

# **TRANSIT FORECASTING**

## **INTRODUCTION**

A spreadsheet model was developed to identify existing transit deficiencies and additional transit service requirements. The model comprised transit trip projections and screenline assignment components. The details of the approach used by ENTRA Consultants in forecasting Kingston transit ridership by 2026 are presented in this appendix.

## **INFORMATION REVIEW**

### **REVIEWED MATRICES**

#### 2001

- ~ work, all mode person (3-hr PM peak period)
- ~ work, auto person (3-hr PM peak period)
- ~ non-work, auto person (3-hr PM peak period)
- ~ all-purpose, auto person (3-hr PM peak period)
- ~ all-purpose, auto driver (PM peak hour), based on:
  - ~ peak hour factor = 0.39
  - ~ auto occupancy = 1.24
- ~ all-purpose, auto person (PM peak hour)

#### 2026

- ~ work, all mode person (3-hr PM peak period)
- ~ work, auto person (3-hr PM peak period)
- ~ non-work, auto person (3-hr PM peak period)
- ~ all-purpose, auto person (3-hr PM peak period)
- ~ all-purpose, auto driver (PM peak hour), based on:
  - ~ peak hour factor = 0.39
  - ~ auto occupancy = 1.24
- ~ all-purpose, auto person (PM peak hour)

### **MAJOR GROWTH AREAS**

Major growth areas (2001 – 2026) were derived based on the growth of all-purpose, auto person trips (PM peak hour) to identify potential new transit market areas:

- ~ new development areas in Cataraqui;
- ~ C.F.B. Kingston;
- ~ downtown Kingston; and
- ~ Queen’s University/Kingston General Hospital precinct.

### **MAJOR FUTURE TRAVEL CORRIDORS**

2026 all-purpose, auto person trips (PM peak hour) were first assigned to screenlines to identify major future travel corridors or corridors with substantial transit potential. These include:

- ~ Eastbound Lasalle Causeway;
- ~ Northbound / Southbound Division Street;
- ~ Eastbound / Westbound Princess Street;
- ~ Westbound Union Street and King Street; and
- ~ Eastbound / Westbound Bath Road.

### **NETWORK ASSIGNMENT REVIEW**

ENTRA reviewed network assignments for 2026 all-purpose, auto person (PM peak hour) to identify capacity-deficient corridors / corridors with substantial transit potential:

- ~ Eastbound Highway 15;
- ~ Eastbound LaSalle Causeway;
- ~ Northbound Division Street between Concession Street and Highway 401;
- ~ Westbound Concession Street between Division Street and Princess Street;
- ~ Westbound Bath Road between Portsmouth Road and Gardiners Road;
- ~ Eastbound / Westbound Princess Street between Division Street and Concession Street and
- ~ Westbound Princess Street between John A. MacDonald Boulevard and Sydenham Road.

### **EXISTING MODAL SPLITS**

The existing modal splits for Kingston were obtained from data collected through the household travel survey. Data were extracted regarding mode splits for various travel trip purposes, as well as times of travel. The following is a mode split summary of the travel data. It should be noted that the transit mode split indicated excludes trips made by school bus.

#### all-purpose, daily trips

- ~ non-auto = 18 percent
- ~ transit = 3 percent

#### all-purpose, 3-hr PM peak period

- ~ non-auto = 18 percent
- ~ transit = 3 percent

#### work, PM peak hour

- ~ non-auto = 22 percent
- ~ transit = 1 percent

Based on the above, existing conditions were summarized:

2001

- ~ 27,169 work, auto person (3-hr PM peak period)
- ~ 56,831 non-work, auto person (3-hr PM peak period)
- ~ 84,000 all-purpose auto person trips (3-hr PM peak period)
- ~ 102,439 all-purpose, all mode trips (3-hr PM peak period)
- ~ 3,073 (3%) all-purpose, transit person trips (3-hr PM peak period)
  
- ~ 31,784 work, all mode person trips (3-hr PM peak period)
- ~ 12,363 (39% of pk. pd.) work, all mode person trips (PM peak hour)
- ~ 10,569 (39% of pk. pd.) work, auto person trips (PM peak hour)
- ~ 1,794 (14.5%) work, non-auto person trips (PM peak hour)
  
- ~ 1,195 (39% of pk. pd.) all-purpose transit person trips (PM peak hour), comprising:
- ~ 124 (1%) work, transit person trips (PM peak hour)
- ~ 1,071 (99%) non-work, transit person trips (PM peak hour)

**EXISTING TRANSIT SERVICE CAPACITY ACROSS SCREENLINES**

The existing transit capacity across screenlines was established based on the existing PM peak hour frequencies shown in Table A.1 and the assumed vehicle capacity of 60 riders/vehicle.

Table A.1  
Summary of Existing Transit Service Frequencies

<i>Route No.</i>	<i>Route Name</i>	<i>PM Peak Hour Frequency (Min)</i>
1	Montreal/Woodbine	30
1a	Montreal/Collins Bay	30
2	Division St/Calvin Park	30
3	Polson Park	30
4	Via Rail/Strathcona Park	30
5	Mall Shuttle	60
6	Cataraqui Centre/Downtown	30
7	Henderson Place/Cataraqui Town Centre	60
9	North Service Dial-A-Ride	Tuesday and Thursday only
10	Amherstview	30
12	Kingscourt/Grenadier	30
15	Industrial Park	30
17	Queen's Shuttle (Evening Service Sept-April)	30
21	Sunday Service Montreal/Malls	60
22	Sunday Service Division/Calvin Park	60

## **TRANSIT TRIP PROJECTIONS**

The 2026 transit trips were projected on the basis of the following steps:

- ~ Derive 2001 work, non-auto person (PM peak hour) trips.
- ~ Adjust 2026 work, non-auto person (PM peak hour) O-Ds to achieve overall target proportion of 1 percent of work, all modes (PM peak hour) – this represents the work, transit person (PM peak hour) component.
- ~ Derive 2026 non-work, transit person trips (PM peak hour) by using the 2001 non-work auto mode PM peak hour trip matrix and a control total of 1,071, and applying a growth factor to the 2026 non-work auto mode trip matrix.
- ~ Assign derived 2026 work, transit component of non-auto (PM peak hour) and non-work transit across screenlines to check demand against capacity to understand amount of transit service required to meet existing travel patterns at future population and employment levels.
- ~ Identify potential transit modal split target for zones, based on anticipated service concepts in response to observed future travel patterns and deficiencies.
- ~ Identify future potential “new” transit (PM peak hour) across screenlines, based on applying transit modal split assumptions to all-purpose, auto person (PM peak hour).
- ~ Identify total (transit component of non-auto + “new” transit) future transit (PM peak hour) across screenlines.

## **TRANSIT CORRIDOR IDENTIFICATION**

The derived 2026 total transit (PM peak hour) was assigned across screenlines to check demand against capacity to understand amount of transit service required for an “aggressive” transit approach at future population and employment levels. Based on the screenline assignment, capacity-deficient transit corridors during PM peak hour are:

- ~ Westbound Princess Street between Division Street and Gardiners Road;
- ~ Westbound Bath Road east of Gardiners Road;
- ~ Westbound / Eastbound La Salle Causeway; and
- ~ Northbound Division Street.

The increase in all-purpose transit (PM peak hour) demand across screenlines from 2001 to 2026 with and without “new” riders was identified as well to understand amount of additional transit service required to meet existing travel patterns at future population and employment levels and the implications of an “aggressive” transit strategy.

Transit desirelines were plotted for each of the urban zones and the major transit linkages (i.e., O-D pairs) were reviewed to identify potential future transit corridors.