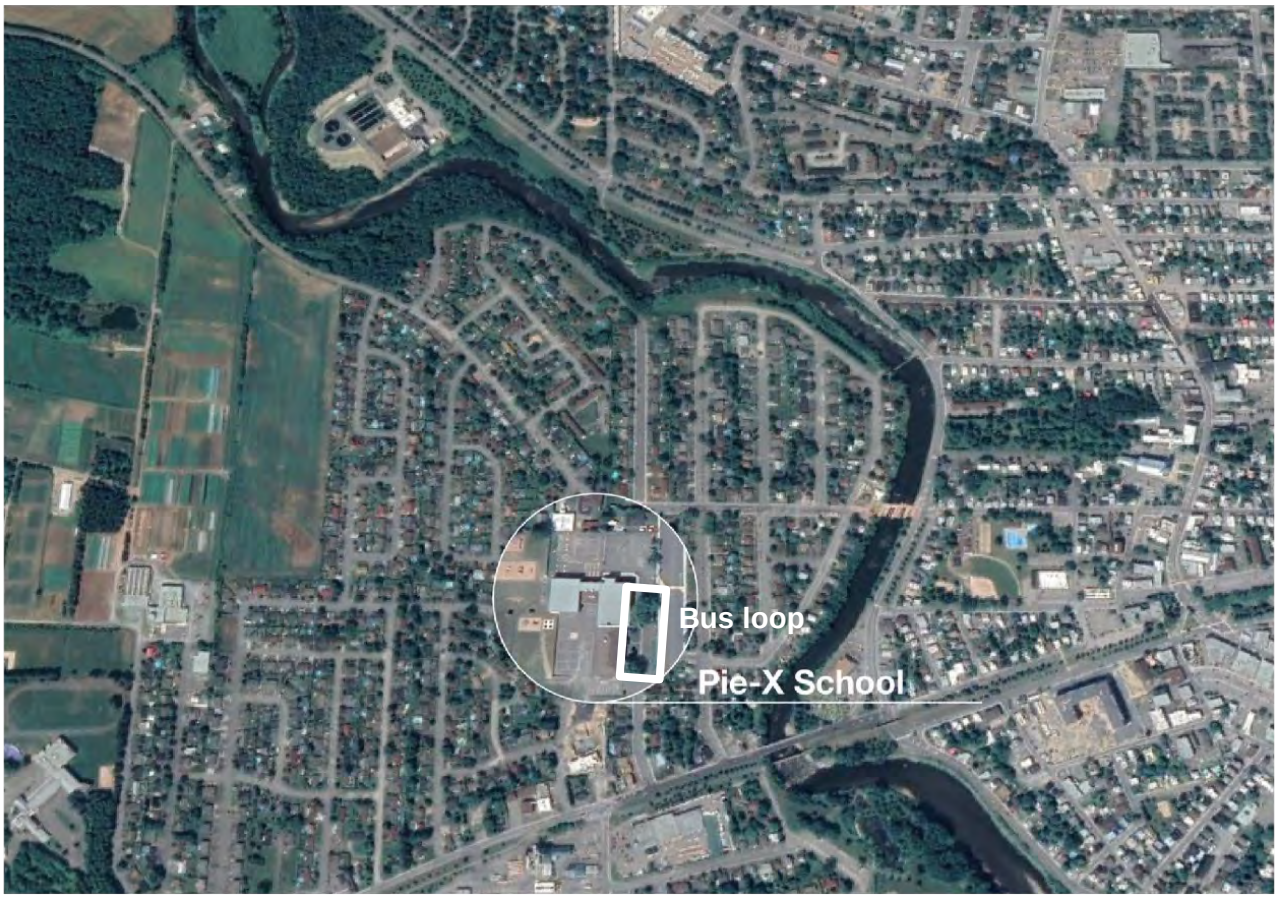
SS–22: Off-street lay-bys should be avoided, and only considered if there are unique functions on the school site. If an off-street lay-by is provided, it should be adjacent to curbs near the entrance and actively monitored to avoid misuse.

Retrofit Considerations

Many older schools are built with school bus loops or student pick-up/drop-off loops that can present challenges when trying to implement active transportation and TDM-focused site improvements. Some school sites have taken steps to convert these vehicular loops for alternative uses. Refer to Exhibit 3-23 for a case study illustrating loop conversion.

Exhibit 3-23: Case Study – Loop Conversion

Québec Case Study: Loop Conversion	
Context:	Pie-X school is located in the City of Victoriaville in Centre du Québec Region. With a population of 47,000, Victoriaville has a small urban core with shops, restaurants, etc., large suburban areas with low-density development and rural outskirts. Pie-X School is located in a suburban environment approximately 2 km from the town's core. The school has a loop that was originally designed for school bus pick-up and drop-off, but was also used informally by parents as a student pick-up and drop-off zone. Most pedestrians and cyclists were crossing through the loop in order to reach the only schoolyard access. This situation created conflicts among users and exposed pedestrians and cyclists to risks. The street fronting the school was also very wide, which favored high speeds and U-turns in front of the school. A mid-block crosswalk facing the loop entrance increased conflicts between cars and pedestrians and cyclists.

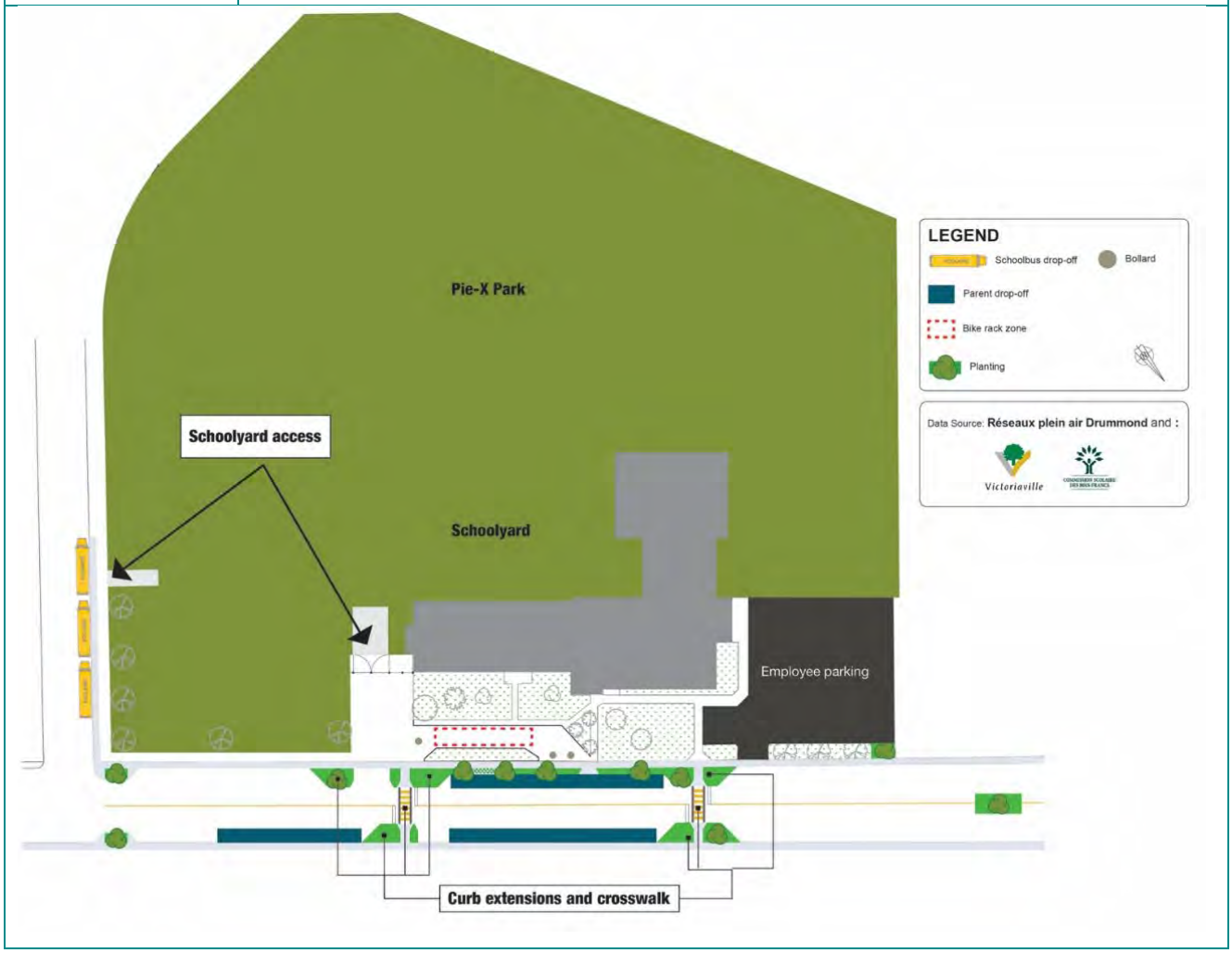


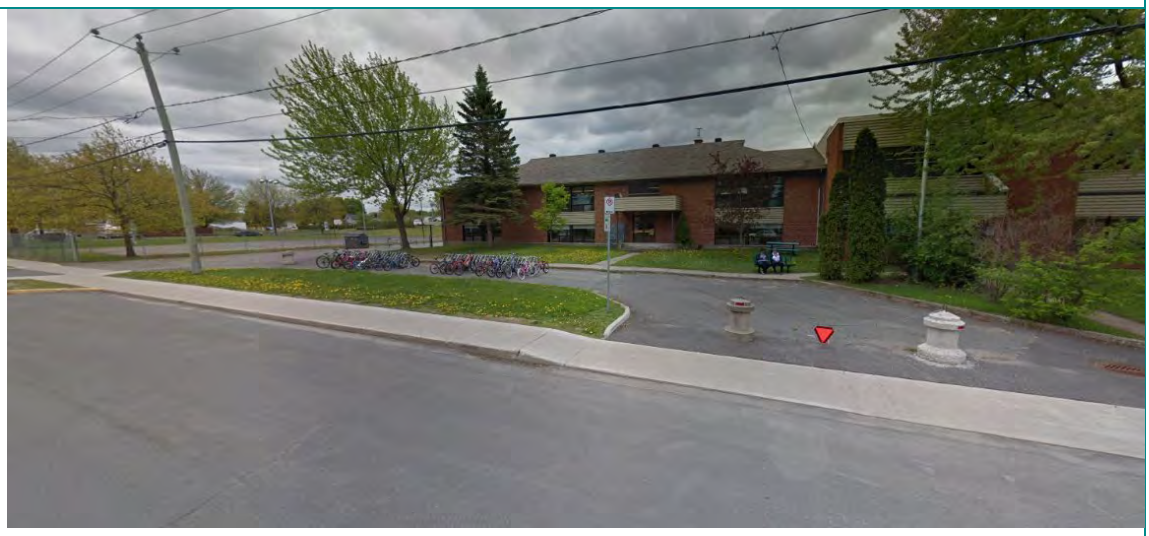
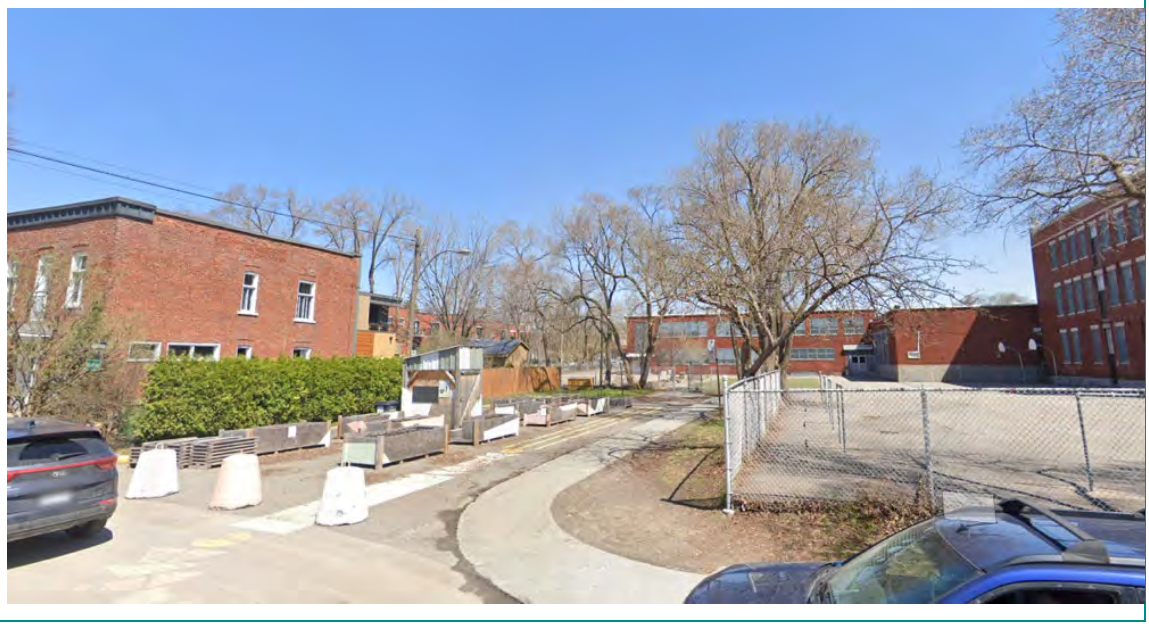
Québec Case Study: Loop Conversion

Implementation:

In 2015, Réseaux plein air Drummond recommended closing the loop of Pie-X and converting it into bike parking, which was agreed by the Bois-Franc School Board and the Town of Victoriaville. The bus pick-up/drop-off zone was relocated to the street adjacent to the schoolyard and the park, and the Town created an access facing the bus pick-up/drop-off zone for students to reach the schoolyard. The student pick-up/drop-off zone remained on the street as the loop was closed by large concrete bollards on both sides.

Curb extensions were also added so cars could no longer make U-turns on the street and to increase the visibility of pedestrians preparing to cross, as well as to reduce the pedestrian crossing distance. The crosswalk facing the loop entrance was removed and two crosswalks added between the curb extensions.



Québec Case Study: Loop Conversion	
	
Lessons Learned:	▶ When closing a loop, physical elements are to be implemented in order to ensure that only pedestrians and cyclists will have access; thus, reducing the conflicts with cars.
	▶ Although the Pie-X loop was converted into bike parking, other alternatives are possible. For example, an extension of the schoolyard to provide green space, picnic tables, benches or facilities such as a school garden (urban agriculture) or bike share station (see image below). 

Parking Layout & Accommodation

Parking Layout

The Official Plan states that, for community facilities such as schools, parking should be provided to the side or rear of the main building and be screened and landscaped, allowing the

main entrance to front directly onto public streets. Parking is usually provided on a side of the school building that does not front on a street.

Other considerations for the location and layout of surface parking lots include:

- Avoid layouts that require students or staff to cross vehicle paths including reducing the number of access points into parking lots;
- Align accesses into parking lots with intersecting streets to avoid creating offset intersections;
- Orient entrances to parking lots directly across from existing or proposed driveways or public streets on the opposite side to create conventional intersections rather than skewed or offset intersections, where applicable;
- Carefully consider the location of access routes for pedestrians through parking lots and provide landscaped islands or other features to define these routes;
- Consider the use of permeable paving and other strategies to reduce stormwater runoff that may make active transportation modes less safe or comfortable;
- Consider the location of snow storage and removal ensuring it does not block pedestrian routes; and
- Separate parking areas from play areas and walkways with fencing, buffer strips, or landscaping. These buffer strips will vary in width but should generally be at least 3 m wide depending on site-specific factors such as grades and adjacent uses.

Exhibit 3-24 shows a school with the parking lot located behind the building mass on a side that does not front on a street, allowing the building to be located as close as possible to the street.

SS-22: Where possible, locate parking along a side of the school that does not front on a street.

Exhibit 3-24: Parking Located to Maximize Street Access to the School

Image: Google Streetview

Parking Supply

In general, no more than the minimum number of required spaces for staff, visitors, and students should be provided. In some cases, this minimum number may be further reduced based on several factors, including the proximity and service levels of nearby transit, or shared uses.

SS-23: Provide no more than minimum number of required spaces per the Municipal By-Law and investigate opportunities for further reductions in collaboration with the City.

Shared parking spaces with nearby developments, or with on-street spaces on adjacent roads, can further reduce the parking lot size required at a school site. The City's Zoning By-Laws allow for shared parking arrangements in some cases, but special consideration is needed to ensure that the adjacent facilities' peak hours complement those of a school (i.e., evenings and weekends).

On-street parking can have a further positive impact for pedestrians, creating a buffer between them and moving vehicles and acting as a traffic calming feature by narrowing the perceived width of the road.

Exhibit 3-25 shows an example of a school sharing a surface parking lot with several other community facilities, including a Mission Services building and a recreation centre. This shared lot reduces the space needed for each amenity, increasing street access and green space near the school overall.

SS-24: Where possible and permitted by zoning regulations, share parking including on-street parking supply with nearby public facilities to minimize the total supply of surface parking near the school site.

Exhibit 3-25: Shared Parking Lot with Nearby Facilities

Image: Google Streetview

In some contexts, particularly where space is limited in highly urbanized parts of Hamilton, paid parking for staff and high school students can be implemented to limit parking demand and encourage alternative modes of travel.

In order to incentivize carpooling and carsharing and reduce parking demand, preferential carpool parking spaces and on-site carshare vehicle(s) for staff and high school students can also be provided.

SS-25: Provide preferential carpool parking spaces and on-site carshare vehicle(s) for staff and high-school sites.

Accessible Parking

Although many of the recommendations in this section emphasize reducing parking, some parking is required near building entrances in accordance with AODA requirements and City by-laws. Best practices suggest parking spaces for those with mobility impairments be located within 30 m of accessible entry-ways (which can be provided at the main or alternative entry points).

Exhibit 3-26 shows an example of a parking layout that accommodates an accessible parking space less than 12 m from an accessible entrance, improving school access for those with mobility impairments.

SS-26: Provide the number of accessible parking spaces as per City of Hamilton by-laws and locate within 30 m of an accessible entryway to the school.

Exhibit 3-26: Accessible Parking Space Adjacent to Entrance

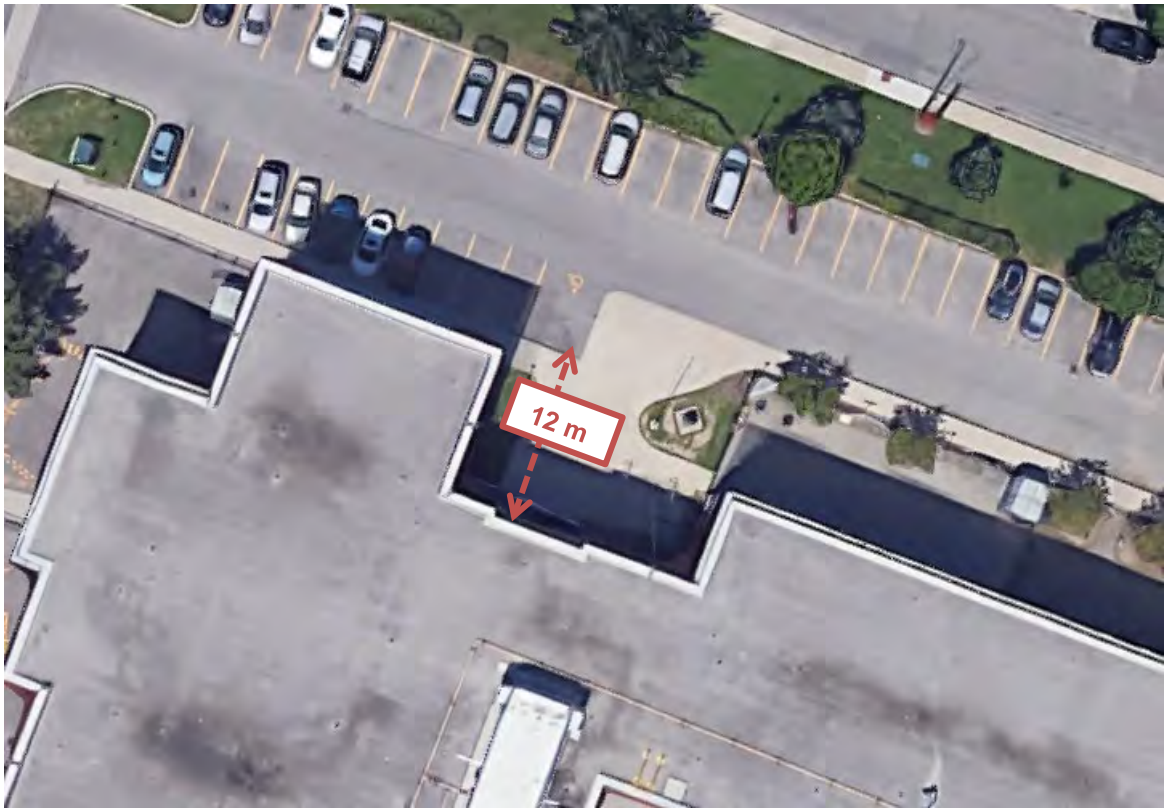


Image: Google Streetview

4.0 Supportive Neighbourhoods: Access around Schools

4.1 Introduction

In addition to the school site, the surrounding streets and neighbourhoods will play an important role in enabling active and sustainable travel by staff and students to school. For this reason, cyclists, pedestrians and transit users must be carefully considered when designing and planning the built environment, particularly around school sites.

This chapter focuses on creating a neighbourhood environment supportive of sustainable travel, with a focus on walking, cycling and taking transit. This chapter covers

- Connecting the school site to a robust and attractive active transportation network, including sidewalks, crossings, cycling facilities, and trails;
- Designing streets near the school site to improve safety and convenience for all road users, including traffic calming measures; and
- Planning the public transit network and integrating transit infrastructure near the school site to support transit trips from the school site and to other community destinations.

The City of Hamilton is currently in the process of creating a Complete-Liveable-Better Streets Design Manual (CLBSDM), an approach to street design that balances the needs of all uses and users. The guidelines for supportive neighbourhoods in this section will complement the future CLBSDM with recommendations tailored specifically for the areas around schools.

4.2 Potential Applications

The guidance within this section of the document applies to the streets and facilities surrounding the school site. These improvements fall outside of the school site itself, and are under the jurisdiction of the City of Hamilton (for public streets). There are several routes envisioned to incorporate this guidance for either new or existing schools.

New Schools

For new schools identified through a secondary planning process, these principles can be incorporated into the planning and design of the adjacent City street network.

Existing Schools

For existing schools, there are two primary ways for these principles to be incorporated:

1) **Routine Accommodation:** Through planned capital road or infrastructure projects, which include varying scope related to public streets, these principles can be incorporated as part of the routine project delivery; or

2) **School Travel Planning Process:** In collaboration with the City of Hamilton, school boards, parents and other stakeholders involved in the school travel planning process, these guidelines can be incorporated through retrofit opportunities.

Depending on the school of the project (i.e., capital project vs. retrofit), different interventions can be efficiently bundled with the corresponding project. More detail on routine accommodation is provided in Section 4.5.

4.3 Active Transportation Network

Background & Supportive Policies

Creating a safe, attractive, and direct network of active transportation routes between school sites, and nearby residential neighbourhoods is critical in empowering students, parents and caregivers, and staff to walk and cycle to school.

This direction is enforced through numerous policy & planning documents, as summarized in Exhibit 4-1**.**

Exhibit 4-1: Active Transportation Network Connectivity – Supportive Policies & Recommendations

Supportive Policies

The Urban and Rural Hamilton **Official Plans** state that community facilities (including schools) shall be easily accessible by cycling and walking.

The OP also emphasizes the importance of complete communities facilitating the use of active transportation modes by residents.

One of the action items of the **Transportation Master Plan** is to evaluate options for providing sidewalks or multi-use trails in rural areas where the road leads to a school.

The **Pedestrian Mobility Plan** emphasizes several concepts related to active transportation networks in neighbourhoods near schools:

- One of the overarching PMP goals is to increase pedestrian movement by focusing on access to community institutions such as schools;
- One of the specific PMP objectives is to enhance coordination of multimodal trips with pedestrian movement to support pedestrian, cycling, and transit facilities;
- The PMP states that to the extent possible, arterial intersections within 400 metres of pedestrian destinations (such as schools) should be the focus of pedestrian improvements; and
- The PMP prioritizes filling sidewalk gaps near schools.

In the **Active and Sustainable School Transportation Charter**, the City and school boards commit to implementing street design that prioritizes the comfort, safety, and convenience of all users.

Where does this guidance apply?

The recommendations within this section of the guidelines refer to the area around the school site. Applying these recommendations requires some context sensitivity. Generally speaking, recommendations related to the active transportation network around the school site should consider the eligibility criteria for distance-based school busing, generally:

- 1.2-1.6 km for elementary schools; and
- 3.2 km for secondary schools.

Trips under these distances are well within typical walking and cycling trip distances and could reasonably provide opportunities for walking and cycling. These eligibility distances are not determined as the ‘crow flies’, but rather through considering and applying a path-based approach to these distances, which should be reviewed when evaluating whether a particular recommendation should apply in the area around the school site.

The context around the school site will also govern the application of these recommendations. For example, recommendations for higher lighting levels should be considered for roadways within this area that may reasonably be anticipated to be used for walking/cycling to/from the school site. The presence of any of these features may reduce the effectiveness of applying the recommendations along a particular corridor:

- Cul-de sacs or built form that may limit the use of a particular corridor for school travel;
- The presence of major barriers or hazards that will restrict movement (i.e. highways, major topographical features etc.; and
- The presence of parallel routes of higher-quality that provide a viable alternative.

Pedestrian Facilities

Sidewalks

Gaps in sidewalks along one or both sides of the street along a student's route to and from school increases their exposure to vehicular traffic. The Pedestrian Mobility Plan recommends installing sidewalks on both sides of the street in new subdivisions, as well as prioritizing areas near schools when filling existing sidewalk gaps.

SN-1: Sidewalks should be provided on both sides of the street along the streets surrounding the school site. Addressing sidewalk gaps within the vicinity of the school should be prioritized.

In residential environments, consider connecting cul-de-sacs near the school site to another street using pedestrian sidewalks, pathways, or greenways to make a more direct connection and reduce out-of-the way travel to/from the school. Exhibit 4-2 illustrates an example of a cul-de-sac near a school that is connected by a pedestrian path to the nearest street and crosswalk more directly serving the school.

Exhibit 4-2: Pedestrian Path from Cul-de-sac to Street Serving the School

Image: Google Streetview

In order to be considered part of the transportation network these pathway connections must be maintained year-round and have sufficient lighting pathway. Access & maintenance agreements can be an important strategy to expand the walking catchment area to a school site.

Sidewalks and pathways should be sufficiently wide to accommodate pedestrians of all ages and abilities needing to access the school site. The Accessibility for Ontarians with Disabilities Act (AODA) requires that walkways have a minimum clear width of 1.5 m, which can accommodate two people walking side-by-side. However, most contemporary guidelines (including the Pedestrian Mobility Plan) recommend a minimum width of 1.8 m clear in order to accommodate the safe passage of wheelchairs, walkers, and adults carrying children.

In addition, the City of Hamilton employs an Urban Braille system on many of its streets in the downtown core, which includes a 1.5 clear zone plus two shorelines of 0.23 m for a total width of 1.96 m, among other features.

SN-2: Sidewalks near school sites should have a desired clear width of 1.8 m, with widths of 2.0 m+ preferred. In urban and downtown settings, the City's Urban Braille system should be applied to sidewalks.

Pedestrian Amenities

Beyond providing high-quality sidewalk infrastructure for pedestrians, it is also important to consider the amenities along the sidewalk that make the use of active transportation modes safe, comfortable, and pleasant. The shape, size, and orientation of buildings and the provision of street furniture and vegetation can play a role in attracting potential walkers.

Sidewalk Lighting

In particular, street lighting improves not only pedestrian comfort but visibility and personal security. Although most school travel occurs during daylight hours, school travel in the middle of winter may occur during hours of darkness (particularly for students involved in before- or after-school activities). The Pedestrian Mobility Plan therefore recommends using enhanced lighting along corridors near schools, including several key considerations:

- Lighting should be evenly distributed to avoid alternating bright and shadowed areas;
- Lighting should focus on the sidewalk and shine down rather than out and up; and
- In downtown areas, specialty pedestrian-level lighting may be considered to improve pedestrian safety, security, and comfort.

It is recommended that lighting levels for all streets immediately adjacent to the school site that provide access to the school sites (and all designated school routes) be bumped up to reflect a "high" pedestrian activity level when determining illumination requirements in urban settings. Proposed illumination levels for different roadway classes with a "high" pedestrian activity level are summarized in Exhibit 4-3.

Exhibit 4-3: Recommended Lighting Levels for Sidewalks/Corridors near School Sites

STREET CLASSIFCATION	PEDESTRIAN ACTIVITY LEVEL	AVERAGE LUMINANCE L_{AVG} (CD/M^2)	AVERAGE UNIFORMITY RATIO L_{AVG}/L_{MIN}	MAXIMUM UNIFORMITY RATIO L_{AVG}/L_{MIN}
Major	**High**	1.2	3.0	5.0
Collector		0.8	3.0	5.0
Local		0.6	6.0	10.0

Adapted from RP8-18 (Table 11-1).

Streetlighting design should be carefully considered to avoid introducing additional glare on local or residential streets.

SN-3: Provide enhanced lighting along corridors near schools. Consider an assumed "high" pedestrian activity level for school routes and streets around school sites when calculating required illuminance levels.

Boulevard Separation

Increasing the physical separation between the pedestrian area and the roadway is another method of improving both the pedestrian level of comfort, and perceived and actual level of safety by reducing pedestrians' exposure to noise and air pollution generated by vehicular traffic. The buffer between vehicle travel lanes and sidewalks (i.e. boulevard) can be used for one or several of the following:

- Cycling facilities
- Sod/grassed areas
- Car parking
- Street furniture
- Planters or street trees
- Snow storage

The Pedestrian Mobility Plan suggests separating the curb from the sidewalk by 2-2.5 m to allow for these uses. Shade trees can also be planted or green infrastructure installed to improve pedestrian comfort in the warmer months, with a 3 m buffer zone preferred in those cases. Exhibit 4-4 illustrates an example of a buffer zone between the curb and the sidewalk used for pedestrian-scale lighting and shade trees.

Exhibit 4-4: Boulevard Separating Sidewalk from the Street

Image: Google Streetview

Intersections & Crossings

Intersections and crosswalks create the greatest opportunity for conflicts between vehicles, cyclists and pedestrians, so their design near school sites should be carefully considered to minimize risks for students travelling to and from school.

The Pedestrian Mobility Plan recommends providing protected crossings for pedestrians every 100 m in areas with high pedestrian volumes and every 180 m in areas with relatively low pedestrian volumes. As pedestrians (and in particular, child and youth

pedestrians) are typically reluctant to backtrack, these crossing should provide a direct path of travel.

Formalized (protected) crossing types may include:

- Fully signalized intersection with crosswalks, including enhanced signal phasing treatments to prioritize crossing school children and youth, where appropriate;
- Signalized midblock pedestrian crossing (MPS);
- Signalized intersection pedestrian crossing (IPS);
- Pedestrian crossover (PXO), with preference for PXO types A-C;
- All-way stop with crosswalks; or
- Designated school crossing monitored by school crossing guard.

All crossing applications should be subject to corresponding warrant review. It is noted that when evaluating warrants for locations near school sites, it is important that children under the age of 12 and accompanying parents or caregivers are doubly weighted in identifying the volume of pedestrians. This is in keeping with Ontario Traffic Manual (OTM) Book 15 Pedestrian Crossing Treatments which suggests considering two times the volume of "assisted pedestrians".

As noted in OTM Book 15, the "use of painted crosswalk markings only are not recommended at uncontrolled crossings as they create a false sense of security on the part of pedestrians, particularly children, who may enter the crossing expecting that approaching drivers will see them and stop. The only exception is a school crossing (see Section 3.2.7) since it acts as a controlled crossing when the adult school crossing guard is present." (p. 117).

SN-4: Provide formal protected pedestrian crossings at least every 100 m in urban areas and every 180 m in suburban areas near school sites.

Crosswalks must be at least 2.5 m wide and can either be marked with two parallel lines or ladder (high visibility) crosswalks. The Pedestrian Mobility Plan recommends installing high visibility (ladder) crosswalk markings In locations with high use by child pedestrians (typically 15 or more child and/or elderly pedestrians per peak hour) as the contrast created by these markings enhances the visibility of the crosswalk and thereby increases motorists' awareness of potential conflicts. Therefore, ladder crosswalk markings are recommended as the default crosswalk type for any intersections within 1.6 km of elementary schools and 3.2 km of high schools.

SN-5: Install high-visibility ladder crosswalk markings at all school crossings and other crossings in the vicinity of the school.

Exhibit 4-5 illustrates an example of ladder crosswalk markings at all intersections in the vicinity of the school.

Exhibit 4-5: High-Visibility Ladder Crosswalks Surrounding School Site

Image: Google Streetview

Intersection and Pedestrian Crossing Lighting

Enhanced pedestrian lighting at pedestrian crossings near schools is recommended in order to enhance safety for students travelling to/from school during the hours of darkness. The Pedestrian Mobility Plan recommends locating light poles on the approach side of the sidewalk to enhance visibility of pedestrians by oncoming vehicles. Light should be evenly distributed at crosswalks to avoid alternating bright/shadow areas, and reflective material such as yellow paint on the sidewalk can be used to help pedestrians avoid obstacles such as curbs.

From a qualitative perspective, it is recommended that lighting levels for all intersections in the immediate vicinity of the school site (and along all designated school routes) and pedestrian crossings be bumped up to reflect a “high” pedestrian activity level in urban settings when

identifying illumination requirements. Proposed illumination levels for different street classifications with a "high" pedestrian activity level are summarized in Exhibit 4-6.

Exhibit 4-6: Recommended Lighting Levels for Intersections and Pedestrian Crossings near School Sites

STREET CLASSIFCATION	PEDESTRIAN ACTIVITY LEVEL	AVERAGE LUMINANCE L_{AVG} (CD/M^2)	AVERAGE UNIFORMITY RATIO L_{AVG}/L_{MIN}	MAXIMUM UNIFORMITY RATIO L_{AVG}/L_{MIN}
Major	**High**	1.2	3.0	5.0
Collector		.8	3.0	5.0
Local		.6	6.0	10.0

Adapted from RP8-18 (Table 11-1)

SN-6: Provide lighting at all pedestrian crossings and intersections near schools. Consider an assumed "high" pedestrian activity level for intersections around school sites when calculating required illuminance levels.

Cycling Facilities

Children face unique risks because they are smaller and less visible from the driver's perspective than adults. They also often have less ability to detect risks and negotiate conflicts than other users. 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.

All Ages & Abilities Cycling Network

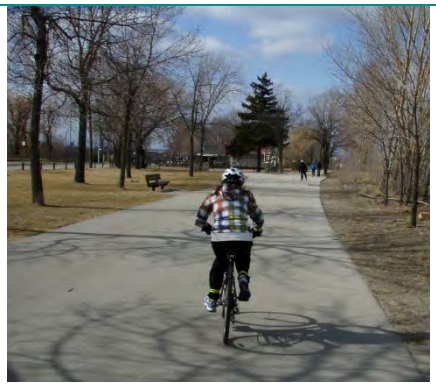
Current best practice for the design of cycling facilities, particularly around school sites, is to systematically create new cycling facilities and upgrade existing facilities to be appropriate for cyclists of **All Ages and Abilities (AAA)**. While traditional bicycle facility designs tend to favour confident cyclists, these riders make up a small percentage of the bicycling population. AAA facilities therefore try to address the specific needs of various populations, including children, seniors, women, people of colour, low-income riders, people with disabilities, bike share users, etc.

As a result of accommodating a much broader cross-section of users, the AAA approach is more stringent with respect to cycling facility types and contexts in which they are applied. The AAA approach also recognizes that by designing facilities for the most vulnerable population or those with the highest needs, such as children, they are also more attractive to the general population (including residents and staff near the school site).

An AAA cycling network is essentially composed of four types of facilities, as described in Exhibit 4-7.

Exhibit 4-7: Summary of AAA Cycling Facilities near School Sites

AAA FACILITY	EXAMPLE	OVERVIEW & CONSIDERATIONS
Bicycle Boulevards / Shared Streets		▶ Bicycle boulevards and shared streets place bicycle and vehicular traffic together on roadways with low motor vehicle volumes and speeds. ▶ A combination of traffic calming, speed reductions, signage and pavement markings are used to prioritize cyclists ▶ Most appropriate on roadways with: o Vehicular operating speeds 40 km/h or less; and o Volumes less than 1,500 vehicles/ day and less than 50 vehicles/hour/ direction in the peak hour.
Buffered Bicycle Lanes		▶ On-street bike lanes that are not physically separated from vehicle lanes but include a painted buffer ▶ Most appropriate on roadways with: o Vehicular operating speeds 40 km/h or less; and o Depending on the presence of other stressors, volumes less than 6,000 vehicles per day.
Protected Bicycle Lanes / Cycle Tracks		▶ Protected bike lanes (including raised cycle tracks) use physical separation to create an exclusive separated cycling space ▶ Most appropriate on roadways with: o Vehicle operating speeds consistently exceeding 40 km/h; o Volumes greater than 6,000 vehicles per day; o Two or more vehicle lanes per direction; and/or o Curbside conflicts are expected, i.e., on-street parking, transit stops, vehicular standing or stopping, driveways, etc.

AAA FACILITY	EXAMPLE	OVERVIEW & CONSIDERATIONS
Multi-use Paths & Trails		▶ Multi-use paths & trails: off-street paths, either shared with pedestrians or exclusive to bicycles if high pedestrian volumes are present ▶ See section 4.4 for additional guidance

Conventional on-road cycling facilities, such as shared roadways, signed routes and conventional, painted bicycle lanes are less desirable around school sites for elementary-school-aged children, even if accompanied by an adult.

SN-7: In the vicinity of school sites, create a cycling network appropriate for cyclists of all ages and abilities.

Retrofit Considerations

In existing communities, an AAA cycling network can be created through retrofits. Speed limit reductions (30 km/h) and extensive traffic calming measures should be implemented to meet the AAA criteria for local streets, and on streets with higher motor vehicle volumes, protected bikeways should be provided with additional considerations at driveways and intersections.

Possible implementation strategies could include:

- Narrow or reduce lanes or parking to create sufficient width on the road for protected bike lanes;
- Implement protected bike lanes in the boulevard if there is sufficient width in the public right-of-way; or
- Widen the sidewalk to a multi-use path if there is sufficient width in the public right-of-way.

Exhibit 4-8 illustrates an example of the implementation of retrofit AAA cycling facility near a school site. In this case, space on the roadway was converted to a two-way protected bicycle lane on a street that is one-way for motorists directly adjacent to the school site.

Exhibit 4-8: Retrofit AAA Cycling Facility near School Site

Image: Google Streetview

Bike Parking

Section 3.3 recommends providing ample bike parking directly on the school site for students cycling to school. The provision of post & ring style bike parking ("Hammer Hoops") within the public right-of-way on streets adjacent to the school provides short-term parking for caregivers cycling to school with students. These additional amenities remove cycling traffic from the main entrances and reduce the potential for conflicts.

Exhibit 4-9 shows an example of Hammer Hoops being provided at the entrance to a public park directly across the roadway from a school site.

SN-8: Where feasible, provide post & ring or other short-term bicycle parking near the school site to supplement on-site bike parking.

Exhibit 4-9: Short-term Bike Parking Adjacent to School Site

Image: Google Streetview

Bike Share Integration

As the City of Hamilton has an established and prominent bike share system, it is important to consider the role of bike share in encouraging active transportation and investigate opportunities to integrate bike sharing with school travel. As the minimum required age for the use of Hamilton Bike Share is 16 years, secondary schools should be prioritized when selecting locations for bike share stations in new neighbourhoods, while considering parents/caregivers and staff at elementary schools as potential users as well. Parents/caregivers may use bike share after they walk students to school, to continue to work or other destinations.

SN-9: In new neighbourhoods within Hamilton Bike Share's existing or potential service area, provide at least one bike share station in close proximity to secondary school sites where feasible.

As discussed in Section 3.3, it is recommended that bike share stations are provided on the streets surrounding the school rather than on the school site itself. Bike share stations around school sites may be provided by allocating space within the public right-of-way such as in the boulevard or within a curb extension. Potential locations for bike share stations include:

- Within the public right-of-way, either behind the pedestrian clearway or within a curb extension (in front of the pedestrian clearway) – **preferred** (except in highly space-constrained areas);
- Within public plazas or parks adjacent to school sites with an accessible route to the school entry points– **preferred**; or
- Within the public right-of-way, within a converted on-street parking space – **less preferred** due to maintenance challenges.

Retrofit Considerations

In existing neighbourhoods within the Hamilton Bike Share service area, bike share can be integrated into the transportation network near school sites by converting elements of the public right-of-way into Hamilton Bike Share stations, such as curb extensions or on-street parking spaces. In particular, streets with existing cycling facilities near school sites should be prioritized when locating bike share stations to maximize safety and convenience for bike share users.

Exhibit 4-10 shows a road that has been retrofitted to include a bike share station along a curb extension, outside of the pedestrian clearway.

Exhibit 4-10: Curb Extension Retrofitted with Bike Share Station

Paths & Multi-use Trails

Off-street paths can reduce the cycling or walking distance to schools by improving connectivity in a neighbourhood. Off-street facilities such as multi-use trails are generally considered safe and appropriate for all users, including school-age children, provided that they are well designed.

Pertinent design requirements noted in the preceding sections for lighting, intersections and crossings should also be considered for off-road multi-use paths and trails connecting to school sites. Preferred design parameters for multi-use paths and trails are summarized in Exhibit 4-11.

Exhibit 4-11: Design Guidance for Paths & Trails around Schools

PARAMETER	DESIGN GUIDANCE
Width	3.0 m minimum 4.0 m+ preferred
Horizontal Clearance	0.2 m minimum to objects less than 750 mm high 0.5 m minimum to objects greater than 750 mm high
Street Buffer	0.6 m minimum 1.0 m+ preferred

Paths and trails can be used year-round for commuting to schools and other nearby destinations. In order to ensure year-round maintainability, paths and trails should be paved and illuminated. Unpaved paths cannot be plowed effectively 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. Concrete with saw-cut joints may also be used but it less desirable.

SN-10: Off-street paths or multi-use trails should be provided as needed to improve connectivity to school sites. Trails should be paved and illuminated to improve comfort and allow for year-round maintainability.

4.4 Transit Integration

Background & Supportive Policies

Staff at elementary and secondary schools are potential transit users, as are secondary and older elementary school students. The availability of public transit in close proximity to a school is essential for encouraging its use and enabling independent mobility in secondary students. A secondary benefit of providing strong transit access to the school site is enabling the use of transit for class trips.

Increasing the use of public transit to school can 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.

The direction to ensure access to schools by transit is enforced through numerous policy & planning documents, as summarized in Exhibit 4-12.

Exhibit 4-12: Transit Integration – Supportive Policies & Recommendations

Supportive Policies

The Urban and Rural Hamilton **Official Plans** state that community facilities (including schools) shall:

- Be easily accessible by public transit where provided; and
- Have transit stops or stations integrated into or adjacent to the site.

The OP also emphasizes that complete communities should enable residents to easily access public transit.

The **Transportation Master Plan** pledges to maximize the coordination and connectivity of bicycle, pedestrian and transit networks (including public bike share) to improve first and last mile connections to transit.

Hamilton Rapid Ready, a 2013 framework for rapid transit preparedness in Hamilton, supports the idea that transit can play a role in improving the overall health of the community by encouraging complementary modes such as cycling and walking.

One of the specific **Pedestrian Mobility Plan** objectives is to enhance coordination of multimodal trips with pedestrian movement to support pedestrian, cycling, and transit facilities.

The **Active and Sustainable School Transportation Charter** includes several principles highlighting the importance of transit integration near school sites, including:

- Ensure complete community design that provides convenient access to learning opportunities by transit; and
- Work with public transit where applicable to provide timely and reliable service for students and staff.

Where does this guidance apply?

The recommendations within this section of the guidelines refer to the area around the school site, with particular attention to secondary schools that are more likely to have a high transit

ridership among students. Generally speaking, recommendations related to public transit network around the school site should consider only the nearest and most popular transit routes for students relative to the school. Specifically, special attention should be given to:

- Local transit stops within a 400 m walk from the school site
- Rapid transit stops within a 1-kilometre walk from the school site (considering future rapid transit corridors in Hamilton)
- Transit routes with schedules that can accommodate trips to/from school around arrival/dismissal times

The context of the individual transit routes will also govern the application of these recommendations. For example, in these cases, the recommendations in this section need not apply.

Network Planning

Route Alignment

Many secondary students do not travel directly home after leaving school but instead participate in extra-curricular activities or social activities, many of which may be too far to walk or cycle to. In these cases, there is an opportunity for transit to complement active travel and provide students with options other than driving. To encourage secondary students and staff to take transit, routes travelling near or directly serving the school should connect to popular after-school destinations, including:

- Shopping centres;
- Recreation facilities;
- Libraries and other community amenities; and
- Transit hubs.

SN-11: Prioritize transit connections to major after-school destinations.

Service Levels & Scheduling

School travel is unique in that it peaks very sharply in the afternoon as almost all students depart school at the same time. Any transit routes serving secondary schools must therefore have adequate capacity to meet this demand.

To prevent large numbers of students from having to experience long waits, transit routes near schools should be scheduled in coordination with school dismissal times with additional trips later in the afternoon to accommodate extra-curricular activities.

SN-12: Coordinate bus schedules with school dismissal times for routes with significant student/staff ridership.

Transit Stops

Proximity

Transit stops should be located as close as possible to a school to minimize walking distance without creating conflicts with other modes of access to the school. Any transit routes running along a street directly adjacent to the school site should include a stop along the school frontage while avoiding school driveways and minimizing delays to the bus route.

SN-13: For transit routes running adjacent to the school site, provide a stop along the school frontage.

Capacity

Bus stops near secondary schools should be large enough to accommodate a bus shelter and waiting area (concrete pad) for a 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.

Placement

The placement of bus stops along a route can have a significant impact on the convenience and attractiveness of taking transit, as well as on the safety of nearby cyclists and pedestrians.

Some considerations when selecting a suitable location for bus stops include:

- Available curb space;
- Condition of sidewalks;
- Width of sidewalks;
- Accessibility; and
- Presence of bicycle facilities and crosswalks.

The Pedestrian Mobility Plan recommends locating bus stops at intersections where possible because they are more convenient for passengers intercepting other transit connections, accessing crosswalks, and connecting to pedestrian routes and building entrances.

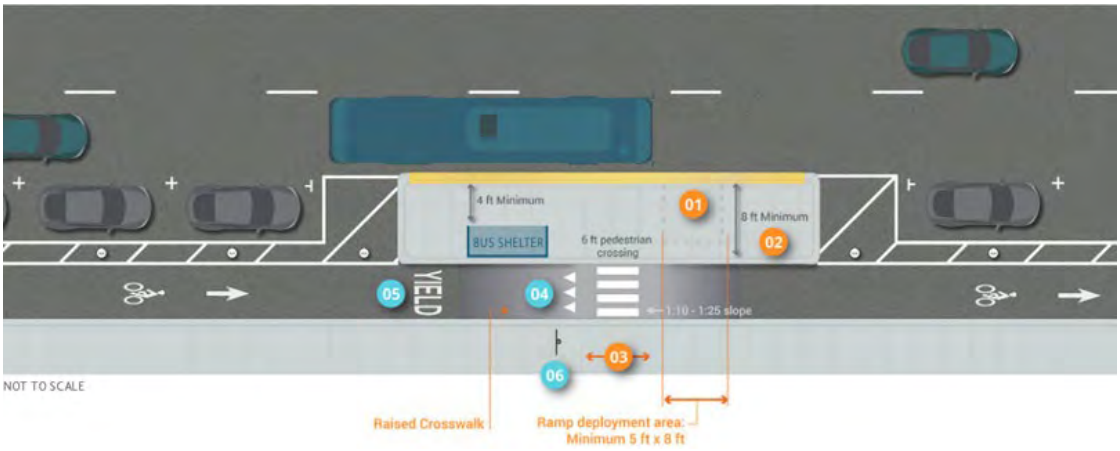
SN-14: Locate transit stops at intersections to maximize convenience for transit users.

Buses can be a hazard to cyclists and pedestrians. In particular, buses dwelling at stops can interfere with sightlines between pedestrians, cyclists, and other vehicles. Far-side stops are therefore recommended at signalized intersections because pedestrians crossing are more visible to drivers approaching the intersection. Bus stops should also be located away from school driveways and pedestrian crossings used to access the school.

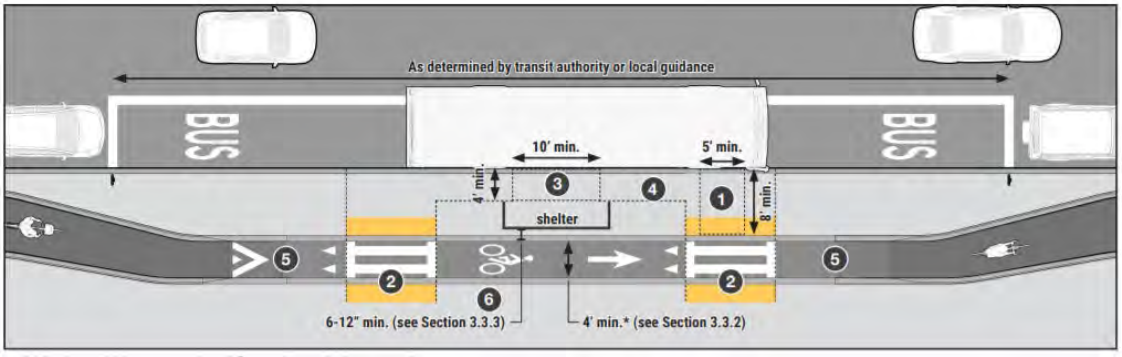
SN-15: Locate bus stops on the far side of intersections where feasible and avoid placing stops near school driveways and busy pedestrian crossings around the school.

All transit stops near schools should be connected directly to sidewalks; however, on streets with cycling infrastructure, conflicts can also arise between cyclists, buses, and bus passengers at stops. Rather than having buses pull into cycling facilities at stops, a floating or island bus stop can be inserted to allow bus passengers to safely alight the bus and cross the bicycle lane to reach the sidewalk. In accordance with AODA requirements, the cycling facility must either be raised to meet the sidewalk and bus platform or the bus platform and sidewalk must ramp down where pedestrians are intended to cross. Examples are shown in Exhibit 4-13. The same principles apply for two-way cycling facilities.

Exhibit 4-13: Island Transit Platforms



Source: FHWA Separated Bike Lane Planning & Design Guide



Source: MassDOT Separated Bike Lane Planning & Design Guide

SN-16: Create floating /island platform bus stops on streets with bicycle lanes or cycle tracks.

4.5 Street Design near Schools

Background & Supportive Policies

A safe, convenient, direct grid of streets near school sites is critical to promoting active travel to and from school. The speed and volume of vehicular traffic on these streets directly impact the comfort of students and staff walking or cycling to school, and traffic calming measures near school sites can improve safety for all road users.

This direction is enforced through numerous policy & planning documents, as summarized in Exhibit 4-14.

Exhibit 4-14: Street Design near Schools - Supportive Policies & Recommendations

Supportive Policies

The Urban and Rural Hamilton **Official Plans** promote the use of traffic calming techniques to create places that are safe, accessible, and connected.

The **Transportation Master Plan** emphasizes the importance of tying health outcomes and safety to the transportation network. Action items in the TMP include:

- Integrating the goals and principles of Vision Zero into the CLB streets design manual and Engineering Guidelines; and
- Applying speed reduction techniques through the implementation of CLB streets, as well as through other opportunities such as the introduction of protected cycling facilities.

The **Pedestrian Mobility Plan** emphasizes several concepts related to active transportation networks in neighbourhoods near schools:

- The PMP recommends prioritizing areas near schools for routine accommodations such as curb extensions and decreasing curb radii at intersections.
- The PMP promotes shorter block lengths and pedestrian-scale street design to encourage walking in neighbourhoods.

The **Active and Sustainable School Transportation Charter** highlights the importance of street design that prioritizes the comfort, safety, and convenience of all users.

The ASST Charter also commits to reducing speed limits and installing traffic calming devices along school commuting routes.

Where does this guidance apply?

The City of Hamilton has existing standards and guidelines for many elements of street design such as design speeds and lane widths; however, the recommendations within this section of the guidelines refer to the area around the school site that reflect the increased vulnerability and perceived safety risk of children walking and cycling to school.

Applying these recommendations requires some context sensitivity. Generally speaking, recommendations related to street design around the school site should consider the eligibility criteria for distance-based school busing, generally:

- 1.2-1.6 km for elementary schools

- 3.2 km for secondary schools

Applications will vary depending on the type of intervention. For example, recommendations for traffic calming should be considered for roadways within this area that may reasonably be anticipated to be used for walking and cycling to/from the school site and are generally more focused directly along school frontages – within 150-300m of the school itself.

The context around the school site will also govern the application of these recommendations. The presence of any of these features may reduce the effectiveness of applying these recommendations along a particular corridor:

- Cul-de sacs or built form that may limit the use of a particular corridor for school travel;
- The presence of major barriers or hazards that will restrict movement (i.e., highways, major topographical features), and
- The presence of parallel routes with higher-quality routes that provide a viable alternative.

As noted in Section 4.1, the ability to implement these improvements will vary depending on the type of project. A high-level summary of various interventions and their applicability to different project types is shown in Exhibit 4-15.

Exhibit 4-15: Applicability of Different Design Principles with Various Project Types

ANTICIPATED ROAD CONSTRUCTION ACTIVITY	DESIGN SPEED	LANE WIDTHS	CORNER RADII	PARKING LAY-BYS	STREET CLOSURES	LIGHT TRAFFIC CALMING	INTENSIVE TRAFFIC CALMING
Retrofit Initiative (Temporary Materials)		✚	✚	O	O	✚	
Road Resurfacing Project	O	✚	O	O	O	✚	
Road Reconstruction Project	✚	✚	✚	✚	✚		✚

✚: Likely feasible

O: Potentially feasible

General Design Considerations

Street Layout

Shorter blocks increase the walkability of the street network and convenience for pedestrians. The Pedestrian Mobility Plan recommends block lengths from 68-90 m in urban areas to support pedestrian activity. In suburban contexts, block lengths should generally range from 150 to 250 m.

In addition to shorter blocks, a grid-style network of streets tends to minimize cycling and walking distances within a community, including paths to school. A network of paths and streets that offers many route choices for pedestrians and cyclists is also likely to encourage more active travel to school as users are able to find an optimal route.

SN-17 In newly planned communities, street networks near schools should be designed with a fine-grained grid-like network of streets and paths to provide a high level of connectivity for pedestrians and cyclists.

Retrofit Considerations

For existing neighbourhoods with street networks already laid out, there are several measures that can be taken to improve the walkability of the street network:

- For streets with block lengths over 250 m, install midblock crossings to increase convenience for pedestrians (refer to guidance in Section 4.3); and
- For neighbourhoods with curvilinear rather than grid street patterns, add midblock paths linking parallel streets to shorten blocks and increase connectivity for pedestrians and cyclists.

Design Speed

Speed is a crucial factor in the cause and severity of collisions. There is a direct correlation between the speed of vehicular traffic and the risk of both crashes and fatalities. Elements that influence speed, such as curb radii and vehicle travel lane widths, are determined using a specific design speed. Higher design speeds reduce the driver's peripheral vision (Exhibit 4-16) and increase the required stopping distance (Exhibit 4-17). Lower design speeds therefore provide a safer space for people, especially children, to walk and cycle.

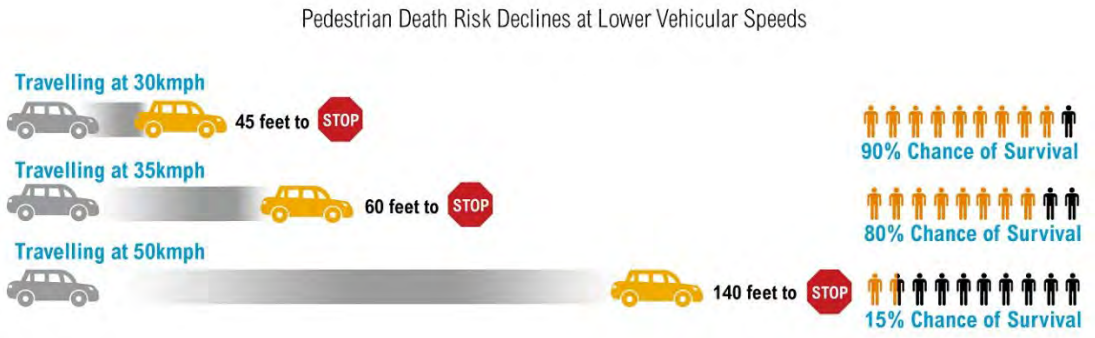
Designing a street near a school site for speeds of 30-40 km/hr ensures that motorists will have adequate reaction time to avoid collisions with vulnerable road users from at least 15 m away.

SN-18: In new neighbourhoods, design local streets for 30 km/h and collectors for 40 km/h.

Exhibit 4-16: Narrowing Field of Vision at Increasing Speeds

Source: NACTO Urban Street Design Guide

Exhibit 4-17: Relationship between Operating Speed & Risk to Vulnerable Road Users



Source: WRI Ross Center for Sustainable Cities Health and Road Safety

Corner Radii

A common issue with intersections is the interaction between turning vehicles and crossings pedestrians or cyclists. These conflicts are magnified by large radii in urban settings that increase the speed of drivers completing the turn and reduce visibility of waiting pedestrians and cyclists. Smaller corner radii reduce the roadway distance that pedestrians cross at intersections, while improving their visibility of approaching vehicles and forcing drivers to reduce their speeds at turns. An important step in improving urban intersections is selecting an appropriate control vehicle to guide turning radii design. The following strategies can also be used to reduce corner radii:

- Accommodate trucks and buses on designated transit and truck routes (but not elsewhere);
- "Crawl" speeds, rather than the roadway operating speed, can be used to assess the impacts of an occasionally larger vehicle;
- Allow for encroachment into adjacent lanes for larger trucks i.e. never assume that a truck must turn from the curb lane into the curb lane. Employ strategies such as stop bars set farther back as needed to facilitate these movements;
- The effective radius, rather than the actual curb radius can be used when calculating or simulating turning movements. The effective radius is the full radius available to a vehicle, and depends on curbside conditions, i.e., the presence of parking or cycling lanes.

In all cases, a detailed review of swept path of the appropriate design and control vehicle should be used when designing intersections.

Lane Widths

The space allocated to lanes for vehicular traffic, trucks, transit vehicles, bikes, and on-street parking or deliveries is a critical element of street design; narrower streets promote lower speeds, reduce crossing distances for pedestrians, and lead to shorter signal cycles.

Lane widths of 3.5 m or less are generally recommended in urban contexts to discourage unintended speeding and give valuable right-of-way to other modes of travel. Lane width should also be considered within the overall design of the street; travel lanes as narrow as 3.0 m can provide adequate safety in urban areas.

SN-19: Design streets near school sites with the smallest possible corner radii and narrowest possible lane widths to control vehicular operating speeds.

Off-Site Parking & Pick-up/Drop-off Zones

Cars parked along the side of a street create "lateral friction", slowing the surrounding traffic by limiting drivers' visual field. Parking also creates a physical barrier between the sidewalk and traffic lanes and, as a result, buffers pedestrians from vehicular traffic.

As parked cars can act as a visual barrier, they may prevent 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.

Bay parking or parking lay-by is typically preferable to an open parking lanes as it limits the effective width of the street where curb extensions bracket each end of the parking lane. In new communities, bay parking should be created by design and demarcated with special pavement treatment to distinguish the parking lane from the roadway and visually minimize pavement width. Examples of bay parking and the effect of narrowing the street are identified in Exhibit 4-18.

SN-20: On-street bay (lay-by) parking should be provided near school sites where feasible to reduce the effective street width.

Exhibit 4-18: Examples of Visual Narrowing with On-street Bay Parking

Images: Google Streetview

Retrofit Considerations

Parking lay-bys can be added to existing streets by constructing curb extensions that bracket either end of the parking lane. Another possibility is to set up a temporary or interim curb extension using bollards, planters, and precast curbs. This tactic has been applied to many intersections across Hamilton as an interim strategy (see Exhibit 4-19).

Exhibit 4-19: Sample Curb Extension for Parking Lay-by using Temporary Materials

Images: Google Streetview

As discussed in Section 3.5, vehicle exclusion zones around the school should be considered in urban and suburban areas with off-site or side-street student pick-ups and drop-offs to reduce conflicts between drivers, cyclists, and pedestrians.

Refer to the following case study (Exhibit 4-20) for detailed examples of how off-site pick-up and drop-off zones can be used in conjunction with vehicle exclusion zones to improve safety near a school.

Exhibit 4-20: Vehicle Exclusion Zone Case Study

Montréal Case Study: Vehicle Exclusion Zones: Parking Prohibitions	
Overview:	Many schools in Montréal prohibit parking around schools and adjacent parks during school hours. A drop-off/pick -up zone is provided near one of the schoolyard's accesses and, if required, near the school's main entrance. These zones are determined by the City, in collaboration with the school principal.
Context:	Saint-André-Apôtre is located in an urban neighborhood of Montreal. The school is located immediately adjacent to a park. Many trails in the park link the schoolyard to the surrounding streets. These trails are used by students and parents to access the schoolyard.
	
Implementation:	There are no stopping zones at intersections (5 m on each side) and at mid-block crosswalks. Parking or stopping is also prohibited during school time at school entrances and schoolyard accesses along the school property and along the park. The no stopping zone is used to ensure parents do not use the zone as a drop-off/pick-up spot. Some parents and the school principal notice that this regulation is not always well respected. No parking or stopping hours are from 7:00 AM to 6:00 PM, in accordance with opening hours of the school's daycare.
Lessons Learned:	▶ Since the no stopping zones around the school accesses are not always respected by parents, there are proposals to add measures such as curbs extensions along these no-stopping zones, using bollards, planters, or precast curbs. These would become permanent no stopping zones. ▶ When prohibiting parking, curb extensions should be added to avoid either creating two drive lanes or increasing vehicle speeds due to a wider roadway (without the presence of parked cars). Curb extensions should also be added on both sides of any crosswalks to deter vehicles from stopping or parking in crosswalks. ▶ A no-parking zone or no-stopping zone should always include the daycare schedule. For example, if the daycare opens at 7:00 AM, the no parking zone should start at 6:30 or 6:45 AM.

Traffic Calming

Retrofit Considerations

Traffic calming can play an important role in improving conditions for active transportation and vulnerable road users around school sites. The City of Hamilton has an existing Traffic Calming Policy (2020) which outlines the various measures currently considered along collectors and local streets. The policy notes that traffic calming measures in School Zones are not subject to the traffic calming process identified in the policy. In other words, the City can install traffic calming measures in School Zones without the petition and survey requirements identified in the policy, creating a simpler process for delivering the range of traffic calming devices used in school zones. A sampling of those interventions are summarized in the following sub-sections.

Reduced Speed Limits

The City has taken a proactive approach to reducing speeds through the Neighbourhood Speed Limit Reduction Program, implementing speed-limit reductions within designated school zones on local and minor collector roadways to 30 km/h within 150 meters of a school boundary. Collisions between vehicles and vulnerable pedestrians and cyclists are less frequent and their consequences are less severe when operating speeds are reduced.

Physical Traffic Calming Measures

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

- Increased lateral friction such as trees, street furniture, and buildings close to the street;
- Vertical deflection such as speed cushions, speed tables, raised crossings, and raised intersections; and
- Horizontal deflection such as curb extensions, curb radius reductions, chicanes, traffic islands/medians, lateral shifts and traffic circles.

Traffic Volume

Decreasing the traffic volume on local streets near school sites, particularly those that are popular routes for walking and cycling to school, can improve the safety or perceived safety of active travel to school. The traffic calming measures described in the previous section can indirectly discourage the use of a street by through traffic if faster alternatives exist. Direct volume-restricting measures include the following:

- Diverters that force vehicles to turn at an intersection:
  - Should be designed to allow pedestrians and cyclists to pass straight through
- Limiting access to street segments around schools:
  - On a permanent basis with diverters or partial street closures
  - On a periodic basis such as at school arrival and dismissal hours (as in vehicle-exclusion zones – see Sections 3.4 & 5.2)

SN-21: Retrofit streets near schools with a mix of traffic calming and volume management measures to achieve desired operating speeds, targeted volumes and reduce the need for enforcement.

A summary of the City's current applicability of physical traffic calming and volume management measures (physical obstruction) is included in Exhibit 4-21.

Exhibit 4-21: Applicability of Physical Traffic Calming Measures

Traffic Calming Technique	Measure may be Applicable on: Road Classification		Other Considerations
	Local Road	Minor Collector	Transit Route
Physical Vertical Deflection			
Speed Cushion	Yes	Yes	Yes
Raised Intersection	Yes	Yes	Yes
Raised Crosswalk	Yes	Yes	Yes
Speed Table	Yes	Yes	Yes
Physical Horizontal Deflection			
Curb Extension	Yes	Yes	Yes
Curb Radius Reduction	Yes	Yes	No
Neighbourhood Traffic Circle	Yes	Yes	No
Centre Island Median	Yes	Yes	Yes
One-Lane Chicane	Yes	Yes	No
Lateral Shift	Yes	Yes	Yes
Roundabout	Yes	Yes	Yes
Physical Obstruction			
Directional Closure	Yes	Yes	No
Raised Median Through Intersection	Yes	Yes	Yes
Right-In/Right-Out Island	Yes	Yes	No

Source: City of Hamilton Traffic Calming Policy (2020)

5.0 Supportive Environments: Programming & Policies

In addition to the infrastructure at the school site and the surrounding streets and neighbourhoods, programming and policies play an important role in encouraging active and sustainable travel by staff, students and parents to school.

This chapter focuses on creating and supporting existing programs and policies that support active and sustainable travel, with a focus on Active and Sustainable School Travel (ASST) certification, school travel planning, special events, and policies. This chapter covers the following topics:

- Supporting existing programming such as the ASST certification and developing school travel plans;
- Hosting special events throughout the school year for students and staff; and
- Strengthening existing policies and creating new policies that require schools to participate in city-wide programming.

Background & Supportive Policies

Programming and policies are necessary to engage with and encourage students and staff to walk and cycle to school sites. There are numerous policies & planning documents that support and provide direction to current programming initiatives, as summarized in Exhibit 5-1.

Exhibit 5-1: Programming and Policies - Supportive Policies & Recommendations

Supportive Policies

The **Transportation Master Plan** emphasizes the importance of programming for supportive environments. Action items in the TMP include:

- Coordinate School Travel Plans for every elementary school in the HWDSB and HWCDSB by 2022 in partnership with HSC, the Hamilton Strategic Road Safety Program, other City departments and local schools to identify safety and TDM opportunities

The **TDM Guidelines** provide guidance on travel planning, programming, and education for school sites:

- Develop a school travel plan for staff, students, and community members;
- Provide travel planning resources for staff and students such as individualized marketing, trip planning tools, active transportation maps, and information resources;
- Encourage the school district/administrators to actively promote TDM through Smart Commute Hamilton;
- Brand or highlight TDM elements in marketing materials, and provide carshare/bikeshare memberships to employees and/or students; and
- Promote early adoption of sustainable transportation modes and increase awareness of sustainable transportation opportunities for employees, students, visitors, and community members.

The **ASST Charter** emphasizes the need for programming and policies at schools:

- Provide safety education and awareness through curriculum and community partnerships;
- Develop and implement School Travel Plans for all schools to ensure safe routes to school;
- Champion education and awareness activities related to active and sustainable transportation;
- Participate in local, regional, and international events that encourage active transportation; and
- Develop policies and support environmental changes for active school travel.

The **Pedestrian Mobility Plan** emphasizes the need for active transportation programming in neighbourhoods near schools:

- Municipal transportation demand management and “walk to school” programs as well as programs encouraging walking, cycling and transit use, such as important pedestrian generators, i.e., schools, hospitals, institutions, will be considered during the application of the recommended “routine accommodation”.
- Where revisions to existing programs are required or where new programs may be needed, the amendment of existing and development of new programs should be co-ordinated with Pedestrian Mobility Plan implementation.

5.1 School Bussing and Travel Policies

Bus Eligibility Distances

School bussing policy can impact the role of active travel to school as eligibility for school bus service can be a disincentive to walk or cycle to school. The school bus eligibility distances in Hamilton range from 1.6 km to 3.2 km, depending on the school board and the student's age (refer to Exhibit 5-2). The school bus policy is agreed upon with the Hamilton-Wentworth Student Transportation Services (HWSTS), the organization that provides school bus service to both school boards.

Exhibit 5-2: Eligibility Distances for School Bussing

SCHOOL	GRADE	ELIGIBILITY DISTANCE
Elementary School	Kindergarten	1.2 km
Elementary School	Grades 1-8	1.6 km
Secondary School	Grades 9-12	3.2 km

These eligibility distances are calculated considering the actual transportation network available to access the school sites, measured using the shortest walking route from the nearest property line of the pupil's residence to the nearest property line of the school. Multi-use paths and trail can help to reduce calculated walking distances but only if the trail is maintained year-round.

There are also hazard conditions that are considered to qualify students for bussing even if they live within established walking distances:

- For any age group, students residing within the defined walking distance are eligible for bussing when their anticipated school route follows a major arterial roadway without any pedestrian facilities for a length greater than .8 km
- For elementary students residing within the defined walking distance, they are eligible for transportation services if their anticipated school route follows a major arterial roadway that is necessary to cross to get to school, but there are no traffic control devices such as lights, stop signs or a school crossing guard to assist with the crossing.

Infrastructure improvements discussed in Section 4.2 coincide with the eligibility policies noted above.

As participation in ASST initiatives increase in the City of Hamilton, the demand for school bussing may be reconsidered. Changes to the eligibility criteria for school bus service could include tailoring bus service to more incremental age group categories, and/or providing bus service in the winter months, and reducing bus service in better weather. These suggestions would have to be implemented with the full cooperation of community partners and stakeholders to ensure the right programs are in place to assist students with their trip to and from school.

SE-1: School boards and the Hamilton-Wentworth Student Transportation Services should review the school bus policy and remove bus service for students that live within walking and cycling distance to school.

5.2 Programs

Walk-a-Block Program / School Streets / Vehicle Exclusion Zones

Schools should implement a Walk-a-Block program (also known as a Vehicle Exclusion Zone or School Streets Program) to improve safety for cyclists and pedestrians and reduce the number of vehicles stopping on the school site or directly adjacent the school to pick-up and drop-off children. A Walk-a-Block program would include designated pick-up and drop-off areas one or two blocks away from the school, as illustrated in Exhibit 5-3. As a result, parents who typically drive their children to school would be encouraged to park one or two blocks away and walk their children the rest of the way.

Similar programs from around the world have demonstrated that a Walk-a-Block Program has several positive impacts such as:

- Decreased levels of vehicular traffic;
- Improved air quality;
- More children walking to school;
- Fewer children being driven to school;
- Increased levels of motorist compliance on streets near the school; and
- Improved perceptions of safety.

In 2017, St. Marguerite d'Youville Catholic Elementary School worked collaboratively with the City of Hamilton to host a Block Party in front of the school to promote active and sustainable travel and celebrate Wear Yellow Day. The City of Hamilton worked with Traffic Operations to set up temporary road closure signage and notices were sent to nearby residents and to parents in advance.

To launch these programs, it is important to build support within the school community as well as within the surrounding neighbourhoods, as drop-offs and pick-ups by vehicle will occur in designated locations away from the school site. Developing a Walk-a-Block Program can take place in three steps:

1. **Engage and Plan:** Establish a working group with key stakeholders at each school such as the Principal/Vice-Principal, teachers, parents, students, and representatives from the school board and City staff. The working group should coordinate with City staff to identify the process, timelines, complete a site assessment, and develop a plan for ongoing temporary road closures around the school. Road permits or road occupancy permits are anticipated to be required for these types of progams. Notices should be sent out to parents and nearby residents, informing them of the proposed program and determine how many exemptions will be required. Baseline data (e.g. pedestrian, cycling, and automobile counts, and air quality measurements) should be collected at this stage.
2. **Program Launch**: Once an approved plan is in place and notices have been sent out to promote the program, launch the Walk-a-Block program with the support of the school administrators, parents, students, and the City of Hamilton.
3. **Program Monitoring and Ongoing Support**: Conduct follow-up surveys and pedestrian, cycling, and automobile counts, and air quality measurements to evaluate the success of the program, comparing results to the baseline data. Share the results of program monitoring with stakeholders and continue to implement the program across the City of Hamilton.

Exhibit 5-3: Walk-a-Block Program Example Infographic

More information on school streets / walk a block programs can be found in the following resources:

- NACTO Guide to School Streets: https://nacto.org/wp-content/uploads/2020/07/200708_School-Streets.pdf
- School Streets UK (provides excellent examples): http://schoolstreets.org.uk/
- School Streets Guidebook (City of Victoria / CRD includes examples of signage and surveys): https://www.880cities.org/wp-content/uploads/2019/11/school-streets-guidebook-2019.pdf

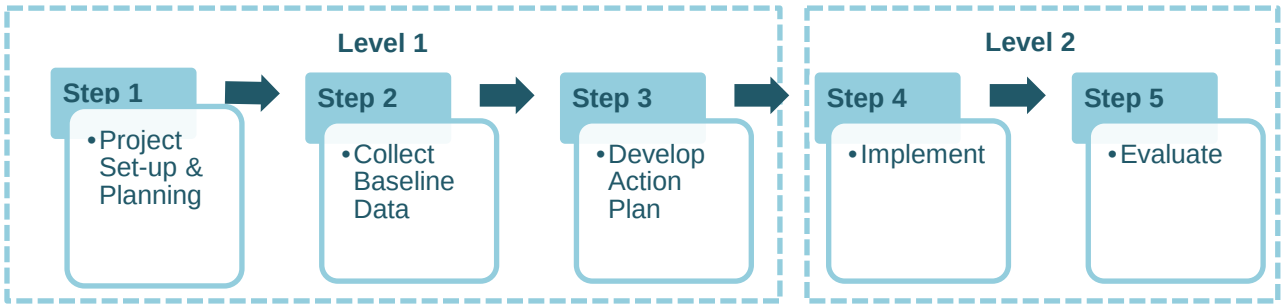
SE-2: Schools should work with the City of Hamilton and the School Boards to implement a Walk-A-Block program by limiting automobile traffic on streets near schools during scheduled times of the day to prioritize pedestrians and cyclists accessing the school, where practical.

ASST Certification: School Travel Planning Process

School travel planning (STP) is a community-based approach that aims to increase the number of children and adults choosing active transportation to and from school, thereby addressing environmental, health, and safety issues. The ASST certification initiative, developed by City of Hamilton Planning & Economic Development and Public Health staff, uses the STP model from Green Communities Canada to help schools earn recognition for ASST efforts.

There are two levels of certification as seen in Exhibit 5-4. Level 2 recipients are designated as bronze, silver, or gold in relation to the number and intensity of actions completed.

Exhibit 5-4: ASST Certification Process



SE-3: In partnership with the school boards, all schools should be required to participate in the ASST certification process.

Safe Cycling Training (Ride Smart)

As all parents are not cyclists, all children may not have the opportunity to learn to ride a bicycle safely. A safe cycling program can teach students how to ride their bike safely and autonomously. The City of Hamilton and school boards have partnered with New Hope Community Bikes to provide a safe cycling training program to students called Ride Smart. Ride Smart is designed using the Ontario physical health and education curriculum and CAN-BIKE to enable students to learn new cycling skills and abilities, creating safer riders and safer future drivers.

Children that have professional cycling training are more likely to cycle to school with their parent's consent. Typically, a school-based safe cycling training program includes:

- In-class theoretical lessons focusing on road safety, riding a bicycle, and bicycle parking practices;
- 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 or on the school grounds led by qualified and certified cycling instructors; and
- An individual on-road practical exam.

SE-4: The school boards and the City of Hamilton should continue to partner with community organizations to offer safe cycling training for all students. School boards should also integrate safe cycling training into the curriculum for certain grades.

School Bike Rack Grant

Schools that are in the process of or have received the ASST Certification process can apply for a City of Hamilton School Bike Rack Grant, which is a one-time bursary of up to $600 for a bike rack. End-of-trip facilities are important to provide the necessary infrastructure to support people cycling to school. School boards and the City of Hamilton should expand their mandate to include active transportation facilities and infrastructure at schools including end-of-trip facilities such as bicycle repair stations and secure bike parking. Building upon the existing grant program to provide active transportation facilities will provide more staff and students the opportunity to cycle to school.

SE-5: The City of Hamilton should identify additional funding sources to expand the grant program to provide additional end-of-trip facilities for all schools participating in the ASST certification process.

Fresh Air for Kids

Fresh Air for Kids, delivered through Green Venture, teaches students the importance of air quality when deciding how to travel to school through mapping of healthy routes to school. The program uses a Ministry of the Environment, Conservation and Parks air quality monitoring van to measure air quality on key routes surrounding the school.

SE-6: The City of Hamilton and school boards should continue to partner with the Fresh Air for Kids program to inform and promote recommended routes that have better air quality and employ strategies to limit the number of vehicles on key active travel routes.

Smart Commute Hamilton Participation

As some of the largest employers in the City of Hamilton, the school boards play a critical role in promoting active and sustainable transportation to schools. By encouraging school staff members to use active and sustainable modes, they are role models for students and can influence students' current and future travel choices.

To encourage school staff to use active transportation, the school boards can:

- Partner with Smart Commute Hamilton to implement an awareness program and campaign;
- Integrate active and sustainable travel education into staff onboarding training;
- Provide secure bicycle parking spaces and end-of-trip facilities (see Section 3.3);
- Limit the number of parking spaces (see Section 3.5); and
- Encourage staff to carpool to reduce parking demand.

Additionally, municipalities and higher levels of government can encourage staff to use active transportation. Additional strategies for future consideration include offering financial incentives or tax credits to employees that walk or cycle to work.

SE-7: School boards should partner with Smart Commute Hamilton to encourage staff members to use active and sustainable transportation modes to school.

Walking School Bus

A walking school bus is an organized program where a group of children that live in the same geographic area walk from their home to school and back with an adult. Like a regular school bus, the walking school bus follows a planned and safe route with scheduled stops. Volunteers receive training and support to develop and implement the program. Delivering a walking school

bus program can require an extensive amount of resources to successfully execute. Resources can be developed and distributed to students and parents that live within walking distance of the school, noting that the schools and school boards are not liable for program participation.

SE-8: The HWSTS in partnership with the HWDSB, HWCDSB, and City of Hamilton should develop resources for parents to form a walking school bus for students that live within walking distance of their school.

Transit Programs

Many students do not know how to take public transit. Creating transit programs teaches students about public transit at an earlier age, increasing their potential to continue as regular paying and committed passengers as they grow older. Transit programs educate riders on how to plan their route, board the bus, and pay their fare, helping students gain confidence and eliminating barriers to riding the bus. Some examples of transit programs across Ontario include:

- **Totally Transit for Children:** In partnership with Hamilton Street Railway (HSR), Green Venture developed and implemented the Totally Transit for Kids program to introduce elementary school students to the City of Hamilton's public transit system. Through hands-on activities, students learned about taking the bus safely and confidently acquire the skills to take the bus safely and confidently. This program is not currently offered.
- **Peterborough GreenUP On the Bus Program:** This program introduces public transit to grade three classes in the City of Peterborough. This program focuses on active and sustainable transportation choices and is meets specific curriculum expectations. As part of the On the Bus Program, GreenUP also delivers the Transit Quest program that provides grade eight students with a free transit pass program over March Break to increase familiarity with the Peterborough Transit System and the ability to travel independently.
- **City of Mississauga Transit Ambassadors:** The City of Mississauga operates a program where works with students act as ambassadors to promote public transit at secondary schools. Transit Ambassadors encourage their peers to take public transit by participating in different activities such as creating and sharing social media content, and produce videos and radio-style advertisements while earning incentives for each activity completed.

These programs can be integrated with free or subsidized transit passes to maximize the development of practical skills for riding the public transit, including proper rider etiquette, safety, rules and the environmental, economic and social benefits.

SE-9: The City of Hamilton in partnership with the HSR, HWDSB, and HWCDSB should develop a transit program for students to education and incentivize the use of public transit.

5.3 Special Events

Community in Motion Award

The Community in Motion Award is an award to recognize members of the community who have made an effort to actively support and promote the use of healthy and sustainable ways of getting around, and enjoying, Hamilton. Individuals, schools, and businesses/organizations can be nominated for a Community in Motion Award if they demonstrate their effort in fostering an environment which supports and encourages active transportation in several different categories.

SE-10: School Boards should regularly nominate exceptional schools for a Community in Motion Award.

Wear Yellow Day

On Wear Yellow Day (WYD), staff, students, and parents are encouraged to wear yellow, the colour of school transit, and celebrate walking, cycling, or taking the bus to school. There are three WYDs throughout the school year, taking place in the fall (during International Walk/Bike to School Day/Month), winter, and spring (during Earth Day/Week). WYD is an opportunity to promote the school's travel plan and increase the awareness about the changes being made to support active travel. WYD enables the school community to create a culture where active and sustainable school travel is the norm.

SE-11: In partnership with the school boards, all schools should participate in at least one WYD per year.

Bike to School Week

Bike to School Week kicks off on Bike Day (the last Monday of May). Using the Bike Month website, schools are encouraged to register to be a part of the campaign and they may receive resources, promotional materials and bicycle pumps for participating. Schools can participate in a bicycle parade leading to the Bike Day celebration at City Hall on the first day of Bike to School Week.

SE-12: All schools should register and promote the Bike to School Week campaign, and if possible, participate in the bicycle parade ending at City Hall on Bike Day or host their own Bike Day celebration at their school.

School Board Policy Recommendations

Maintaining support for the ASST process and ongoing data collection is critical to the success of ASST. School boards should require all schools to complete level 1 of the ASST certification and provide an incentive upon completing level 1. Additional incentives can be provided for reaching level 2 ASST certification.

SE-13: School boards should require all schools to reach Level 1 ASST certification.

5.4 Additional Resources

City of Hamilton Parent Engagement Strategy

The City of Hamilton created a parent engagement strategy to build parental support for active and sustainable school travel. As parents and caregivers are the decision-makers regarding children's travel to and from school. The objectives of the parent engagement strategy are:

- Increase parental/caregivers' awareness about the importance of ASST;
- Increase the number of parents/caregivers engaged in ASST initiatives, including encouraging their child's active travel; and
- Increase parental/caregiver capacity to become ASST leaders/champions.

The parent engagement strategy is available online on the City of Hamilton website: https://www.hamilton.ca/streets-transportation/smart-commute/school-travel-plan

Ontario Active School Travel

Ontario Active School Travel 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: https://ontarioactiveschooltravel.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. This document can be found on the OTC website: http://www.otc.org/wp/wp-content/uploads/2017/07/OTC-Creating-Safe-Routes-for-AST-FINAL.pdf

6.0 Summary

This document is intended to provide a set of guidelines to support the City of Hamilton's efforts to increase the number of students and their parents, and staff choosing active and sustainable transportation to travel to/from school. This document complements and supplements existing studies and guidelines that support sustainable transportation in Hamilton. For ease of reference, school site checklists for new schools and retrofit schools can be found in **Appendix A**.

Increasing the popularity of active and sustainable travel modes to/from school has proven physical activity, safety, environmental, economic, financial, and community benefits. Based on best practices, these guidelines present infrastructure, policy, and program recommendations at the school site and neighbourhood level. The guidelines can be used for designing new schools, planning new communities, and retrofitting existing school sites and surrounding neighbourhoods.

Many of the recommendations outlined in this document require a close partnership between the school boards, the City of Hamilton, and other key stakeholders to successfully implement the recommendations. Whenever possible, the school boards and the City of Hamilton should consider partnering to advance recommendations that would otherwise be unachievable because of funding or resource limitations.

7.0 References

APBP, “Essentials of Bike Parking” (Association of Pedestrian and Bicycle Professionals, 2015), 5.

Transport Canada, “Active Transportation in Canada; a resource and planning guide.” 2011. Accessed April 24, 2020 from https://data.fcm.ca/documents/tools/GMF/Transport_Canada/ActiveTranspoGuide_EN.pdf

Transportation Tomorrow Survey, 2011. Quoted in Metrolinx Smart Commute, “School Travel in the GTHA”. 2015.

Victoria Transport Policy Institute, “School Transport Management”. 2018. Accessed May 7, 2020 from https://www.vtpi.org/tdm/tdm36.htm.

Appendix A: School Site Checklists

New Schools – Urban & Suburban

Retrofit Schools – Urban & Suburban

Site Design Checklist for New Schools

Hamilton School Sites Design Guidelines

3 Supportive Schools: Siting & Site Design

3.2 School Orientation & Layout

SS-1: Is the site located near community amenities and far from major barriers to walking and cycling?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-2: Does the school front on streets from at least two sides? Three to four is preferable.

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-3: Does the site maximize the building mass along the most major street and include a main entrance located 3-15 m from the curb?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

3.2 Active Transportation Access

SS-4: Does the site include accessible pedestrian pathways (1.5 m minimum, 2.0 – 3.0 m+ preferred) to school entrances using a stable, slip-resistant material?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-5: Are pathways and trails provided to the school site from all sides of the site?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-7: Are amenities and site furnishings (e.g. trees, benches, shade structures and waste and recycling receptacles) provided outside of the pedestrian clearway? If no, has this been considered?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-8: Does the site include human-scale integrated lighting focused on pathways and entrances which meets the City of Hamilton Site Design Guidelines lighting requirements?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-9: If fencing is required on the school site, provide openings or gates at pedestrian connections.

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-10: Are driveways and crossings limited and carefully designed to reduce opportunities for pedestrian conflicts with other modes of transportation?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-11: Does the site meet accessibility requirements under AODA and the Ontario Building Code for all required site elements?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-12: Does the site provide a convenient, secure and practical selection of on-site bicycle parking to accommodate demand from staff and students? Are the bicycle parking quantities consistent with Hamilton's TDM Guidelines?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-13: Does the site provide bike share stations in close proximity to schools within the public right-of-way for riders 16 and older?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

3.3. Transit Access

SS-14: Does the site provide convenient connections from building entrances to transit stops using well-lit, direct and barrier-free walkways?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-15: Are comfortable and weather-protected waiting areas provided at all transit stops serving the school site?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-16: Is transit route and schedule information displayed at main entrances to the school?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

3.4 Automobile Access

SS-17: Are lay-bys provided? If yes, are they located downstream of the school building entrance wherever possible?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-18: Does the site include bus loops which operate single-file, one-way, and in a counter-clockwise direction? *(Applicable for rural school sites only)*

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-19: Are school bus lay-bys and loops designed to accommodate the anticipated number of buses and no more?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-20: Does the site include a vehicle exclusion zone around the school with off-site pick-ups and drop-offs?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

4 Supportive Neighborhoods: Access around Schools

4.3 Active Transportation Network

SN-1: Are sidewalks provided on both sides of the street along the streets surrounding the school site?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-2: Do sidewalks near the site have a minimum clear width of 1.8 m? Has urban braille been applied to sidewalks near the site if in an urban setting?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-3: Is enhanced lighting provided along corridors near the school? Has a “high” pedestrian activity level for school routes and streets around school sites been assumed when calculating required illuminance levels?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-4: Are formal protected pedestrian crossings provided (at least every 100 m in urban areas and every 180 m in suburban areas) near the school site?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-5: Are high-visibility ladder crosswalk markings installed at all school crossings and other crossings in the vicinity of the school?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-6: Is lighting provided at all pedestrian crossings near the school? Has a “high” pedestrian activity level for intersections around the school site been considered when calculated required illuminance levels?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-7: Is there a cycling network in the vicinity of the school site that is appropriate for all ages and abilities?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-8: Are posts and rings or other short-term bicycle parking provided near the school site?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-9: Is at least one bike share station located in close proximity to the school site, for secondary schools?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-10: Are off-street paths provided to provide connectivity to the site? Are the paths paved and illuminated?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

4.4 Transit Integration

SN-11: Does the site prioritize transit connections to major after-school destinations (e.g. libraries and athletic centres)?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-12: Are bus schedules coordinated with school dismissal times for routes with significant student/staff ridership?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-13: Is a transit stop provided along the school frontage for transit routes that run adjacent to the school site?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-14: Are transit stops located at intersections that are in close proximity to the school to maximize convenience for users?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-15: Are bus stops located on the far side of intersections where feasible, and away from school driveways and busy pedestrian crossings around the school?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-16: Are floating/island platform bus stops included on streets with bicycle lanes or cycle tracks?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

4.5 Street Design near Schools

SN-17: Are new neighbourhoods designed with a fine-grained, grid like network of streets and paths with a higher connectivity for pedestrians and cyclists than for vehicles?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-18: Are local streets in new neighbourhoods designed for 30 km/h and collector streets designed for 40 km/h?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-19: Are streets near the school site designed with the smallest possible corner radii and narrowest possible lane widths?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-20: Is on-street lay-by parking provided near the school site to reduce the effective street width?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-21: Are streets designed/retrofitted to include a mix of traffic calming measures?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

Site Design Checklist for Retrofit Schools

Hamilton School Sites Design Guidelines

3 Supportive Schools: Siting & Site Design

3.3 Active Transportation Access

SS-4: Does the site include accessible pedestrian pathways (1.5 m minimum, 2.0 – 3.0 m+ preferred) to school entrances using a stable, slip-resistant material? Can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-5: Are pathways and trails provided to the school site from all sides of the site? Can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-7: Are amenities and site furnishings (e.g. trees, benches, shade structures and waste and recycling receptacles) provided outside of the pedestrian clearway? If no, has this been considered?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-8: Does the site include human-scale integrated lighting focused on pathways and entrances which meets the City of Hamilton Site Design Guidelines lighting requirements? Can it be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-9: If fencing is required on the school site, are openings or gates at pedestrian connections? If no, can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-10: Are driveways and crossings limited and carefully designed to reduce opportunities for pedestrian conflicts with other modes of transportation? If no, can retrofit design improvements be implemented?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-11: Does the site meet accessibility requirements under AODA and the Ontario Building Code for all required site elements? If no, can retrofit design improvements be implemented?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-12: Does the site provide a convenient, secure and practical selection of on-site bicycle parking to accommodate demand from staff and students? Are the bicycle parking quantities consistent with Hamilton's TDM Guidelines? If no, can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-13: Does the site provide bike share stations in close proximity to schools within the public right-of-way for riders 16 and older? If no, can it be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

3.3. Transit Access

SS-14: Does the site provide convenient connections from building entrances to transit stops using well-lit, direct and barrier-free walkways? If no, can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-15: Are comfortable and weather-protected waiting areas provided at all transit stops serving the school site? If no, can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-16: Is transit route and schedule information displayed at main entrances to the school? If no, can it be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

3.4 Automobile Access

SS-17: Are lay-bys provided? If yes, are they located downstream of the school building entrance wherever possible? If no, can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-18: Does the site include bus loops which operate single-file, one-way, and in a counter-clockwise direction? *(Applicable for rural school sites only)*

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-19: If existing, are school bus lay-bys and loops designed to accommodate the anticipated number of buses and no more? If no, can retrofit design improvements be implemented?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-20/21: Are there opportunities to implement a vehicle exclusion zone around the school with off-site pick-ups and drop-offs?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-22: Is parking provided along a side of the school that does not front on a street?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-24: Have opportunities for reductions in parking been investigated in collaboration with the City?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-25: Are preferential carpool parking spaces and on-site carshare vehicle(s) provided for staff and high-school sites? If no, can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SS-26: Are the number of accessible parking spaces provided as per City of Hamilton by-laws and located within 30 m of an accessible entryway to the school? If no, can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

4 Supportive Neighborhoods: Access around Schools

4.3 Active Transportation Network

SN-1: Are sidewalks provided on both sides of the street along the streets surrounding the school site? If no, can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-2: Do sidewalks near the site have a minimum clear width of 1.8 m? Has urban braille been applied to sidewalks near the site if in an urban setting? If no, can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-3: Is enhanced lighting provided along corridors near the school? Has a “high” pedestrian activity level for school routes and streets around school sites been assumed when calculating required illuminance levels? If no, can lighting be enhanced?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-4: Are formal protected pedestrian crossings provided (at least every 100 m in urban areas and every 180 m in suburban areas) near the school site? If no, can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-5: Are high-visibility ladder crosswalk markings installed at all school crossings and other crossings in the vicinity of the school? If no, can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-6: Is lighting provided at all pedestrian crossings near the school? Has a “high” pedestrian activity level for intersections around the school site been considered when calculated required illuminance levels? If no, can lighting be enhanced?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-7: Is there a cycling network in the vicinity of the school site that is appropriate for all ages and abilities? If no, can facilities be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-8: Are posts and rings or other short-term bicycle parking provided near the school site? If no, can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-9: Is at least one bike share station located in close proximity to the school site, for secondary schools? If no, can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-10: Are off-street paths provided to provide connectivity to the site? Are the paths paved and illuminated? If no, can they be added or improved?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

4.4 Transit Integration

SN-11: Does the site prioritize transit connections to major after-school destinations (e.g. libraries and athletic centres)?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-12: Are bus schedules coordinated with school dismissal times for routes with significant student/staff ridership?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-13: Is a transit stop provided along the school frontage for transit routes that run adjacent to the school site? If no, can they be modified?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-14: Are transit stops located at intersections that are in close proximity to the school to maximize convenience for users? If no, can they be modified?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-15: Are bus stops located on the far side of intersections where feasible, and away from school driveways and busy pedestrian crossings around the school? If no, can they be modified?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-16: Are floating/island platform bus stops included on streets with bicycle lanes or cycle tracks?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

4.5 Street Design near Schools

SN-19: Are streets near the school site designed with the smallest possible corner radii and narrowest possible lane widths? If no, can they be modified?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-20: Is on-street lay-by parking provided near the school site to reduce the effective street width? If no, can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____

SN-21: Are streets designed/retrofitted to include a mix of traffic calming measures? If no, can they be added?

Yes ☐ No ☐ N/A ☐ Rationale / mitigation if needed:_____