

**Porter Airlines Inc.
BBTCA Traffic Diversion
Assessment**

Final Report
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Submitted by

**Dillon Consulting
Limited**

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Executive Summary

Dillon has undertaken a review of the relationship between Billy Bishop Toronto City Airport (BBTCA) and vehicle travel in the Greater Toronto Area (GTA).

Auto travel demand within the GTA that is currently generated by passengers flying out of BBTCA was reviewed under three conditions:

- Travel associated with existing conditions (passengers flying out of BBTCA).
- To test BBTCA's influence on vehicle travel patterns, changes to travel that would occur if BBTCA were not available for travel. This includes one scenario where all air travelers are assumed to fly out of Lester B. Pearson International Airport (LBPIA) instead, and another where some air travelers choose not to travel, or choose to travel via a different mode (train or automobile).
- Travel associated with modal split changes due to planned new airport access alternatives.

The following summarizes the total annual travel distances under the various scenarios tested, based on the assumptions documented herein:

| <i>Scenario:</i> | <i>Annual travel distance (vehicle-km):</i> |
|---|--|
| Existing conditions (passengers flying out of BBTCA): | 15.3 million |
| With additional shuttle service to BBTCA: | 14.4 million |
| All BBTCA traffic travels instead through LBPIA: | 34.6 million |
| 85% of BBTCA traffic travels instead through LBPIA; remainder makes alternate travel arrangements or does not travel: | 33.2 million (GTA) 39.7 million (outside GTA) |
| All BBTCA traffic travels instead through LBPIA; increase in transit use due to UP Express | 29.7 million |

The assessment concluded the following:

- BBTCA's net impact on traffic is 18 – 19 million fewer kms driven in the GTA or 54 – 56% annually less travel.
- Travel to BBTCA is less impactful than travel to LBPIA from the perspective of total vehicle distance traveled
- Transit options to BBTCA are more attractive and enable more passengers to reach the airport using non-auto (and non-taxi) travel modes.

- BBTCA operations have resulted approximately 39.7 million less annual vehicle-km of travel on roadways outside the GTA.
- With the introduction new travel options to LBPIA (UP Express) and enhanced shuttle service at BBTCA, BBTCA presence will continue to have a significant reduction on vehicle-km by 15 million or 52%

1.0 Introduction

Dillon has been retained by Porter Airlines Inc. (“Porter”) to undertake an assessment of representative trip distances of passengers using Billy Bishop Toronto City Airport (BBTCA) as an alternative to Pearson Airport (LBPIA). The goal is to determine the influence that BBTCA has on traffic and travel patterns and the resulting impact to the Greater Toronto Area and surrounding regions by considering the distance traveled by air passengers destined to and from the airport under a number of scenarios:

1. Existing conditions with BBTCA as currently operating including effectiveness of current shuttle bus operations;
2. To test BBTCA’s influence on vehicle travel patterns, existing conditions without BBTCA (assuming BBTCA travelers must fly out of Pearson or make other alternate arrangements). This scenario enables the assessment of the net impact of BBTCA on vehicle-km traveled in the GTA;
3. Future (near-term) conditions with improvements to the existing modal split at BBTCA (as a result of the introduction of improved shuttle, offsite parking and other possible initiatives) and at LBPIA (as a result of a new Union Pearson Express service).

2.0 Existing Conditions

2.1 Modal Split

Transit is a more attractive option for passengers accessing BBTCA than for passengers accessing LBPIA. For any given trip to and from the respective airports, there is a greater likelihood that a passenger flying out of BBTCA will select a non-auto access mode than a passenger flying out of LBPIA.

In this context:

- “modal split” refers to the transportation mode used to travel between the airport and the passenger’s local (GTA) origin or destination;
- “auto” generally refers to private vehicle (self-drive or pick-up / drop-off) and taxi / airport limousine service; and
- “non-auto” generally refers to public transit, airport shuttles and bus service, walking / cycling, etc.

Modal split was compared for passengers flying out of BBTCA and LBPIA. In addition to identifying the overall modal split at each facility, further analysis was undertaken to review

differences in travel choices depending on the area of the GTA in which the passenger originates or is destined. This was undertaken because, as further discussed in **Section 2.2**, BBTCA serves a more localized clientele with lower access distances, whereas LBPIA serves a more regional clientele that travels farther on average to access the airport, and thus the overall modal split is not directly comparable. Passengers were divided into five catchment areas:

- **The central area** (generally from Dupont Street south to Lake Ontario, and from Bathurst Street east to the Don River);
- **West of the central area** (generally from Dupont Street south to Lake Ontario, and from the Etobicoke Creek east to Bathurst Street);
- **North of the central area** (generally within a 2 km radius of Yonge Street, between Summerhill subway station and Highway 401);
- **East of the central area** (generally between the central area and Victoria Park Avenue, south of St. Clair Avenue); and
- The remainder of the GTA.

The first four areas cover the majority of the former City of Toronto and are the densest concentration of current BBTCA passengers.

For BBTCA passengers, modal split data were obtained from the passenger survey undertaken at BBTCA in October 2012. A random sample of approximately 1,150 arriving and departing passengers was interviewed over a seven-day period. Amongst the interview questions, passengers were asked to identify their origin or destination within the GTA and the mode(s) of travel used to travel to or from the airport.¹ The survey results are summarized in **Table 1**.

¹ The survey appears to have understated the proportion of passengers using the shuttle. Shuttle use to the airport was likely understated in the survey results because passengers were surveyed at random as they entered the mainland ferry terminal, and because shuttle passengers arrived in clusters, whereas auto and taxi drop-offs were more dispersed. Shuttle use from the airport was likely understated because some passengers without specific pick-up arrangements anticipate taking a taxi “by default” while still on the island, but elect to take the shuttle when they see that it is available at the mainland terminal, particularly if there is a queue of passengers waiting for taxis. This has been corrected at a broad level in prior analyses undertaken for the Toronto Port Authority, but for these analyses the survey data have not been adjusted due to the inability to determine an appropriate correction when the data are reviewed at a finer level of detail. This will result in an overstatement of auto travel to and from BBTCA, and therefore a conservative assessment.

Table 1 — Surveyed Modal Split for BBTCA Access

| Local Origin / Destination | BBTCA access modal split: | | |
|----------------------------|---------------------------|------|-------|
| | Car | Taxi | Other |
| Total | 21% | 54% | 26% |
| Central area | 8% | 62% | 30% |
| West of central area | 21% | 62% | 17% |
| North of central area | 28% | 57% | 15% |
| East of central area | 26% | 53% | 21% |
| Other | 47% | 30% | 22% |

For LBPIA, modal split data were obtained from the 2001 and 2006 *Transportation Tomorrow Survey* (TTS) database. This is a travel survey of GTA residents undertaken every five years, collecting information about trip-making habits of residents, including the origin and destination of each trip made on the survey date, the transportation mode used for each trip, and the purpose of the trip. The 2011 data is not yet available for use. Due to the nature of the survey, it only reflects trips to/from LBPIA made by GTA residents. The results are summarized in *Table 2*.

Table 2 — LBPIA Access Modal Split (GTA Residents)

| Local Origin / Destination | LBPIA access modal split: | | |
|----------------------------|---------------------------|------|-------|
| | Car | Taxi | Other |
| Total | 74% | 21% | 6% |
| Central area | 54% | 27% | 19% |
| West of central area | 60% | 35% | 5% |
| North of central area | 46% | 50% | 5% |
| East of central area | 54% | 36% | 10% |
| Other | 79% | 17% | 4% |

Because the TTS only surveys GTA residents, it does not capture the trip-making habits of passengers visiting Toronto from other areas. An alternate source of modal split data is the traffic study prepared by KPMG as part of the planning for the Union Pearson Express rail link (*Lester B. Pearson International Airport Air-Rail Link Study: Traffic and Financial Projections, Final Report*, March 2001). As part of the KPMG study, a passenger survey was undertaken at LBPIA in 1999. The overall modal split is as follows:

- 35%: auto passenger
- 25%: taxi or airport limousine passenger
- 14%: self-drive (own car)
- 12%: self-drive (rented car)

- 8%: bus or mini-bus
- 6%: hotel courtesy van

Modal split data is not available in as much detail when broken down geographically, although the data indicate the following:

- The largest market for bus access to LBPIA is from outside the GTA (e.g., privately operated shuttles from cities such as London and Kitchener). 15% of passengers from outside the GTA travel to LBPIA on a bus.
- The second largest market is the area consisting of the downtown and area to the west (corresponding roughly to the “central area” and “west of central area” categories described above — the data are not disaggregated any further). Roughly 12% of passengers from this area travel to LBPIA on a bus. Bus usage is more common amongst visitors than GTA residents, and largely relates to use of the Airport Express service that provides access to several downtown hotels.
- Elsewhere in the GTA, bus access to LBPIA is substantially lower, in the order of 2–3% of passengers, reflecting the reduced level of transit options available.

The KPMG data appears to confirm that the non-auto modal split is lower for LBPIA than BBTCA, even when considering the effect of where passengers are originating within the GTA. (85% of travelers from the central and west areas access LBPIA by auto or auto-related modes; for BBTCA, the auto mode split for this same area is approximately 70%.)

2.2 Geographic Distribution of Airport Passengers

Most passengers flying out of BBTCA originate in the central area of Toronto, and for most passengers BBTCA is closer and results in less vehicle travel than would an equivalent trip to LBPIA.

Table 3 subdivides the total passengers at LBPIA and BBTCA based on their local origin or destination within the GTA.

- More than half of BBTCA passengers originate within the central area of Toronto, and another one-quarter originate along the Yonge and Bloor-Danforth subway corridors within the old City of Toronto.
- LBPIA passengers are much more dispersed across the GTA. The TTS database indicates that only 20% of passengers originate from these areas, with the remaining 80% dispersed across the rest of the GTA.
- The LBPIA data likely understates the proportion of passengers destined to the central area, because it only includes GTA residents, and non-residents are more likely to have

downtown destinations. However, even after this adjustment, the downtown area is still not as strong a draw for LBPIA passengers. The 1999 KPMG travel survey indicates that the central area likely accounts for approximately 20–25% of passengers traveling to/from LBPIA.

The GTA origins and destinations of BBTCA and LBPIA passengers are illustrated as follows:

- *Appendix A* contains a reproduction of the figures prepared in the BBTCA passenger survey summary report, and shows the GTA origins / destinations of BBTCA passengers as well as subsets of passengers traveling via auto, taxi and shuttle.
- *Appendix B* contains figures illustrating the GTA origins / destinations of LBPIA passengers (GTA residents only), broken down by access mode, as obtained through the 2001 and 2006 TTS databases.

Table 3 — Geographic Distribution of Airport Passengers

| Local Origin / Destination | % of passengers in area of GTA: | |
|----------------------------|---------------------------------|-------|
| | LBPIA* | BBTCA |
| Central area | 7% | 54% |
| West of central area | 3% | 6% |
| North of central area | 7% | 10% |
| East of central area | 3% | 7% |
| Other | 81% | 23% |

**Flights taken by GTA residents only.*

2.3 Travel Distance to Airport

Using origin-destination data from the October 2012 passenger travel surveys, the total distance traveled by auto (or taxi) within the GTA by passengers traveling to and from BBTCA was estimated. During the travel survey, each passenger was queried as to their local (GTA) point of origin / destination. For each survey respondent, the total travel distance between BBTCA and the respondent’s local origin / destination point was calculated within a GIS model.

Responses were then separated into two categories: predominantly auto- and taxi-based, and predominantly “other”-based (transit, shuttle, walking). Where passengers identified more than one access mode (9% of respondents), the trip was allocated to the predominant access mode (e.g., an auto + TTC + shuttle trip would be predominantly “other”-based, since the auto component of the trip was likely a short trip to a subway station).

The auto and taxi access distances associated with each airport are likely understated for two reasons:

- They represent “shortest path” distances to and from each airport. In practice, many trips will use a somewhat less direct route to make use of a (perceived) faster facility.
- They represent one-way travel distances. A pick-up or drop-off trip via private auto would generally involve an additional “deadheading” trip with no passengers. This would also apply to taxi trips where a taxi driver dropping off passengers does not then wait at the airport to pick up an arriving passenger. We are unable to quantify the length of deadheading trips, only the length of the trip serving the passenger pick-up or drop-off.

Table 6 summarizes the distance that BBTCA passengers travel when accessing the airport depending on whether they access the airport primarily by auto / taxi or primarily by other modes, including transit, walking, and the airport shuttle.

Table 4 — Distance Traveled To/From BBTCA

| | Auto and taxi access | Shuttle, transit, walking | All passengers |
|---------------------------------------|----------------------|---------------------------|----------------|
| Total respondent travel distance (km) | 10,667 | 2,733 | 13,400 |
| Number of respondents | 736 | 261 | 997 |
| Average trip length (km) | 14.5 | 10.5 | 13.4 |

The average auto / taxi trip length was divided by the total number of passengers (all modes) to calculate the average number of vehicle-km generated per passenger, accounting for a discount related to trips made by non-auto modes. As part of this calculation, a further reduction was applied to reflect an average vehicle occupancy of 1.3 passengers per vehicle, which is comparable to auto occupancy levels observed in traffic surveys undertaken at BBTCA in 2010. The results of these calculations are summarized in **Table 7**.

Table 5 — Average Distance of BBTCA Passengers from BBTCA

| | BBTCA |
|---|--------|
| Total auto/taxi passenger travel distance | 10,667 |
| Total vehicle travel (1.3 passengers per vehicle) | 8,205 |
| Total passengers (all modes) | 997 |
| Average vehicle travel per total passenger | 8.2 |

On average, BBTCA passengers travel approximately 13 km to reach the airport (15 km if in a taxi or automobile; 11 km if predominantly using other modes). This leads to an average distance of approximately 8 vehicle-km per total passenger accessing the airport. Applied across

2012 passenger levels of approximately 1,870,000 passengers flying in and out of Toronto (excluding connections), this results in an estimated 15.3 million vehicle-km related to passengers traveling to and from BBTCA. A majority of the trips originate from closer to the downtown area and involve shorter than the 8 km trip distance.

3.0 Existing Conditions Without BBTCA

To assess the net impact that BBTCA has on vehicle travel related to airport access, scenarios were reviewed in which BBTCA is no longer in operation. Four potential alternatives were identified for passengers currently flying in and out of BBTCA:

- ***Fly out of LBPIA.*** There would be a difference in local vehicle travel due to the different travel route and potential differences in airport access mode (i.e., less attractive transit access).
- ***Use a different passenger travel mode.*** This would primarily consist of travel via train, but could also include travel via bus. There would be a negligible difference for these trips, since they would also be focused on downtown termini (Union Station; downtown bus terminal).
- ***Drive to / from Toronto.*** This would result in a substantial increase in vehicle travel, although over a much wider study area.
- ***Do not make the trip.*** Some passengers may have been encouraged to make trips that they might not otherwise take (or might not otherwise take as frequently) due, for example, to the convenience of BBTCA compared to the larger size or greater travel distance to LBPIA. These trips, if taken, would represent a net increase in vehicle travel in Toronto, at least as it relates to travel to and from the airport.

The relative degree of shift to each alternative will vary depending on the specific market being served.

Determining an overall impact on auto travel would require that a weighting be allocated to each alternative (i.e., in the event BBTCA was unavailable for use, x% of passengers currently flying via BBTCA would travel via LBPIA instead, y% would take another travel mode, z% would not make the trip, etc.). The proportion of travelers that would select each option is unknown, being dependent on numerous variables. Because of this, the net impact was determined in three ways:

- 1) The travel impacts for each alternative scenario were assessed individually, in isolation, at a “per passenger” level (where weighting is not necessary).
- 2) The travel impacts were assessed assuming all BBTCA passengers migrate to LBPIA.

- 3) The travel impacts were assessed assuming most, but not all, BBTCA passengers migrate to LBPIA, and the remainder make alternate arrangements, with assumptions made related to the weighting toward each individual alternative.

3.1 Impact of Shifting Trips To Pearson

The first scenario reviewed assumes that the market for air travel that has developed at BBTCA over the past seven years has now become essentially fixed and well established, and that if BBTCA was no longer available, all current BBTCA passengers would take flights operating out of LBPIA instead. In such a scenario, the total auto travel distance related to airport access would be different than today, for two reasons:

- Passengers would be traveling to a different destination and each individual trip would have a different travel distance depending on where in the GTA that trip originated.
- LBPIA exists in a different transportation context from BBTCA and passengers would make different choices in selecting the transportation mode to travel to and from each respective airport.

The travel distance to LBPIA was calculated for passengers currently flying out of BBTCA. The same methodology was used as documented in *Section 2.3*.

Table 6 summarizes the distance that BBTCA passengers currently travel when accessing BBTCA, and compares this distance with the equivalent distance that those passengers would travel to reach LBPIA.

Table 6 — Average Distance of BBTCA Passengers from BBTCA and LBPIA

| | Auto and taxi access | | | Shuttle, transit, walking | | | All passengers | | |
|---------------------------------------|----------------------|--------|--------|---------------------------|-------|--------|----------------|--------|--------|
| | LBPIA | BBTCA | Diff. | LBPIA | BBTCA | Diff. | LBPIA | BBTCA | Diff. |
| Total respondent travel distance (km) | 20,559 | 10,667 | -9,892 | 6,761 | 2,733 | -4,027 | 27,319 | 13,400 | 13,919 |
| Number of respondents | 736 | 736 | — | 261 | 261 | — | 997 | 997 | — |
| Average trip length (km) | 27.9 | 14.5 | -13.4 | 25.9 | 10.5 | -15.4 | 27.4 | 13.4 | -14.0 |

Approximately 52% of BBTCA passengers originate within 5 km of BBTCA, and more than 85% of passengers originate within 20 km of BBTCA. By comparison, only 17% of BBTCA passengers originate within 20 km of LBPIA; roughly 62% of BBTCA passengers would need to travel between 20 and 25 km to reach LBPIA.

The average auto / taxi trip length was divided by the total number of passengers (all modes) to calculate the average number of vehicle-km generated per passenger, accounting for a discount related to trips made by non-auto modes. The calculation was undertaken once assuming that BBTCA passengers would use the same mode to access LBPIA, and a second time assuming that half of the passengers accessing BBTCA via transit would instead elect to travel via auto or taxi to LBPIA (reflecting the difference in modal choice between the two airports). Calculating the average vehicle-km per total passenger reflects the impact both of the greater travel distance to reach LBPIA, and the less attractive transit options.

As part of this calculation, a further reduction was applied to reflect an average vehicle occupancy of 1.3 passengers per vehicle, which is comparable to auto occupancy levels observed in traffic surveys undertaken at BBTCA in 2010.

The results of these calculations are summarized in *Table 7*.

Table 7 — Average Distance of BBTCA Passengers from BBTCA and LBPIA

| | Same modal split for LBPIA and BBTCA | | | Higher auto/taxi modal split for LBPIA | | |
|---|---|--------|--------|---|--------|---------|
| | LBPIA | BBTCA | Diff. | LBPIA | BBTCA | Diff. |
| Total auto/taxi passenger travel distance | 20,559 | 10,667 | -9,892 | 23,939 | 10,667 | -13,272 |
| Total vehicle travel (1.3 passengers per vehicle) | 15,815 | 8,205 | -7,609 | 18,415 | 8,205 | -10,209 |
| Total passengers (all modes) | 997 | 997 | 0.0 | 997 | 997 | 0.0 |
| Average vehicle travel per total passenger | 15.9 | 8.2 | -7.6 | 18.5 | 8.2 | -10.2 |

On average, BBTCA passengers travel approximately 13 km to reach the airport (15 km if in a taxi or automobile; 11 km if predominantly using other modes). This leads to an average distance of approximately 8 vehicle-km per total passenger accessing the airport.

If the existing passengers were shifted to LBPIA without an increase in the proportion of travelers accessing the airport in taxis and automobiles, the average travel distance would increase to 27 km (28 km if in a taxi or automobile; 26 km if predominantly using other modes). This leads to an average distance of approximately 16 km per total passenger accessing the airport. This represents a 94% increase in vehicle-km related to airport access simply due to the fact that LBPIA is farther from the passenger market currently flying through BBTCA.

However, if existing BBTCA passengers were to shift to flights operating out of LBPIA, it is likely that the proportion of travelers accessing the airport in automobiles and taxis would increase, due to the lower convenience of non-auto access modes and the greater availability of parking at LBPIA. The average vehicle-km related to airport access would more than double,

from 8 km per total passenger at BBTCA to 19 km per total passenger at LBPIA. (This average distance forms the basis of the scenario in which all BBTCA passengers travel instead out of LBPIA, as shown in *Table 12*.)

3.2 Impact of Shifting Air Travel to Other Modes

It is possible that some trips currently being made on flights operating out of BBTCA would otherwise be made using other modes under the scenario where BBTCA is no longer available. The primary alternatives not involving air travel are private automobile and train (VIA, and Amtrak for cross-border travel). Bus travel options are also available but may be less attractive for longer-distance trips.

The proportion of travelers using each of these modes would depend on several factors, including:

- The comparative travel times;
- The comparative travel costs (train ticket vs. gas and maintenance / depreciation);
- The convenience of the train schedule (auto trips can generally be made at any time);
- The purpose of the trip (business vs. non-business);
- The duration of stay and need for a vehicle during that time; and
- The number of people traveling together.

A review was undertaken of the comparative travel time² and approximate travel cost³ for air, train and auto travel to the destinations currently served by Porter. The results are summarized in *Table 8* and *Table 9*.

² Travel time is calculated as follows:

- Auto travel: door to door under ideal traffic conditions.
- Train and air travel: terminal to terminal, not including groundside travel time to and from the airport / train station, check-in time, or time waiting for departure (i.e., arriving ahead of time).

³ Travel costs were determined as follows:

- Air and train ticket costs reflect one-way standard fares after taxes, fees and charges, assuming the tickets were being booked approximately one month in advance (i.e., booked in mid-October 2013 for travel in mid-November 2013).
- Automobile travel costs are “perceived” costs that assume the following:
 - Fuel costs were calculated based on an average fuel price of \$1.248/L, and an average fuel economy of 8.1 L/100 km.
 - Total average travel cost, including maintenance and depreciation costs, were assumed to be \$0.50/km, based on data from CAA.
 - Maintenance and depreciation tend to be viewed as “sunk costs” and are less visible at the time of travel than fuel costs, and were therefore discounted by two-thirds.

Table 8 — Comparison of Travel Cost for Alternative Travel Modes

| | Auto (perceived) | Train | Air |
|------------------|---------------------|-------|-------|
| Boston | \$205 | \$225 | \$175 |
| Chicago | \$195 | \$125 | \$180 |
| Halifax | \$420 | \$205 | \$230 |
| Moncton | \$360 | \$190 | \$225 |
| Montreal | \$130 | \$45 | \$170 |
| New York | \$185 | \$145 | \$125 |
| Ottawa | \$105 | \$45 | \$125 |
| Quebec | \$190 | \$95 | \$160 |
| Sault Ste. Marie | \$200 | — | \$190 |
| Sudbury | \$95 | \$65 | \$110 |
| St. John's | \$720 | — | \$315 |
| Thunder Bay | \$330 | — | \$155 |
| Timmins | \$170 | — | \$170 |
| Washington | \$180 | \$160 | \$170 |
| Windsor | \$85 | \$45 | \$170 |

In most cases train ticket costs are roughly equivalent to or less than airfare. (Rail and air ticket prices do not account for promotional specials.) Perceived auto costs tend to be lower than airfare for shorter-distance travel, but more expensive for longer-distance trips.

Table 9 — Comparison of Travel Time (hr) for Alternative Travel Modes

| | Auto | Train | Air |
|------------------|------|-------|-----|
| Boston | 8.3 | 22.2 | 1.8 |
| Chicago | 7.7 | 21.2 | 1.5 |
| Halifax | 16.7 | 28.3 | 2.5 |
| Moncton | 14.3 | 23.7 | 2.7 |
| Montreal | 5.3 | 4.9 | 1.4 |
| New York | 7.5 | 13.4 | 1.6 |
| Ottawa | 4.3 | 4.1 | 1.1 |
| Quebec | 7.6 | 9.0 | 1.8 |
| Sault Ste. Marie | 7.8 | — | 1.4 |
| Sudbury | 4.1 | 8.2 | 1.1 |
| St. John's | 34.0 | — | 3.6 |
| Thunder Bay | 15.0 | — | 1.7 |
| Timmins | 7.4 | — | 1.6 |
| Washington | 8.3 | 16.5 | 1.5 |
| Windsor | 3.6 | 4.1 | 1.0 |

Auto and train travel times are greater than air travel times. For auto trips, the difference is less than shown because the times listed do not include time required to travel to/from the airport, advance check-in, baggage pick-up etc., which would not be applicable to travel by car, and

because auto travel is generally not beholden to a departure schedule. However, it is also noted that auto travel does not include the need for periodic breaks (including potential overnight stops for longer trips).

In comparing train and auto travel times, train travel is generally competitive for trips in the Windsor–Ottawa/Quebec corridor, and generally not competitive (or unavailable) for domestic trips outside this corridor and for transborder trips. In comparing train and air travel times, the difference may not be as substantial as shown for some passengers due to groundside access factors (e.g., downtown train stations may be closer than the respective airports to passengers' local origins and destinations).

Each diverted trip that previously was made by train (or bus) would result in a negligible impact on vehicle travel, since train and bus trips would generally operate out of Union Station and the downtown bus terminal, respectively.

Each diverted trip that previously was made by automobile would result in a substantial reduction in vehicle travel, generally equivalent to the travel distance to/from Toronto (although the effect would be reduced to the extent that trips are made with two or more passengers traveling together). However, the majority of the travel reduction would be felt outside the GTA.

The one-way automobile travel distance that would be saved per flight is approximately as follows:

- Windsor: 370 km
- Sudbury: 400 km
- Ottawa: 450 km
- Montreal: 550 km
- Timmins: 720 km
- Washington: 760 km
- New York: 790 km
- Quebec: 800 km
- Chicago: 840 km
- Sault Ste. Marie: 850 km
- Boston: 880 km
- Thunder Bay: 1,400 km
- Moncton: 1,530 km
- Halifax: 1,790 km
- St. John's: 3,080 km

Annual passenger data was provided for 12 markets (Boston; Chicago; Halifax; Montreal; Moncton; New York; Ottawa; Quebec; Sault Ste. Marie; Sudbury; Thunder Bay; and Windsor). After weighting distances for different passenger levels to each of these markets, the average one-way road travel distance is in the order of 780 km. The average vehicle-km savings per diverted trip will be lower, however, because trips to more distant destinations would be more likely to switch to a different carrier operating out of LBPIA (or not make the trip) than switch to auto travel if BBTCA was unavailable.

3.3 Trip Is No Longer Made

It is possible that some current passengers fly out of BBTCA due to factors such as its convenience to downtown and proximity to most of its customer base, its smaller size compared to LBPIA, or the general passenger experience, and would not make the trip if BBTCA was not available.

The traffic impact of trips that would no longer be made has two components:

- Removal of trips currently being made to/from the airport; and
- Changes in travel within the GTA while visitors are in town (or while residents are out of town).

For each flight that no longer occurs, a trip currently being made to or from the airport would be removed from the road network. The reduction in vehicle travel is equivalent to the average rate of 8 km per BBTCA passenger, as documented in *Section 2.3*. This is a net reduction in vehicle travel compared to existing conditions.

There would also be a change in vehicle travel due to changes in economic activity. There is a traffic decrease associated with GTA residents being out of town and not going about their regular daily travel. Conversely, there is a traffic increase associated with visitors from out of town generating additional vehicle travel while staying in Toronto. Insufficient data are available to determine the magnitude of this difference, and whether there would be a net increase or decrease as a result of this factor.

3.4 Summary Impact on Vehicle Travel

Table 10 summarizes the impact of the individual alternatives to flying out of BBTCA, as described in the preceding sections.

Table 10 — Impact of Individual Travel Alternatives on Airport Access Travel Distance

| Scenario: | Impact per affected passenger (one-way): |
|---------------------------|---|
| Trip made through LBPIA | <ul style="list-style-type: none"> • Average vehicle travel increases from 8 km to 19 km per passenger, because of the following: <ul style="list-style-type: none"> ○ BBTCA is closer than LBPIA to the majority of its clientele. (Put another way, passengers choose BBTCA due to its greater convenience and proximity.) ○ BBTCA has better non-auto accessibility, whereas LBPIA is more reliant on access via auto and taxi / limo. Therefore, it is expected that some passengers currently accessing BBTCA by transit, shuttle or on foot would need to switch to auto or taxi / limo if flying instead out of LBPIA. |
| Trip made by train or bus | <ul style="list-style-type: none"> • Negligible difference at GTA end of trip. (The trip would likely be made out of a downtown terminal, and would therefore need to travel a similar distance as to BBTCA.) |
| Trip made by car | <ul style="list-style-type: none"> • Substantial auto travel increase of at least 400 km per trip. • Average trip for all existing passengers is approximately 700 km, but actual average would be less because of greater travel time and cost penalty for longer-distance trips. • Travel increase effects would be spread across a wide area. Only a portion of travel increase would be experienced within the GTA. |
| Trip is not made at all | <ul style="list-style-type: none"> • Decrease of 8 km per passenger associated with airport access (no longer any need to travel to airport). |

The overall impact of the above travel alternatives on vehicle travel depends on the proportion of travelers shifting to each alternative. Since this is unknown, two scenarios were assessed:

- All current BBTCA travelers migrate to flights operating out of LBPIA.
- 85% of current BBTCA travelers migrate to LBPIA flights, and the remainder make alternate arrangements or do not make the trip.

For the latter scenario, it was assumed that the travel choices would depend on the length of the flight and the availability and attractiveness of rail as an alternate mode.

Table 11 lists the assumptions that were made in these scenarios.

Table 11 — Reassignment of BBTCA Passengers

| Travel mode / airport: | Existing conditions | All BBTCA passengers to LBPIA | 85% of BBTCA passengers to LBPIA | | | |
|---|---------------------|-------------------------------|----------------------------------|------|-------|---------|
| | BBTCA | LBPIA | LBPIA | Rail | Drive | No trip |
| Short-range flights (400-500 km; 4h-5h drive) | | | | | | |
| Rail competitive with auto: | 100% | 100% | 85% | 10% | 2.5% | 2.5% |
| Rail uncompetitive / unavailable: | 100% | 100% | 85% | 0% | 10% | 5% |
| Mid-range flights (800-900 km; 8h drive) | | | | | | |
| Rail competitive with auto: | 100% | 100% | 85% | 2.5% | 2.5% | 10% |
| Rail uncompetitive / unavailable: | 100% | 100% | 85% | 0% | 5% | 10% |
| Long-range flights (14h-17h drive) | 100% | 100% | 85% | 0% | 0% | 15% |

Table 12 outlines the calculations to determine approximate vehicle travel under each scenario.

Table 13 summarizes the travel distance within the GTA and external to the GTA under each of the scenarios.

Table 12 — Travel Distance Calculations

| | Short-range | Mid-range | Long-range | Total |
|--|-------------|------------|------------|------------|
| Total passengers: | 881,500 | 775,000 | 213,500 | 1,870,000 |
| Scenario 1: Existing BBTCA trips | | | | |
| Avg veh-km per pax | 8.2 | 8.2 | 8.2 | 8.2 |
| Total veh-km to BBTCA | 7,228,000 | 6,355,500 | 1,749,500 | 15,333,000 |
| Scenario 2: All BBTCA trips shift to LBPIA | | | | |
| Avg veh-km per pax | 18.5 | 18.5 | 18.5 | 18.5 |
| Total veh-km to LBPIA | 16,307,000 | 14,338,000 | 3,946,500 | 34,591,500 |
| Scenario 3: 85% of BBTCA trips shift to LBPIA | | | | |
| Proportion shifting to LBPIA | 85.0% | 85.0% | 85.0% | 85.0% |
| Number shifting to LBPIA | 749,000 | 659,000 | 181,500 | 1,589,500 |
| Avg veh-km per pax to LBPIA | 18.5 | 18.5 | 18.5 | 18.5 |
| Total veh-km to LBPIA | 13,861,000 | 12,187,500 | 3,354,500 | 29,403,000 |
| Proportion shifting to car | 2.9% | 4.8% | 0.0% | 3.4% |
| Number shifting to car | 25,500 | 37,500 | 0 | 63,000 |
| Travel distance by car | 489 | 811 | — | 680 |
| Within GTA | 50 | 50 | — | 50 |
| Outside GTA | 439 | 761 | — | 630 |
| Total veh-km by car | 12,571,500 | 30,240,000 | 0 | 42,811,500 |
| Within GTA | 1,284,000 | 1,865,000 | 0 | 3,149,000 |
| Outside GTA | 11,287,500 | 28,375,000 | 0 | 39,662,500 |
| Proportion shifting to rail | 9.4% | 0.2% | 0.0% | 4.5% |
| Number shifting to rail | 83,500 | 1,500 | 0 | 85,000 |
| Avg veh-km per pax to Union | 8.2 | 8.2 | 8.2 | 8.2 |
| Travel distance for rail | 683,000 | 12,000 | 0 | 695,000 |
| Proportion not making trip | 2.6% | 10.0% | 15.0% | 7.1% |
| Number not making trip | 23,500 | 77,500 | 32,000 | 133,000 |
| Total veh-km | 27,115,500 | 42,439,000 | 3,354,500 | 72,909,000 |
| Within GTA | 15,828,000 | 14,064,500 | 3,354,500 | 33,247,000 |
| Outside GTA | 11,287,500 | 28,375,000 | 0 | 39,662,500 |

Table 13 — Total Vehicle Travel By Alternative

| | Short-range | Mid-range | Long-range | Total |
|---|-------------|------------|------------|------------|
| Total passengers: | 881,500 | 775,000 | 213,500 | 1,870,000 |
| GTA vehicle travel: | | | | |
| Scenario 1: Existing BBTCA trips | 7,228,000 | 6,355,500 | 1,749,500 | 15,333,000 |
| Scenario 2: All BBTCA trips shift to LBPIA | 16,307,000 | 14,338,000 | 3,946,500 | 34,591,500 |
| Scenario 3: 85% of BBTCA trips shift to LBPIA | 15,828,000 | 14,064,500 | 3,354,500 | 33,247,000 |
| Vehicle travel outside GTA: | | | | |
| Scenario 1: Existing BBTCA trips | 0 | 0 | 0 | 0 |
| Scenario 2: All BBTCA trips shift to LBPIA | 0 | 0 | 0 | 0 |
| Scenario 3: 85% of BBTCA trips shift to LBPIA | 11,287,500 | 28,375,000 | 0 | 39,662,500 |
| Total vehicle travel: | | | | |
| Scenario 1: Existing BBTCA trips | 7,228,000 | 6,355,500 | 1,749,500 | 15,333,000 |
| Scenario 2: All BBTCA trips shift to LBPIA | 16,307,000 | 14,338,000 | 3,946,500 | 34,591,500 |
| Scenario 3: 85% of BBTCA trips shift to LBPIA | 27,115,500 | 42,439,000 | 3,354,500 | 72,909,000 |

The following summarize the findings:

- If all current BBTCA passengers were instead to fly out of LBPIA, the GTA travel distance would be expected to increase by approximately 19.3 million vehicle-km, or approximately 126% compared to current conditions.
- If only 85% of current BBTCA passengers instead to fly out of LBPIA, and the remaining 15% either made alternate travel arrangements or chose not to travel (as per the assumptions outlined in *Table 11*):
 - The GTA travel distance would be expected to increase by approximately 17.9 million vehicle-km, or approximately 117%, compared to current conditions;
 - There would also be an additional 39.7 million vehicle-km incurred on roadways outside the GTA.

4.0 Future Conditions

4.1 Impact of UP Express

At LBPIA, the modal split for trips to/from the airport may be impacted by the completion of the Union Pearson (UP) Express rail link. This service will operate semi-express between Union Station and LBPIA, stopping only at the Dundas West station on Bloor Street and in Weston. It is envisioned to operate every 15 minutes for most of the day, with a total travel time of approximately 25 minutes. The ticket cost has not been set at this time, but previous statements have put a one-way fare in the order of \$15 to \$25.

As part of the early planning for the UP Express, KPMG undertook a passenger survey at LBPIA in which passengers were asked as to their likelihood of using such a service to travel to and from the airport. KPMG estimated that approximately 7.25% of passengers would use the UP Express at a fare of \$15 (approximately \$20 after adjusting for inflation from 1999 to 2013). However, this would include passengers already traveling to LBPIA by bus, so the effect on travel by other modes would be less than this.

From reviewing the data published in the KPMG report, it is estimated that approximately 22% of passengers to/from the central and “west of central” areas were expected by KPMG to use the UP Express assuming a (then) \$15 fare. By comparison, the existing modal split in this area was surveyed by KPMG to be in the order of 12%. Therefore, the UP Express was estimated to approximately double the transit modal split for trips between downtown and the airport.

When reviewing the effect of shifting BBTCA traffic to LBPIA, it was assumed that half of the passengers currently traveling to BBTCA via transit would instead elect to travel via auto or taxi if they were to shift their flight to LBPIA. If the UP Express doubles the modal split between downtown and LBPIA, it would counteract the transit reduction applied to BBTCA trips shifted to LBPIA. In other words, with the UP Express in place, extension of the KPMG calculations would appear to indicate that an air passenger from downtown would be equally likely to travel to the airport via some form of transit whether their flight was at BBTCA or LBPIA. If this occurs, the average vehicle travel for current BBTCA passengers that are shifted to LBPIA would be roughly as shown in *Table 7*:

- 8.2 vehicle-km per passenger to BBTCA (existing conditions);
- 18.5 vehicle-km per BBTCA passenger diverted to LBPIA (existing context); and
- 15.9 vehicle-km per BBTCA passenger diverted to LBPIA (with UP Express).

If all 1,870,000 BBTCA passengers shifted to LBPIA, the travel distance would be as follows:

- 15.3 million vehicle-km to BBTCA (existing conditions);
- 34.6 million vehicle-km to LBPIA (existing context); and
- 29.7 million vehicle-km to LBPIA (with UP express).

4.2 Impact of Additional BBTCA Shuttle Service

At BBTCA, additional shuttle service has previously been recommended as part of the ongoing BBTCA Strategic Transportation Study, as a measure to reduce the impact of vehicular traffic surrounding the airport. The impact on modal split would depend on the nature of the additional service, including route and stop locations. It would be most likely to attract trips currently

traveling via taxi (which represents 54% of trips) from passengers originating from the area bounded by Queen Street, Lake Ontario, Bathurst Street and University Avenue, for whom the existing shuttle service requires more substantial indirect travel. It would be less likely to substantially change access by private auto (which is more widely dispersed) or attract trips currently using the existing shuttle (which are primarily destined within walking distance of Union Station, or along the Yonge subway downtown).

We also understand that Porter Airlines will be operating a shuttle from an existing parking lot farther east in the waterfront area, as a new service in the near future. If marketed only as a remote parking lot shuttle, it could reduce traffic volumes locally at BBTCA, but would have a minimal impact on the proportion of access trips made by automobile when considered more broadly. If also marketed for use by waterfront residents destined to the airport, it could attract some airport trips currently made by taxi.

In previous analyses undertaken for the Toronto Port Authority, approximate modal split projections were developed based on the 2012 BBTCA passenger travel survey. The survey asked passengers about the likeliness that they would use a shuttle service either to a remote parking area, or to a remote taxi facility. While this is somewhat different from the effect of introducing new routes or stops, it was nevertheless the best source available. In these prior analyses, it was determined that the proportion of BBTCA passengers that use the shuttle could be increased by approximately 85% with service enhancements to the shuttle. An adjustment of this magnitude would result in the “other” modal split at BBTCA increasing from 26% to 48%, with a corresponding decline in auto and/or taxi trips.

It is likely that the majority of additional shuttle trips would originate from the downtown core and the area to the west (i.e., between Queen and the lake, and between Spadina and Yonge). They would be less likely to be diverted from longer-distance trips. Therefore, the number of diverted auto / taxi trips was calculated, and it was assumed that all diverted trips would be in the order of 3 km, on average.

As shown in *Table 14*, based on the above assumptions, the shuttle is estimated to reduce the total vehicle-km traveled to/from BBTCA from approximately 15.3 million to approximately 14.4 million, or by approximately 6% compared to current conditions. This scenario would remove approximately 318,000 vehicle trips per year from the vicinity of the airport.

Table 14 — Estimated Effect of Shuttle Service on Vehicle-km to BBTCA

| | |
|---|------------|
| # of auto / taxi trips | 1,384,000 |
| # of "other" trips | 486,000 |
| # of total trips | 1,870,000 |
| Diverted auto / taxi trips (passengers) | 413,000 |
| Average passengers per auto / taxi | 1.3 |
| Diverted auto / taxi trips (vehicles) | 318,000 |
| Average diverted trip distance | 3 km |
| Total diverted veh-km | 954,000 |
| Baseline veh-km | 15,333,000 |
| Future veh-km | 14,379,000 |

Appendix A



TORONTO PORT AUTHORITY
 BCTCA STRATEGIC TRANSPORTATION PLAN

**AIRPORT PASSENGER TRAVEL SURVEY -
 SUMMARY OF ALL SURVEY
 RESPONDENTS LOCATIONS**
 FIGURE 3

- RESPONDENT DOT DENSITY (1 DOT = 1 RESPONDENT)
- ARTERIAL ROAD
- HIGHWAY
- MUNICIPAL BOUNDARY
- LAKE ONTARIO

Notes:
 1. Based on 1018 BCTCA surveys conducted from October 10 to October 17, 2012.
 2. Represents approximately 95% of survey respondents (others are outside of map area).



MAP DRAWING INFORMATION:
 DATA PROVIDED BY: APTN
 MAP CREATED BY: LIA
 MAP PRODUCED BY: HAD 1983 UTM Zone 17N

FILE LOCATION:
 C:\Users\j\Documents\BCTCA Strategic Transportation Plan
 MapDrawings\A_Hesper\james.mxd

PROJECT: 12-6889
 STATUS: DRAFT
 DATE: 10/25/12





TORONTO PORT AUTHORITY
 BETCA STRATEGIC TRANSPORTATION PLAN

**AIRPORT PASSENGER TRAVEL SURVEY -
 SUMMARY OF SURVEY RESPONDENTS
 LOCATIONS - ARRIVALS**
 FIGURE 4

- RESPONDENT DOT DENSITY (1 DOT = 1 RESPONDENT)
- ARTERIAL ROAD
- HIGHWAY
- MUNICIPAL BOUNDARY
- LAKE ONTARIO

Note:
 1. Based on 603 BETCA surveys conducted from October 10 to October 17, 2012



SCALE 1:250,000



MAP DATA SOURCE INFORMATION:
 DATA PROVIDED BY AHR

MAP DATE: 02/15/11
 MAP CREATED BY: PAI
 MAP PROJECTION: NAD 83 UTM Zone 17N

FILE LOCATION: \\D:\BETCA\BETCA\Transportation\Map
 1212012\Survey_Arrivals.mxd

PROJECT: 12-4889
 STATUS: DRAFT
 DATE: 10/20/12





TORONTO PORT AUTHORITY
 BETCA STRATEGIC TRANSPORTATION PLAN

**AIRPORT PASSENGER TRAVEL SURVEY -
 SUMMARY OF SURVEY RESPONDENTS
 LOCATIONS - DEPARTURES**
 FIGURE 5

- RESPONDENT DOT DENSITY (1 DOT = 1 RESPONDENT)
- ARTERIAL ROAD
- HIGHWAY
- MUNICIPAL BOUNDARY
- LAKE ONTARIO

Note
 1. Based on 490 BETCA surveys conducted from October 10 to October 17, 2012.



MAP DRAWING INFORMATION:
 DATA PROVIDED BY MVA

MAP PREPARED BY: JAA
 MAP CHECKED BY: JAA
 MAP PROJECTED: NAD 1983 UTM Zone 17N

PROJECT: 12-4688
 STATUS: DRAFT
 DATE: 1/28/12





TORONTO PORT AUTHORITY
BITCA STRATEGIC TRANSPORTATION PLAN

**AIRPORT PASSENGER TRAVEL SURVEY -
SUMMARY OF SURVEY RESPONDENTS
LOCATIONS - CAR USERS**
FIGURE 7

- RESPONDENT DOT DENSITY (1 DOT = 1 RESPONDENT)
- ARTERIAL ROAD
- HIGHWAY
- MUNICIPAL BOUNDARY
- LAKE ONTARIO

Note:
1. Based on 207 BITCA surveys conducted from October 10 to October 17, 2012.

SCALE 1:250,000
0 2 4 8 16 KM

MAP DRAWING INFORMATION:
DATA PREPARED BY: WSP
MAP CREATED BY: JAA
MAP PRODUCTION: MAD 1983 UTM Zone 17N
FILE LOCATION: D:\DATA Strategic Transportation Plan
MAD\Map\wp_04a.rvt



PROJECT: 12-0589
STATUS: DRAFT
DATE: 10/30/12





TORONTO PORT AUTHORITY
BETCA STRATEGIC TRANSPORTATION PLAN

AIRPORT PASSENGER TRAVEL SURVEY -
SUMMARY OF SURVEY RESPONDENTS
LOCATIONS - TAXI USERS
FIGURE 8

- RESPONDENT DOT DENSITY (1 DOT = 1 RESPONDENT)
- ARTERIAL ROAD
- HIGHWAY
- MUNICIPAL BOUNDARY
- LAKE ONTARIO

Note:
 1. Based on 632 BBTCA surveys conducted from October 10 to October 17, 2012.



DATA SOURCES: BENTLEY SYSTEMS
 DATA PROVIDED BY: MTRM
 MAP CREATED BY: JAA
 MAP PROJECTION: NAD 83 UTM Zone 17N
 MAP SCALE: 1:500,000
 MAP DATE: 2012
 MAPD Surveys, Inc. 2012

PROJECT: 12-0580
 STATUS: DRAFT
 DATE: 10/09/12



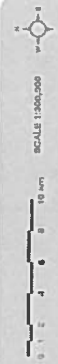


TORONTO PORT AUTHORITY
BETCA STRATEGIC TRANSPORTATION PLAN

AIRPORT PASSENGER TRAVEL SURVEY -
SUMMARY OF SURVEY RESPONDENTS
LOCATIONS - SHUTTLE USERS
FIGURE 9

- RESPONDENT DOT DENSITY (1 DOT = 1 RESPONDENT)
- ARTERIAL ROAD
- HIGHWAY
- MUNICIPAL BOUNDARY
- LAKE ONTARIO

Note:
 1. Based on 147 BETCA surveys conducted from October 10 to October 17, 2012.



MAP DRAWING INFORMATION:
 DATA PROVIDED BY MTR
 MAP CREATED BY LLA
 MAP CHECKED BY PAM
 MAP PROJECTION: NAD 83 UTM Zone 17N
 FILE: 07-AT-030
 SOURCE: LLA, BETCA Strategic Transportation Plan
 INFO: Survey Profile.mxd



PROJECT: 12-0289
 STATUS: DRAFT
 DATE: 10/09/12



Appendix B

PORTER AIRLINES
BETCA ROAD TRAFFIC DIVERSION IMPACT
 REVIEW

ORIGIN OF TRIPS TO PEARSON
INTERNATIONAL AIRPORT, (2001 & 2006)

FIGURE 1

TRIP ORIGINS (1 DOT = 20 TRIPS)

- DRIVER TRIPS
- AUTO PASSENGER TRIPS
- TRANSIT TRIPS
- TAXI TRIPS
- OTHER TRIPS
- ARTERIAL ROAD
- HIGHWAY
- MUNICIPAL BOUNDARY
- LAKE ONTARIO

Note:
 1) Reflects trips made by GTA residents only and is based on a random 5% sample size

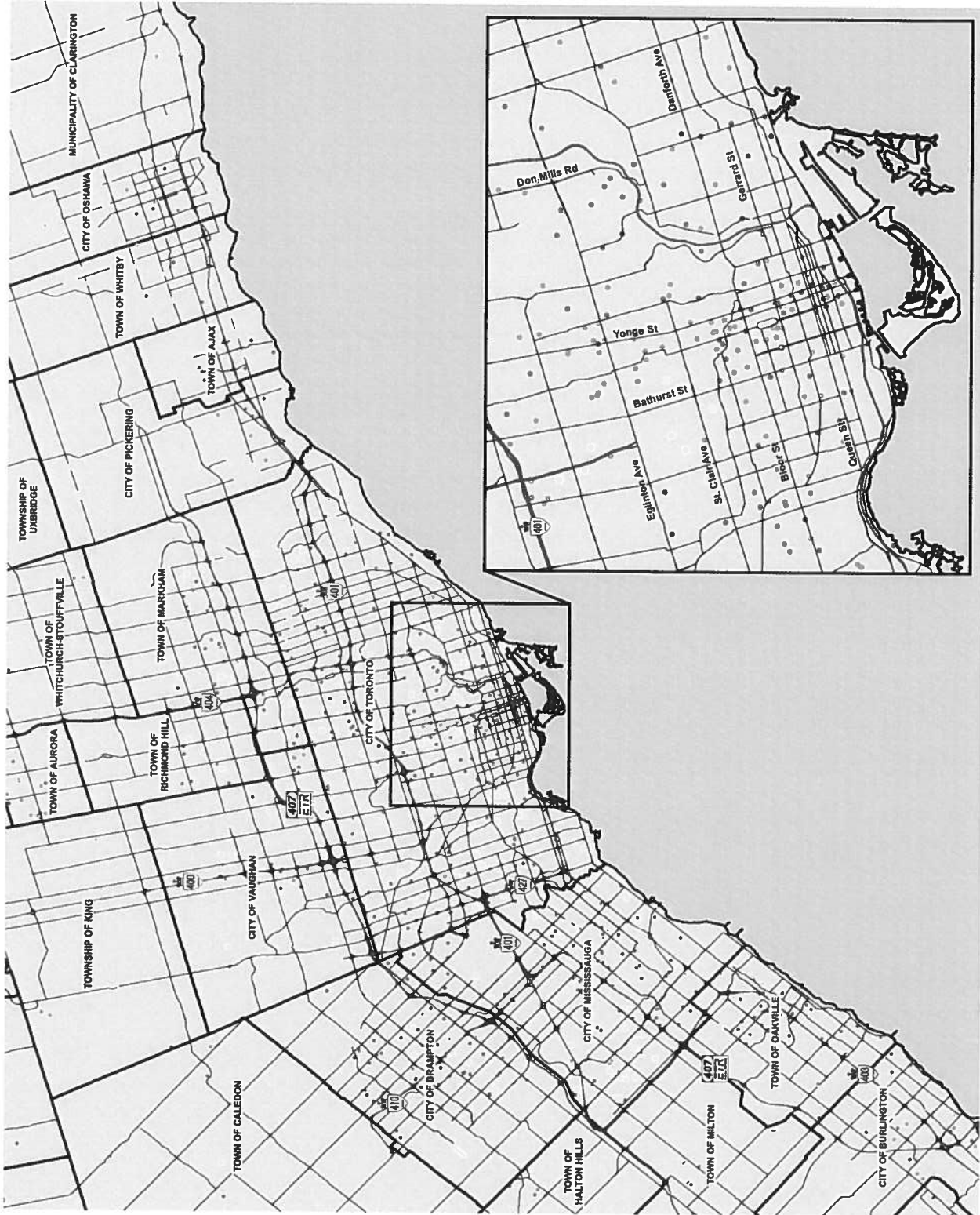


MAP DRAWING INFORMATION:
 DATA PROVIDED BY MTR & TRANSPORTATION TOMORROW SURVEY
 MAP CREATED BY: PAI
 MAP CHECKED BY: PAI
 MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION:
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PROJECT: 13-0006
 STATUS: DRAFT
 DATE: 10/23/13



PORTER AIRLINES
BETCA ROAD TRAFFIC DIVERSION IMPACT
REVIEW

DESTINATION OF TRIPS FROM PEARSON
INTERNATIONAL AIRPORT, (2001 & 2006)

FIGURE 2

TRIP DESTINATIONS (1 DOT = 20 TRIPS)

- DRIVER TRIPS
- AUTO PASSENGER TRIPS
- TRANSIT TRIPS
- TAXI TRIPS
- OTHER / UNKNOWN TRIPS
- AIRTERMINAL ROAD
- HIGHWAY
- MUNICIPAL BOUNDARY
- LAKE ONTARIO

Notes:
 1. Trips are types made by GTA residents only and is based on a random 5% sample also.

MAP DRAWING INFORMATION:
 DATA PROVIDED BY MTR & TRANSPORTATION TOMORROW SURVEY
 MAP CREATED BY: LIA
 MAP CHECKED BY: PAI
 MAP PROJECTION: NAD 1983 UTM Zone 17N

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PROJECT: 13-0204
 STATUS: DRAFT
 DATE: 10/25/13



PORTER AIRLINES
BETICA ROAD TRAFFIC DIVERSION IMPACT
REVIEW

DESTINATION OF TRIPS FROM PEARSON
INTERNATIONAL AIRPORT, (2006)

FIGURE 6

- TRIP DESTINATIONS (1 DOT = 20 TRIPS)
- DRIVER TRIPS
 - AUTO PASSENGER TRIPS
 - TRANSIT TRIPS
 - TAXI TRIPS
 - OTHER / UNKNOWN TRIPS
 - ARTERIAL ROAD
 - HIGHWAY
 - MUNICIPAL BOUNDARY
 - LAKE ONTARIO

Note:
 1: Reflects trips made by GTA residents only and is based on a random 5% sample size.



MAP DRAWING INFORMATION:
 DATA PROVIDED BY MARR & TRANSPORTATION TOMORROW SURVEY
 MAP CREATED BY: LIA
 MAP CHECKED BY: PAJ
 MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION:
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DILLON
 CONSULTING

PROJECT: 12-1054
 STATUS: DRAFT
 DATE: 10/22/13

