

2024-25  
Routing Simulation Guidelines

Ontario Ministry of Education

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## Overview

This document provides a common set of parameters used to derive key inputs to allocate the Student Transportation Grant within the Grants for Student Needs (GSN).

Using the common parameters, School Boards and their respective Student Transportation Consortia are to produce a Routing Simulation. This simulation aims to determine the optimal number of vehicles required to deliver transportation services to students.

For the purposes of the routing simulation, a student is generally defined as:

- a pupil of the School Board who satisfies the conditions for the right to attend a publicly funded elementary or secondary school without the payment of fees as outlined under the Education Act; and
- as a day school pupil of the School Board, under the age of 21, as of October 31st, 2023.

# 1. Eligibility Criteria for Student Transportation Grant Funding

The following outlines criteria used to determine eligibility of students that are to be reflected in the Routing Simulation.

## 1.1. Distance Eligibility

The distance between a student's designated address to their designated school, that meets the distance condition set out below:

- a. Designated Address:** The address specified by a parent/guardian. It can be a residential address (e.g., a home address) or an alternate (non-residential) address (e.g., a childcare centre).

To determine distance eligibility, only one designated address per student should be used.

- In the case of custody arrangements, multiple designated addresses for a student may be used.

- b. Designated School:** The school determined based on the designated address and the catchment area of a school, as established by the School Board.

A designated school can be:

- A regular school whose catchment area covers the designated address. If the designated school is deemed to be operating at over capacity by the School Board, an alternate school can be assigned; or
- A Program school, such as French Immersion Programs, Gifted, or Magnet whose catchment area covers the designated address.

NOTE: The designated school should not reflect a program school that does not include the designated address within its catchment area

- c. Distance Measurement:** The distance between a student's designated address and their designated school is measured from the closest point of the property line of a student's designated address to the property line of the designated school.

Distance eligibility criteria is met if the measured distance, as noted above, is equal to or greater than the numbers outlined in Table 1.1. based on the grade of the student (as determined by the board).

**Table 1.1.** Distance Thresholds

Distance between Designated Address and Designated School (in km)	JK/SK	Grades 1 to 8	Grades 9 to 12
	0.8km	1.6km	3.2km

## 1.2. Eligibility Other than Distance

In cases where a student does not meet the Distance Eligibility Criteria noted in Section 1.1., the following conditions can be considered for eligibility:

- a. Student with Special Transportation Needs (STN):** A student is considered STN if at least one of the following conditions is met:

  - The School Board has identified the student (e.g., through IPRC or IEP processes) as requiring transportation;
  - Approved documentation, such as an application/request form and/or a medical note indicating a medical condition requiring transportation; or
  - Attending a designated specialized program or approved local treatment centre.
- b. Hazard Walking Conditions:** Conditions that may pose safety risks for a student to walk from their designated address to school and vice versa. These conditions include at least one of the following:

  - Multi-lane roads with higher speed limits and higher volumes of traffic;
  - Infrastructure and physical characteristics (e.g., body of water, areas with lack of sidewalks and/or controlled crossings, such as stop signs, traffic lights, crosswalks, crossing guards);
  - Railway crossings (e.g., not signaled); or
  - Other safety factors identified by authorities, such as law enforcement authorities.

The application of hazard conditions may vary based on the age of the student, and specific thresholds on what constitutes hazard conditions may vary based on local geography and/or circumstances.

## 1.3. Optimizing Ridership (Opt-In / Opt-Out)

To ensure that routing simulation reflect an efficient and optimal plan, opt-in or opt-out processes that can identify students who use transportation services should be applied to help align simulation results with actual ridership.

## 2. Assigning Mode of Transportation

Assigning an appropriate mode of transportation, encompassing school buses, contracted vehicles, public transit, taxi company-operated vehicles, and parent-operated vehicles, may be based on several factors, such as:

- **Student Need:** Examples include students who require adapted (accessible) vehicles and students designated as ride alone.
- **Safety and Service-Level:** Examples include the type of vehicle needed for local geographies (e.g., certain road conditions).
- **Availability of Mode of Transportation:** Examples include asset supply based on the contractor or regional availability and accessibility.
- **Cost Effectiveness:** Examples include the relative cost of alternate modes of transportation.
- **Routing Strategy:** Examples include the number of runs and the available capacity on vehicles.

In general, an optimal routing simulation should maximize the number of students on a vehicle. This includes placing students on existing runs or creating new runs on existing routes before net new routes are introduced to ensure the maximum capacity of a vehicle has been efficiently used.

Additionally, several factors, such as adjusting bell times and arrival-departure windows, should be considered before implementing a new route.

In cases where all viable alternatives, such as integration into an existing route is not feasible, Consortia should follow the preference outlined in Table 2.1 to align the mode of transportation with each student's unique circumstances.

**Table 2.1.** Assigning Mode of Transportation based on Needs

Type of Need	Description (For eligible students)	Preference							
		Highest	—————→						Lowest
<b>GENERAL (ELEMENTARY)</b>	Elementary students without any additional needs	Existing Run or Route (of any vehicle type)	Full-Size	Mid-Size	Mini-Size	Parent	Taxi	CV	
<b>GENERAL (SECONDARY)</b>	Secondary students without any additional needs	Existing Run or Route (of any vehicle type)	Public Transit	Full-Size	Mid-Size	Mini-Size	Parent	Taxi	CV
<b>STN-EQUIPMENT</b>	Students requiring vehicles with specialized equipment	Existing Run or Route (of any vehicle type)	Full-Size-Adapt	Mid-Size-Adapt	Mini-Size-Adapt			Adaptive CV	
<b>RIDE-ALONE</b>	Students need to ride on their own due to an IEP or other acceptable reasons	Existing Run or Route (of any vehicle type)	Parent	Taxi	CV	Mini-Size	Mid-Size	Full-Size	
<b>SERVICE STANDARDS</b>	When assigning a student to an existing route increases ride-time								
<b>LOW VOLUME DEMOGRAPHY</b>	Not enough students on a route								
<b>GEOGRAPHY (OTHER CONDITIONS)</b>	Road conditions that require smaller vehicles (e.g., turn-around, back-up)								
<b>GEOGRAPHY (ROAD CONDITIONS)</b>	Road conditions that require heavier vehicles (e.g., unpaved road with steep climbs)								

Refer to Table 2.2 for the definitions of various vehicle types.

**Table 2.2. Vehicle Types**

<b>Vehicle Type</b>	<b>Definition</b>
School Bus	A school bus (chrome, yellow or MFSAB) which varies by size, capacity, and accessibility. There are six school bus types based on size, capacity, and accessibility (Full-Size, Full-Size-Adapt, Mid-Size, Mid-Size-Adapt, Mini-Size, Mini-Size-Adapt)
Full-Size	School bus with passenger seating capacity of 49 and over
Full-Size-Adapt	School bus, which includes wheelchair, with passenger seating capacity of 49 and over
Mid-Size	School bus with passenger seating capacity of 31 to 48
Mid-Size-Adapt	School bus, which includes wheelchair, with passenger seating capacity of 31 to 48
Mini-Size	School bus with passenger seating capacity of 10 to 30
Mini-Size-Adapt	School bus, which includes wheelchair, with passenger seating capacity of 10 to 30
Contracted Vehicle (CV)	A vehicle (that is not a school bus) that is operated by a school bus operator, under contracts with Consortia and School Boards, that are mainly used for home-to-school (and vice versa) student transportation. There are five contracted vehicle sizes (Sedan, Mini-Van, Mini-Van-Adapt, Large-Van, Large-Van-Adapt)
Sedan	School-purposes sedan with passenger seating capacity of up to 4
Mini-Van	School-purposes minivan with passenger seating capacity of up to 6
Mini-Van-Adapt	School-purposes mini-van, which includes wheelchair and ambulatory, with passenger seating capacity of up to 6
Large-Van	School-purposes large van with passenger seating capacity of 7 to 10
Large-Van-Adapt	School-purposes large van, which includes wheelchair and ambulatory, with passenger seating capacity of 7 to 10
Parent-Operated	A vehicle owned and operated by a parent; and used to transport children (other than their own) for home-to-school (and vice versa) student transportation.
Taxi-Company-Operated	A taxi company-operated vehicle, licensed by a local municipality and used for fare-paying customers; the primary purpose of this vehicle is not for student transportation services.



### 3. Parameters Related to Service Standards

Outlined below are commonly used service standard parameters aimed at supporting service levels for students and optimizing transportation planning.

It is important to note that while each parameter may impact a specific aspect of service, combinations of parameters may produce comparable results depending on local circumstances.

#### 3.1. Walk-to-Stop Distance (Maximum)

The walk-to-stop distance represents the distance from a designated address to a stop that a student is expected to walk (i.e., pickup and drop-off location) to access transportation to school.

Table 3.1. outlines the specified maximum walk-to-stop distances for different grades that should be reflected in the routing simulation.

**Table 3.1.** Maximum Walk-to-Stop Distance

	<b>JK/SK</b>	<b>Grades 1 to 8</b>	<b>Grades 9 to 12</b>
<b>Maximum Walk-to-Stop Distance (km)</b>	0.8km	0.8km	1.6km

Several factors affect the placement of stops, including selecting locations to ensure a safe stop for boarding or space considerations for students to wait in groups.

Certain circumstances, such as dead-end streets, private driveways, or road conditions, may require exceptions to the walk-to-stop thresholds noted above.

#### 3.2. Ride Time (Maximum)

Ride time refers to travel time between a student's designated address and their designated school under typical conditions, and vice-versa.

The maximum ride time is determined by a School Board's and Consortium's policies – which can vary by grade.

For most students, actual ride time would be shorter in duration than the specified maximum time.

The typical ride time specification establishes a maximum as specified in Table 3.2.

**Table 3.2.** Maximum Ride Time (One-way travel: From Home to School or vice-versa)

	<b>JK to Grade 8</b>	<b>Grades 9 to 12</b>
<b>Range of Maximum Ride Time (min)</b>	60 to 75min	60 to 90min

For some students, geographic circumstances, such as the physical distance from the designated school, may require exceptions to the thresholds noted above.

### **3.3. Load Factor Capacity for Buses**

Load factor capacity pertains to the number of students that can be accommodated on a School Bus.

Generally, students in grades JK to Grade 6 are assigned 3 to a seat (weighted as 1), while students in Grades 7 to 12 are assigned 2 to a seat (weighted as 1.5).

Note that the loading factor may vary for STN students based on the assigned vehicles and the distinct needs of these students.

### **3.4. Arrival and Departure Windows**

The time in minutes before school starts or after school ends during which school vehicles are permitted to arrive at or depart from a school for student drop-off or pick-up is referred to as the arrival and departure window.

These windows are influenced by supervision staff, especially in the elementary panel. School Boards and Consortia are responsible for consistently assessing and optimizing arrival and departure windows to ensure efficient planning.

### **3.5. Bell Time Optimization**

To promote continuous improvement and identify efficiencies in transportation planning, School Boards and Consortia are to review bell times regularly.