Passenger Transportation Board
MOVING FORWARD, TOGETHER

Indicators

The Board uses trip data and other data sources to make objective, data-driven, and evidence-based decisions to support a healthy and sustainable passenger transportation industry. The Board is committed to transparency in its data analysis.

The Board has developed 10 indicators that provide insight into factors related to public need and sound economic conditions pertaining to the taxi and TNS sectors in B.C. Each indicator is primarily identified with a public need or sound economic conditions factor, as described in their respective policies in the Board's Policy Manual.

It is important to understand that each indicator represents only one dimension of the passenger transportation market. To draw larger conclusions about the status of the industry, it will be necessary to consider several indicators in relation to each other.

The Board relies on the advanced economic expertise of its economists and data analysts to ensure quantitative analysis presents an accurate picture of the industry.

- Learn how the Board makes objective evidence-based decisions.
- Understand more about quantitative analysis.

Accessibility factor (PN)

Wheelchair Accessible Vehicles (WAVs) indicator

Primary Factor: Accessibility Factor as described in the public need policy.

Description: This indicator measures the number of active WAVs in a region using three metrics:

1. Number of Active WAVs: this metric includes three components:

   a. A count of the total number of WAVs on the road.

   b. A count of the number of active WAVs that reported at least one accessible trip in the month.

   c. The number of WAVs allocated by the Board in the region.

2. Active WAVs per 100,000 Population: This metric gives context to the number of active WAVs by comparing it to population statistics over time.

3. Number of Accessible WAV Trips: This metric measures the total number of trips for WAVs recorded as accessible trips in the region, including hailed and reserved trips.[1]

Measurement:

1. Number of Active WAVs:

   a. The number of active WAVs is determined by cross-referencing the list of WAVs reported to the Registrar's Office during licence renewal with the list of active vehicles (which may not necessarily have provided accessible trips) reported to the Trip Database.

   b. The number of active WAVs providing at least one accessible trip is determined by limiting the list of active WAVs to those reported as having provided accessible trips. Both metrics can be further normalized per 100,000 persons to indicate their change relative to the population.

   c. The number of WAVs allocated by the Board is found in the licensee's terms and conditions.

2. Active WAVs per 100,000 Population is determined by dividing the number of WAVs that provided accessible trips in a month by the region's population, then multiplying 100,000.

3. Number of Accessible WAV Trips is determined by the number of completed accessible trips provided by registered WAVs reported to the Trip Database.

Interpretation: The number of active WAVs indicates the accessibility and inclusiveness of passenger transportation services for individuals who use wheelchairs or other mobility devices. Generally, a higher number of active WAVs, especially compared to overall population growth, indicates a greater level of service availability for individuals using wheelchairs or other mobility devices. On the other hand, too many WAVs relative to demand concentrating in a small area may indicate inefficiency.

Examples: The Board's public need policy lists examples of the accessibility factor, which are set out below alongside their corresponding implications on wheelchair accessible vehicles:

- The proposed service provides more or improved service to persons with mobility disabilities, including WAVs.
    - The number of WAVs directly and positively contributes to the availability of service for individuals who use wheelchairs and other mobility devices. A sufficient number of WAVs also improves service quality for individuals who use wheelchairs and other mobility devices.

Limitations: In calculating the number of WAVs, vehicles and accessible trips from companies that did not report data to the Trip Database cannot be captured. Some conventional trips may be mistakenly labelled as accessible trips in the Trip Database.

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[1] When a trip type is marked as "accessible" in an identified WAV vehicle, it is assumed that the trip was delivered to a passenger using a wheelchair or other mobility device.

Availability indicator

Primary Factor: Accessibility as described in the public need policy.

Description: This indicator measures the availability of passenger transportation services using three metrics:

1. Active vehicles per 1,000 population: This metric shows how many vehicles are available to serve every 1,000 people in an area.

2. Matching time by hour of the week: This metric shows how long passengers usually wait to be picked up during different hours of a typical week[2].

3. Hourly vehicle availability patterns: This metric shows how the number of active vehicles changes by hour across the typical week, relative to trip volume.

Measurement:

1. Active vehicles per 1,000 population is calculated in two steps:
   a) First, the average number of unique active vehicles per day in each month is calculated for each service area.
   b) Second, this average is divided by 1,000 and then multiplied by the population in the region considered. The population data is acquired from BC Stats regional-level population estimates.

2. Matching time by hour of the week is determined by the average time (in minutes) between a passenger request and vehicle pickup for each hour of the day in each day of the week in a calendar year. This metric is based on dispatched trips, and street hails are excluded because they do not have a matching time.

3. Hourly vehicle availability patterns are determined by the average number of active vehicles in each hour of the day for each day of week in a calendar year. A vehicle is considered active if it completes at least one trip during the hour. Hourly trip volume is used as a basis for comparison and is defined as the average number of trips in each hour of the day across the same weekly and yearly period[3]. Both metrics are presented on a relative scale from 0 to 100, where 100 represents the highest level of activity observed for that area and service type. This allows for clear and direct comparison between vehicle availability and trip volume patterns throughout the

week.

Interpretation: Availability serves as an indicator of the accessibility of passenger transportation services. Each metric offers distinct insights:

- Active vehicles per 1,000 population: measures general accessibility. A higher number means more service is available in the region, and a lower number means less service is available in the region. Note that this metric does not consider the characteristics of the region under consideration, such as population and employment density, infrastructure such as roads and public transportation service quality, as well as a range of other factors that would influence demand and supply.

- Matching time by hour of the week: provides a direct measure of service responsiveness. Shorter matching time at a given hour indicates short-term demand is being met with sufficient supply of vehicles, and longer matching time indicates short-term demand is not being met with sufficient vehicle supply.

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Hourly vehicle availability patterns: illustrate the variation of service capacity relative to the number of passenger trips during different periods in a week. When the two curves – the number of active vehicles and the number of trips – are moving up and down in tandem, it indicates service capacity increases or decreases with the demand and that availability tend to remain stable.

On the other hand, if the two curves diverge, it indicates reduced availability and inefficiency. When the number of active vehicles goes down while trip volume is going up, service availability is reduced. When the number of active vehicles goes up while trip volume is going down, availability is improved, but possibly at the cost of operational efficiency.

Examples: The Board's public need policy lists examples of the accessibility factor, which are set out below alongside their corresponding implications on the Accessibility Indicator:

- Enhances the availability of passenger transportation services to everyone in the province, including in low-density areas such as rural and remote communities.
    - A higher number of active vehicles per 1,000 population (1st metric) reflects stronger service presence and potentially broader geographic coverage.
- Supports essential service levels (24 hours a day, seven days a week).
    - Consistent short matching times (2nd metric) throughout the week indicate reliable, around-the-clock service access.
    - Consistent movement between active vehicle counts (3rd metric) and trip volume suggests that service supply adjusts with trip activity, supporting reliable availability and efficient operations.

Limitations: These metrics are based on trip data submitted to the Trip Database. Companies that do not report, or that submit data with quality issues, are excluded from analysis. For the active vehicles per 1,000 population metric, results should be interpreted in the context of each region. A wide range of local characteristics—such as population density, demographic and socioeconomic factors, and infrastructure—can influence both demand and supply, and therefore what constitutes a sufficient number of vehicles per 1,000 people. For matching time, only dispatched trips are included; street-hail trips are excluded because matching time cannot be defined for them. Additionally, data points with matching times over 90 minutes were excluded, as these were likely the result of data errors.

[2]The typical week is constructed by averaging each hour of the day across all occurrences of that weekday throughout the year. For example, the Monday profile reflects the average matching time at each hour, calculated using all Mondays in the year.

[3] Trip volume is used as a proxy for short-term demand of passenger travel. It should be noted that trip volume is not a perfect measure of demand, especially in the long run.

Affordability factor (PN)

Fare cost indicator

Primary Factor: Affordability as described in the public need policy.

Description: This indicator measures the passenger fare cost for a service, using two metrics:

1. Fare for a 5 km trip: This metric captures the typical fare for a five-kilometre trip measured in dollar amounts.
2. Real cost for a 5 km trip: This metric captures the fare cost for a five-kilometre trip, measured in labour compensation of a typical B.C. worker[4].

Measurement:

1. Fare for a 5 km trip is determined in three steps.

   a. All passenger trips in the region in a month with distance between 4.5 and 5.5 kilometres are chosen as a subset of trips.

   b. The five-kilometre fare is calculated for each trip in the subset of trips.

   c. The fare for a 5 km trip metric is determined by the median (50th percentile) of all the trips in the subset.

2. Real cost for a 5 km trip is calculated as the ratio of the first metric (fare for a 5 km trip) to the median hourly wage in British Columbia, based on Statistics Canada data for full-time and part-time employees over the age of 15 across all industries.

Interpretation: Fare Cost serves as an indicator of the affordability of passenger transportation services.

The first metric (fare for a 5 km trip) measures the typical cost of passenger trips that are determined by the rate structure, trip patterns, and traffic conditions, but it only indirectly reflects affordability for passengers. A higher fare for a 5 km trip means passengers typically pay more for their trips, and it may indicate less affordable services if general wage levels in the area did not increase at a higher rate than this metric. On the other hand, a lower fare for a 5 km trip means passengers typically pay less for their trips, and it may indicate improved affordability if general wage levels in the area did not decrease at a higher rate than this metric.

The second metric (real cost for a 5 km trip) is a direct measure of affordability because it measures the trip cost in relation to a typical B.C. worker's working time. A higher real cost indicates reduced affordability for passengers. On the other hand, a lower real cost indicates passenger trips are more affordable.

Examples: The Board's public need policy lists examples of the affordability factor, which are set out below alongside their corresponding implications on the Fare Cost:

- The proposed service provides more affordable options or services for consumers.
    - Fare for a 5 km trip reflects the cost perceived by passengers. For example, in an environment where both fare and wage are increasing at the same rate, if fare for a 5 km trip is increasing, passengers pay more for their trips in general. While the perceived cost

is higher, in this case, affordability is not changed as the passenger's income is also increasing at the same rate.

- Real cost for a 5 km trip directly and accurately measures the affordability of the service in relation to working time.

Limitations: In calculating the metrics in this indicator, passenger trips from companies that did not report data to the Trip Database and passenger trips reported to the Trip Database with data quality issues are not included. Moreover, to address data quality issues such as erroneous outliers, trips with fare costs in the top and bottom 10 percent ranges were removed. This truncation does not affect median, but may, in some cases, lead to moderate underestimation of the maximum and overestimation of the minimum fare for 5 km trip.

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[4] For example, if the real cost of a 5 km trip is 30 minutes, that means a worker who earns the median hourly wage for B.C. can pay for the trip using their labour compensation earned from 30 minutes of work.

Service quality factor (PN)

Wait time

Primary Factor: Service Quality as described in the public need policy.

Description: Wait time reflects the duration that passengers wait for vehicles to arrive for pick-up.

Measurement: Wait time for each trip is calculated as the difference between the pick-up arrival time and the hail time. Wait time is measured by the median (i.e., the 50th percentile) of the monthly wait time distribution in an area.

Interpretation: Wait time serves as an indicator of the quality of passenger transportation services. It acts as a market-clearing indication, influenced by factors such as demand, supply, and the efficiency of the technology used to match passengers with vehicles. A longer median wait time indicates reduced service quality, as it suggests longer delays for passengers and higher operating costs for licensees.

Examples: The Board's public need policy lists examples of the service quality factor. The relevant examples are set out below alongside their corresponding implications on wait time:

- The proposed service provides more or improved service where there is currently inadequate service.
    - Long wait times suggest an inadequate level of service supplied.
- The proposed service provides more reliable service.
    - Consistently short wait times suggest that the service is reliable.
    - Significant variations in wait times can suggest that the service is not reliable.
    - Consistently long wait times suggest that the service is not reliable.
- The proposed service encourages more efficient service to the public, including trip speed.
    - Wait time is part of the overall time for passengers to complete a trip, so a short wait time contributes to an efficient service.

- The proposed service provides a service that is comfortable and convenient.
    - A short wait time is more likely to contribute to a more comfortable and convenient service.
- The proposed service supports better customer service and customer satisfaction.
    - A short wait time may contribute to better customer service and customer satisfaction.

Limitations: In calculating the median wait time, trips with unreasonably long wait times due to data errors are not included. Trips with wait times above 95th percentile are not reported in the distribution due to data quality concerns.

Sustainability factor (SEC)

Taxi fleet utilization rate

Primary Factor: Sustainability as described in the sound economic conditions policy.

Description: Taxi fleet utilization rate represents the proportion of approved taxi vehicles that are active in an area over a month.

Measurement: The taxi fleet utilization rate is determined by dividing the number of average active vehicles by the total number of approved taxi vehicles in a given area during the reporting period. The number of average active vehicles is determined by data reported to the Trip Database, while the total number of approved taxi vehicles is the maximum fleet size approved by the Board.

Interpretation: A relatively stable taxi fleet utilization rate over time can indicate long-term stability for the taxi sector. On the other hand, a significant decline in fleet utilization rate, other things being equal,

may suggest unsustainable economic conditions as licensees choose to operate fewer vehicles in their fleet.

Examples: The Board's sound economic conditions policy lists examples of the sustainability factor. The relevant examples are set out below alongside their corresponding implications on taxi fleet utilization rate:

- The proposed service promotes long-term stability for the passenger transportation industry.
    - Significant changes in the fleet utilization rate can signal instability of the passenger transportation industry.
- The proposed service encourages resiliency in the passenger transportation industry.
    - A consistently close-to-full fleet utilization rate may indicate that the industry is at its supply capacity, and unable to meet further demand growth. A consistently low fleet utilization can indicate a lack of growth of the industry.
- The proposed service minimizes significant market disruption.
    - A significant change in the fleet utilization rate can signal market disruption.
- The proposed service protects the taxi sector from rapid disruption to ensure its long-term stability as an essential service.

    - Frequent spikes to close-to-full fleet utilization indicates the supply of the industry is unable to adapt to market disruptions.

- The proposed service promotes overall profitability and economic sustainability of the industry.

    - Close-to-full fleet utilization rates can indicate licensees are unable meet demand to maintain and grow their profit margin.

    - A consistent reduction in the fleet utilization rate can indicate deteriorating profit margins.