

EXECUTIVE SUMMARY

E.1 Introduction

The City of Edmonton in conjunction with its partners the Edmonton Public School Board (EPSB), the Edmonton Catholic School Division (ECSD) and the Greater North Central Francophone School Board (Conseil Scolaire Centre-Nord, CSCN) commissioned the City of Edmonton School Site Functionality Study to allow for a more definitive understanding of the dynamics of transportation operations around school/park sites in the City.

The primary purpose for completing this project was to identify methods for improving traffic operations in the immediate vicinity of school/park sites, outlining how issues are identified, how policies, land use and engineering solutions could be modified and how solutions can be selected to address identified issues. Although the City of Edmonton has established a number of safety related protocols in school/park areas, the City's goal through the completion of this study is to identify other opportunities and solutions to enhance student safety. A fundamental purpose for the study's completion is to provide consistency in the application of improvement measures across the City of Edmonton and to review functionality related issues associated with joint school/park sites.

E.2 Issue Identification

Observations were completed at 15 elementary/Jr. High Schools in the City of Edmonton to better understand existing issues and concerns.

High volumes of traffic at schools during arrival and pick-up times can lead to poor traffic circulation and often unsafe conditions for pedestrians, bicyclists and parents. For example, vehicle congestion and queuing during drop-off and pick-up times can conflict with pedestrian and bicycling circulation; students walking or bicycling to or from school may not use or have access to sidewalks or crosswalks; school parking areas may be of insufficient supply and unorganized, and lack of traffic controls and markings; and school buses may block visibility of pedestrians and bicyclists.

Some of the recurring issues observed at the school sites surveyed include the following:

- Parking and leaving vehicles unattended in drop-off areas;
- Parking in bus loading zones;
- Parents using bus-only zones for drop-off;
- Double queuing in drop-off areas with no space for vehicles to bypass;
- On-site bus loading zones not sufficient to accommodate all buses, buses blocking sidewalk;
- Parents parking across sidewalks;
- Parents using staff parking lot for drop-off and pick-up (Ellerslie North and Princeton);
- Reversing movements within drop-off area due to parked vehicles (mainly at St. John Bosco);

- Queue entering drop-off area backing up onto roadway, blocking through traffic; and
- Left turns entering and exiting drop-off areas creating queues and congestion on- and off-site.

Some of the recurring issues observed off-site include the following:

- Adjacent local roadways with parking on both sides leave one shared lane for two-way travel, causing congestion;
- U-turns on roadways adjacent to the school;
- Parents parking in no parking areas on-street; blocking sight lines around school or creating shared two-way single travel lanes on adjacent roadways;
- Students and parents jaywalking across roadways adjacent to the school;
- Off-site bus loading areas not sufficient to accommodate all buses; buses blocking travel lanes; and
- Parking in ETS zones.

Where some of the issues identified above existed at the surveyed school sites, school administrators have successfully implemented mitigation measures to improve operations. Some of the effective mitigation strategies employed include the following:

- Staff members directing the flow of traffic at school accesses (i.e. allowing right turn movements only) to minimize the impact on through traffic on adjacent roadways and to prevent vehicles from blocking sidewalks (i.e. Johnny Bright School and Michael Strembitsky School);
- Staff members monitoring on-site drop-off/pick-up areas to enforce loading/unloading activity only and to ensure parents are not parking and walking students into the school (i.e. Johnny Bright School, Michael Strembitsky School, St. Kateri School);
- Staff member monitoring on-site drop-off/pick-up area exit onto adjacent roadway to enforce left turn ban during peak periods; (i.e. Michael Strembitsky School);
- Pylons blocking half of entrance to drop-off/pick-up area to prevent double queuing; however, this minimizes the opportunity for vehicles to fill available spaces further along the drop-off zone (i.e. Johnny Bright School and Michael Strembitsky School); and
- Staff parking lot entrances blocked off to prevent drop-off/pick-up activity in parking lots. (i.e. St. Martha School, St. John Bosco School, Delton School, St. Kateri School, St. Augustine School).

E.3 New School Site Selection

Transportation should be a fundamental consideration when selecting a new school site. Identifying and selecting school/park sites with fewer potential transportation issues or concerns could eliminate the need for costly retrofits in the future or ongoing safety/congestion related concerns.

Based on a review of the literature, it has been determined that key factors to be considered from a traffic accommodation and neighbourhood integration perspective include the location of the school/park site relative to its surrounding land uses (proximity to commercial, multi-family etc.), neighbourhood connectivity and catchment area impacts. School site selection best practices are summarized in **Table E.1**.

Table E.1: School Site Selection Best Practices

Key Guidelines
<ul style="list-style-type: none"> • <i>Identify at the earliest planning stage parent and bus drop off requirements to assist in determining school/park site frontage requirements, access control opportunities, availability of on-street parking, etc.</i>
<ul style="list-style-type: none"> • <i>School/park sites should be situated centrally within a service area.</i>
<ul style="list-style-type: none"> • <i>School/park sites should abut two roadway frontages with at least one of the roadways being a collector roadway to efficiently and safely serve school populations.</i>
<ul style="list-style-type: none"> • <i>Adjacent residential land uses located across the street from school park sites should ideally be either of a flanking nature or be of a backing-on format.</i>
<ul style="list-style-type: none"> • <i>Elementary school sites should desirably be located as close as possible to the residential areas with provision for safe pedestrian and bicycle accessibility to minimize walking distances and reduce traffic congestion.</i>

E.4 Physical Design Measures

Increased traffic congestion on and around school sites, as a result of increased vehicle trips to and from schools, means increased potential conflict points between vehicles and between pedestrians and vehicles. Given the short duration of peak school-generated traffic activity, off-site roadway improvements solely for the benefit of the school are not necessarily the answer. Conversely, on-site roadway design measures to reduce congestion cannot be implemented without considering their integration with adjacent roadways. Careful planning in the design of school traffic accommodation and circulation measures to minimize traffic congestion, conflict points, and safety concerns must be considered both on- and off-site.

Ideally, accommodation of the various travel modes should be physically separated from a design perspective and should be enforced from an operations perspective.

Passenger Loading Areas

An on-site drop-off/pick-up area that is separated from other transportation uses represents the best practice for a passenger loading area.

In addition to safety considerations, the extent to which parents will choose to leave the adjacent roadway to use a provided on-site drop-off/pick-up area is related to the efficiency of its design and operation. For

example, delays in the drop-off area as a result of double-parked vehicles or vehicles waiting to make a left turn onto the adjacent street upon exit discourage its use by parents seeking efficiency over order.

To promote the use of on-site passenger loading areas, the following best practices in design and operation, summarized in **Table E.2**, should be followed.

Table E.2: On-Site Passenger Loading Area Best Practices

Key Guidelines
<ul style="list-style-type: none"> Based on the literature review in combination with the site observations completed, it is anticipated that in the order of 0.5m per student is required to accommodate queues generated by drop-off/pick-up activity (combined on-site and off-site demand).
<ul style="list-style-type: none"> Where feasible and practical, construct new on-site parent drop-off/pick-up facilities.
<ul style="list-style-type: none"> The passenger loading/unloading area should be separated from school bus loading and pedestrian and cyclist arrivals.
<ul style="list-style-type: none"> Drop-off area design should never require vehicles to reverse.
<ul style="list-style-type: none"> Drop-off/pick-up areas should operate as one-way counter-clockwise circulation so that students are loaded and unloaded directly to the curb/sidewalk without having to cross a vehicular path. One travel lane should be provided adjacent to the loading lane to allow vehicles to pass.

Although it is preferable to accommodate designated passenger loading on-site, formalizing the use of on-street curb for passenger loading should be considered for existing sites that do not have available on-site space and for new sites where accommodating an adequate linear length for passenger loading is not feasible.

Passenger drop-off/pick-up should not be permitted on the side of the street opposite the school site. Although crosswalks should be provided to facilitate the safe crossing of pedestrians and cyclists, every effort should be made to encourage and accommodate on-street passenger loading/unloading in locations that do not require students to cross streets. Best practices with respect to off-site passenger loading areas are summarized in **Table E.3**.

Table E.3: Off-Site Passenger Loading Area Best Practices

Key Guidelines
<ul style="list-style-type: none"> Based on the literature review in combination with the site observations completed, it is anticipated that in the order of 0.5m per student is required to accommodate queues generated by drop-off/pick-up activity (combined on-site and off-site demand).
<ul style="list-style-type: none"> Reallocate curb side space for drop-off/pick-up activities where feasible and practical.
<ul style="list-style-type: none"> Restrict parking on the far side of the frontage roadway.

School Bus Loading Zones

Best practices and guidelines recommend the provision of an independent, dedicated, bus loading area. Although the needs of a site may be difficult to predict and may change over time as attendance boundaries change with demographics over time, **Table E.4** summarizes the preferred characteristics of bus loading areas.

Table E.4: School Bus Loading Zone Best Practices

Key Guidelines
<ul style="list-style-type: none"> • <i>Independent, dedicated, bus loading areas should be provided.</i>
<ul style="list-style-type: none"> • <i>Every identified school bus parking space should be 15m in length.</i>
<ul style="list-style-type: none"> • <i>A single-file counter-clockwise drop-off design (passenger loading occurring adjacent to the school) which does not require buses to reverse is the preferred staging method.</i>
<ul style="list-style-type: none"> • <i>School buses should be oriented such that students' path to school does not cross driveways or parking lots.</i>

Adjacent Streets

Based on the site observations completed, it was clear that where parking was available on both sides of a frontage roadway, parents used both curbsides to pick up and drop off students. Parent parking on both sides of a roadway in front of a school creates additional pedestrian crossing movements and is a safety concern. **Table E.5** presents the best practices with respect to streets adjacent to school sites.

Table E.5: The Design of Flanking Roadways Best Practices

Key Guidelines
<ul style="list-style-type: none"> • <i>School/park sites should be located such that adjacent land uses either flank or back onto a shared roadway.</i>
<ul style="list-style-type: none"> • <i>The adjacent roadway should be narrowed to accommodate two basic travel lanes and a single school-side curbside drop-off/parking lane. The curbside lane should be protected by sidewalk bulbing.</i>
<ul style="list-style-type: none"> • <i>Adjacent travel lanes should be in the order of 3.6m wide and the adjacent parking lane should be about 3.0m wide to accommodate door swings.</i>

Site Access and Circulation

One-way circulation on school sites should be promoted, resulting in at least two (if not more) site accesses. School site accesses should be located on roadways with a relatively flat grade to ensure good sight lines. The location of site accesses should also consider the predominant direction of traffic and

student origins so that most drivers turn right when exiting the school. **Table E.6** presents the best practices with respect to site access and circulation.

Table E.6: Site Access and Circulation

Key Guidelines
<ul style="list-style-type: none"> All site and regulatory signage and markings shall comply with the <i>Manual on Uniform Traffic Control Devices (MUTCD)</i>.
<ul style="list-style-type: none"> Enforcing a right-turn outbound movement from a school site (through temporary curbing or traffic monitor) improves traffic flow on-site and reduces vehicle queues.
<ul style="list-style-type: none"> Facilitating legal U-turn movements through a roundabout downstream or upstream (as required) from the school to facilitate access/egress and reduce around-the-block movements should be considered.
<ul style="list-style-type: none"> The use of separate driveways for parent traffic and bus traffic at elementary schools is preferred. A single site access which then splits on-site is also an appropriate design tactic.
<ul style="list-style-type: none"> Driveways should not be located too close to nearby intersections. The <i>City of Edmonton Access Control Management Guideline</i> should be referenced.

E.5 Procedures Relating to Education and Encouragement

Education, encouragement and enforcement solutions, as well as school policies that address arrival and dismissal times and define expectations for parents and students should also be part of an overall school traffic mitigation toolbox. **Table E.7** presents the best practice guidelines in regards to education and encouragement.

Table E.7: Education and Encouragement Best Practices

<ul style="list-style-type: none"> The <i>City of Edmonton</i> in combination with the local area school boards should develop a series of educational guidebooks intended to build a foundation of information that will assist schools and school boards in developing safe learning environments and associated traffic safety related procedures.
<ul style="list-style-type: none"> Educate parents about having their children choose alternative transportation modes to and from school including parent outreach programs (conferences, flyers, police presentations, school newsletters, school websites and personal contact).
<ul style="list-style-type: none"> Employ enforcement techniques as and when required to address such issues as speeding through school zones, illegal or unsafe manoeuvres or parking violations.