Economic Effects of Covid-19 on the BC Passenger Transportation Industry

Hara Associates

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Prepared for:

Passenger Transportation Board

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Executive Summary

This study is an investigation undertaken for the British Columbia Passenger Transportation Board. In order to protect the industry's long-term well-being and successfully fulfil the Board's mandate under the *Passenger Transportation Act,* the Board must ensure it has access to reliable up-to-date and economic analysis to support evidence-based decision making.

The study fulfils the Board's announced intention to investigate the impact of the Covid-19 pandemic (Covid) on the passenger transportation industry, which includes taxis and the Transportation Network Services (TNS) sector, in order to better understand the new economic landscape. [1] TNS is commonly termed *rideshare* or *ride hailing* as popularized by international companies such as Uber and Lyft.[2]

The investigation takes place in the context of applications before the Board by TNS companies to extend or begin wider operations in BC. These applications have been adjourned, and other licensing applications stayed, pending the results reported here.

The study investigates the impact of Covid on monthly trip volumes for taxis and TNS, as well as consequences for operating costs and market share for both types of licensees. Impact of Covid on broader economic factors relevant to the industry are also discussed. Factors include employment, airport volumes, and tourism indicators.

Data was drawn from two sources. One was individual trip records submitted by Board licensees to the Ministry's newly created Data Warehouse. The second were reports solicited on a voluntary basis from companies to complement Data Warehouse data and to make up for gaps in reporting. Stakeholder consultation was not within the scope of the work, other than that related to collection of data. However, selected stakeholder comments submitted to this study are included in the region-by-region analyses.

Analysis addresses the province as a whole, plus the experience of five regions within BC.

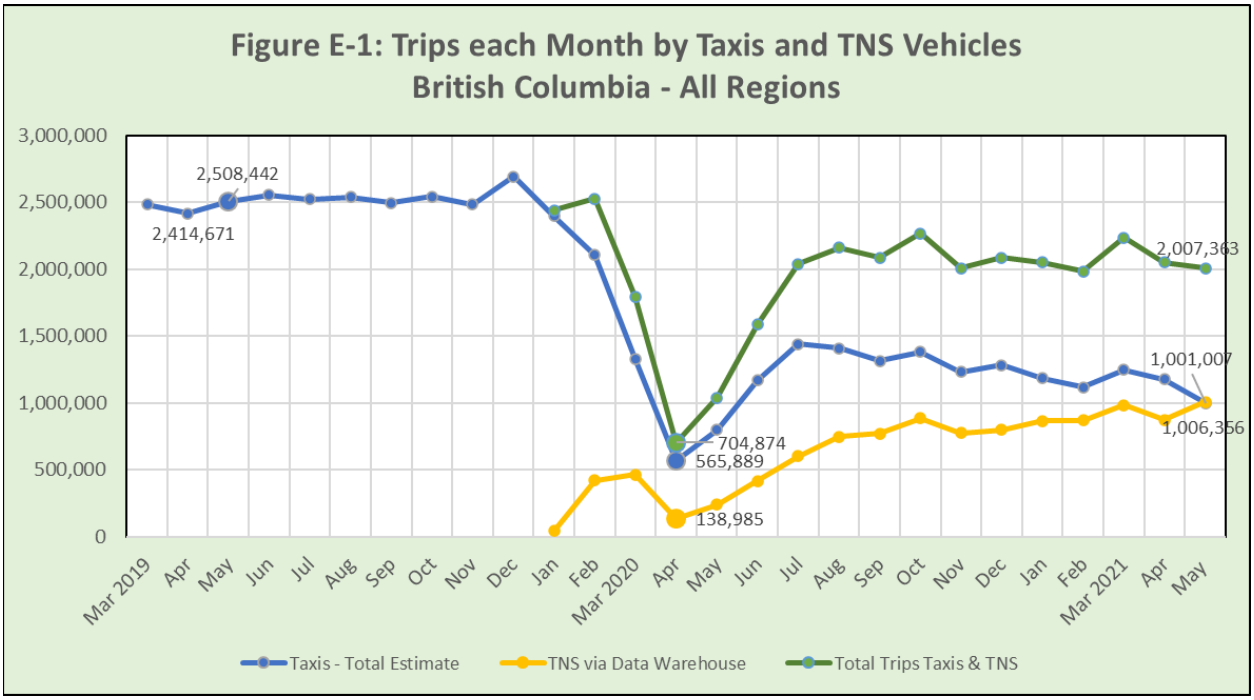
Trip Volumes

Figure E-1 illustrates the principal findings on passenger trip volumes for both taxis and TNS operators.

The effects of Covid, and accompanying public health measures began in March/April 2020. Taxi trip volumes reached a sharp bottom in April, declining 76.5% from the previous April. This drop was partly offset by the growth in TNS operations, which had begun only a few months earlier. TNS growth was cut short by Covid, but added more than 138,000 trips, making the total decline in combined trips 71% from April 2019 to April 2020.

[1] April 21, 2021.
[2] The accuracy of these terms is subject to debate in BC and elsewhere.

Following the initial drastic reduction in trips, there was an improvement as British Columbians began to partially normalize their travel in the context of the ongoing health crisis. Total trips rose sharply, but did not fully recover, and continued to respond to ongoing waves of Covid and adjustments to related government health measures. As of May 2021 (the most recent data month), the drop in total trips was still 20% from the pre-Covid May 2019. Same month comparison is used because of seasonal variation.



Regional Variation and TNS Growth

The provincial summary is dominated by results from the most populous region, the Lower Mainland and Whistler (Region 1). Actual experience varied considerably among BC regions. In particular, TNS companies largely suspended operations in regions outside the lower mainland.

However, TNS grew rapidly in the lower mainland, led by the international companies Uber and Lyft. Both these companies were restricted from operating in the rest of BC by their Board licenses. In the lower mainland, TNS competed vigorously with taxis. By May 2021, TNS trip volumes there had significantly exceeded taxi trips, accounting for almost two thirds of the market. As a result of both this and Covid, taxi trip volumes by themselves declined almost 66% in the lower mainland, much more than the decline from Covid alone in other regions.

The increase in TNS trips may not have been wholly at the expense of taxis. The decline in combined total trips in the lower mainland over the total period was only 8.8%, while in the other comparable urbanized region, Victoria, total trips declined almost three times as much at 24.5%. Victoria had little TNS activity, suggesting that the TNS companies in the lower mainland may have expanded the market with their different service, offsetting some of the impact of Covid. This possibility is supported by the large expansion in total trips witnessed in other Canadian jurisdictions when they introduced TNS licensing prior to the Covid crisis.

By region, total trip reductions through May 2021 were: Region 1 - Lower Mainland and Whistler – 8.8%, Region 2 - Capital Region 24.5%, Region 3 - rest of Vancouver Island 32.7%, Region 4 - Okanagan-Kootenay-Boundary-Cariboo 15.6%, and Region 5 - North and Central BC 23.5%. For regions outside Lower Mainland and Whistler, TNS activity was negligible so the regional experience was primarily about taxis.

Accuracy of Estimates varies by Region

Trip volume estimates for TNS are based on reported trips through the Data Warehouse, validated by a review of whether non-reporting TNS licensees were active.

For taxis, estimated trip volumes were projected based on the percentage of the licensed fleet in the available sample. For BC as a whole, taxis taxi estimates are based on a fairly complete total of 79.8% of the licensed fleet.

For less urbanized regions, estimates are based on available data representing between 36.2% to 64.4% of the licensed fleet, depending on the region.

All regions experienced a sharp initial drop in passenger trips during the early months of Covid. *Estimates of the size of the partial recovery may be overestimated in less urbanized regions where the available data represented a lower percentage of the taxi fleet.*

With a smaller percent of the fleet reporting, there is a risk of response bias. Taxi companies who had shut down entirely were unable to provide data to the survey. The report shares qualitative comments made by some of these companies. Overestimate of the partial recovery is most likely in Region 3 (Vancouver Island excluding Capital Regional District) and Region 4. Okanagan-Kootenay-Boundary-Cariboo). Region 5 (BC North Central) has a better sample at 64.4% of the fleet but is also at risk for over-estimating the partial recovery.

Higher Operating Costs and Driver Shortages

Data was not collected on operating costs; however, reduced trip volumes have a known impact on passenger vehicle networks, resulting in more non-revenue time getting to a customer and higher costs per trip.

In addition, respondents reported a taxi driver shortage which increased costs and contributed to the decision to suspend operations. This is consistent with media stories from other parts of Canada, and with general reports of labour shortages in the service industry, even though average unemployment rates are still high.

Airport Passenger Volumes, Hotel Occupancy and General Unemployment Levels

These key drivers of business for taxis and TNS vehicles all showed the expected parallel negative impacts from Covid, with some variation by region.

Airport passenger volumes fell and remain low at both large and community airports. Unemployment peaked in the summer of 2020 and has not fully returned to normal levels.

Hotel occupancy also fell sharply, but started to recover in some regions during June and July 2021, notably Prince George where occupancy reached pre-Covid levels. Since (with the exception of Prince George) most increases in hotel occupancy were not accompanied by increases in airport passenger volumes, it is likely that the news for taxis and TNS is only moderately good. Travellers not arriving by air are more likely to be from within BC and using their own vehicles.

Considerations Looking Forward

The study concludes with some observations and questions for consideration for future Board licensing decisions. These include discussion of:

- whether the Covid crisis is a passing storm, or a new world for which resilient policy responses may be needed;
- why the shortage of drivers makes this recovery from recession unique, and affects licensing decisions;
- risks of fare regulation and meter rates during a driver shortage with taxis and TNS coexisting;
- potential future given the current provincewide licensing of TNS operators that have not yet begun full scale operation;
- how accessible service to people with disabilities will be affected given current exclusive provision by taxis and eventual competition with TNS in all regions of the province.

Economic Effects of Covid-19 on the BC Passenger Transportation Industry

1 Introduction and Data Sources

This study was undertaken for the British Columbia Passenger Transportation Board. In order to protect the industry's long-term well-being and successfully fulfil the Board's mandate under the *Passenger Transportation Act,* the Board must ensure it has access to reliable up-to-date and economic analysis to ensure evidence-based decision making.

The study fulfils the Board's announced intention to investigate the impact of the Covid-19 pandemic on the passenger transportation industry, which includes taxis and the Transportation Network Services (TNS) sector, in order to better understand the new economic landscape. [1] TNS is commonly termed *rideshare* or *ride hailing.*[2] Prior to the advent of Covid, the Board had issued TNS licenses to a number of companies. These included international companies (e.g., Uber, Lyft), BC companies (e.g., Kabu, Lucky to Go, Ripe Rides), and Canadian companies operating in other jurisdictions (e.g., Tappcar, ReRyde).

The study investigates the impact of Covid on monthly trip volumes for taxis and TNS, as well as consequences for operating costs and market share for both types of licensees. Data was collected from participating licensees and combined with data already filed with by companies with the Data Warehouse of the Ministry of Transportation and Infrastructure. Analysis also includes review of Covid's impact on broader economic factors relevant to the industry. Factors include employment, airport volumes, and tourism indicators.

The investigation takes place in the context of two applications to the Board:

- An application by Uber Canada to expand area of operation from the present Region 1 (Lower Mainland & Whistler) to all regions of BC.[3]
- An application by Facedrive Inc. to begin a new TNS operation in Region 1.[4]

Both applications have been adjourned pending the results of this study. In addition, the Board has stayed other applications pending these results.[5]

The study was conducted by Hara Associates, a firm of economists specializing in vehicle-for-hire regulation. Hara Associates has advised regulators in Canada, the United States, and overseas for over twenty-five years. Past work in British Columbia includes *Modernizing Taxi*

[1] April 21, 2021.
[2] The accuracy of these terms is subject to some debate in BC and elsewhere.
[3] Application #10268-20TNS.
[4] Application #10149-20TNS.
[5] Industry Advisory, August 11, 2021.

Regulation (2018) for the BC Ministry of Transportation and Infrastructure. This work preceded legislative reforms passed by the BC legislature that year.

Role of Data and Stakeholder Consultation

This report aims to provide what available data can tell us. It is intended as an input to Board hearings and decisions. Stakeholder consultations for this study were limited to the collection and interpretation of data. However, some companies and individual operators submitted comments, including companies that did not provide data because they had shut down. A selection of comments received is provided in the analysis of Covid effects on each region.

Regions

Analysis is by five regions:

- **Region 1: Lower Mainland, Whistler.** Includes Metro Vancouver, Fraser Valley, and Squamish-Lillooet;
- **Region 2: Capital.** Includes Capital Regional District;
- **Region 3: Vancouver Island excluding Capital Regional District.** Includes Cowichan Valley, Nanaimo, Comox Valley, Alberni-Clayoquot, Strathcona, Mt. Waddington, and Qathnet (Powell River);
- **Region 4: Okanagan-Kootenay-Boundary-Cariboo.** Includes Okanagan-Similkameen, Central Okanagan, North Okanagan, Kootenay Boundary, Shuswap Cariboo, Thompson-Nicola, and Columbia;
- **Region 5: BC North Central.** Includes Fraser-Fort George, Bulkey Nechako, Kitimat-Stikine, Peace River, Northern Rockies, North Coast, Island Trust, and Sunshine Coast.

These regions correspond to the licensing areas being considered in current applications to the Board.

Data Sources

Until recently, trip volume data was not systematically available for BC passenger directed vehicles. However, following legislative reform in late 2018, taxi and TNS licensees have been required to provide a complete record of passenger trips taken. Details include dispatch wait time, trip duration, fare, type of call (dispatch, street hail, advance booking), whether an accessible vehicle is used, origin, destination and similar information. Data on each trip is to be submitted to the Data Warehouse of the Ministry of Transportation and Infrastructure.

This information is normally recorded in modern company dispatch systems. The legislation and regulations require that the information be shared to support decision making, assist provincial and municipal enforcement, protect customers, and respond to complaints.

Data Warehouse records began in September 2019, with a full month of records beginning in October 2019. Unfortunately, full implementation was disrupted by Covid in March 2020. While most Lower mainland companies are now reporting, many companies in other regions have not yet begun reporting. In addition, the quality of the data continues to be an issue for some

companies, notably with respect to fare amount and trip duration. Data quality issues are discussed where relevant within this report.

Licensed TNS operations began shortly after the implementation of the Data Warehouse, and only a few months before Covid took hold in BC. Taxis, however, have been operating a considerable number of years prior to the Data Warehouse and Covid. To supplement Data Warehouse records for taxis, Hara Associates also sought monthly trip data directly from taxi licensees. Additional data was needed to:

- Obtain a "before" picture of trip volumes for a full 12 months prior to the impact of Covid. Vehicle-for-hire trip volumes vary seasonally, meaning a before and after Covid analysis should compare 12 months before to at least 12 months afterwards. The Data Warehouse had only six months of data preceding the advent of Covid.
- Fill regional gaps in the data where companies were not yet submitting information to the Data Warehouse.
- Have a second data source consisting of how taxi companies themselves saw the impact on their trip volumes.

Participation in the direct data collection was voluntary. The BC Taxi Association and the Vancouver Taxi Association both kindly offered to circulate the request for data regarding monthly trip volumes to their members. The text of the request included an explanation of the reason it was being made, and a link to the Passenger Transportation Board website providing background on the study (see sample letter in Appendix A). Licensees who were not on the respective association mailing lists received an explanation and a request directly from Hara Associates, using email addresses last filed with the Board.

Questions were also invited and responded to through a dedicated email address. In the case of the Capital Region, an additional approach was also required. For historical reasons, there is a high number of individual taxi licensees in the region. These small operators typically operate through a shared dispatch service, of which there are several, often operating and advertising under a common trade name. The largest known operators in this region were contacted and asked for assistance. Where collective data was provided by the dispatch operators, the relevant individual operators were not contacted directly. In a few cases the contact information available through the Board was no longer valid. An attempt was made at direct telephone contact where required.

In the case of TNS companies, licensed operation only began in volume in February 2020, just before the March advent of Covid. Thus, a 12-month history was neither possible nor relevant. In any case, the data of those TNS companies who filed was sufficiently consistent, likely because the operation of those companies is 100% app-dispatched trips.

Table 1 shows the percentage of authorized taxi licences[6] that were available to the study through the Data Warehouse, and through direct data collection. In many cases, taxi licensees reporting through the Data Warehouse also provided their own counts. This was helpful for the longer history of the 12 months prior to Covid.

Table 1 – Percent of Licensed Taxi Fleet Covered by Data Sources and Used in Quantitative Estimates						
Data Source	**Region**					
	1	**2**	**3**	**4**	**5**	**All BC**
% Licensed taxi fleet reporting through Data Warehouse	91.3%	44.1%	0.0%	10.8%	0.0%	67.1%
% Licensed taxi fleet sharing reports directly with this study	72.7%	37.6%	36.2%	24.8%	64.4%	62.0%
% Licensed taxi fleet reporting through either or both data sources	**92.6%**	**73.9%**	**36.2%**	**35.6%**	**64.4%**	**79.8%**

The Data Warehouse coverage to date is good for the Lower Mainland (Region 1), but poorer in the other regions. In particular, there is not yet any reporting for Vancouver Island outside the capital (Region 3), or northern and central BC (Region 5).

With the help of participating taxi companies, the direct reports to this study raised coverage in Regions 3 and 5 from zero to 36.2% and 64.4% of the licensed fleet respectively. For all of BC, coverage increased from 62.0% of the fleet to 79.8%.

Note that Table 1 shows only the data reports from companies that were used for the quantitative estimates in this study. Current reporting to the Data Warehouse is higher and growing as more taxi companies come into compliance with the regulations. Companies that began reporting later in the Covid period were excluded, as counting their trips would have understated the overall decline in taxi trips. Similarly, some companies responding to the direct request for data could only provide partial data, as they had changed dispatch companies and/or lacked records. The data from these companies was qualitatively informative, but could not be used to calculate the changes in taxi trip volume before and after the advent of Covid.

2 Data Quality Issues and Corrections

All taxi company reports from both data sources showed the same pattern of a strong decline in trip volume in March/April 2020 when Covid and associated government restrictions on movement and economic activity began. This was followed by a partial recovery to still depressed levels in the months that followed. The common pattern lends credibility to submissions by each company, and the net results recorded.

[6] Authorized taxi licenses may not all be attached to vehicles and in use. For example, as Covid progressed, fewer taxis were in use and vehicle registration and insurance may have been surrendered as they came up for renewal.

The same decline in March/April 2020 is also reported by TNS companies, although they had just launched operations at that time. In the case of TNS companies, their later expansion in the Lower Mainland was more aggressive, occurring in part at the expense of market share of taxi companies in that area. As a result, the partial recovery of Lower Mainland taxi companies from the initial shock of Covid has been much lower than for taxi companies in other regions.

Adjustment for "Rapid Meter"

In collecting trip volumes directly from taxi companies, the form requested only trips that produced revenue. There is an important distinction between all trips reported by the taximeter to the central system, and trips that actually involve a passenger and revenue. Taxi drivers will often have to reset their taximeters (similar to rebooting a computer), to cope with day-to-day hardware and software issues. The most common way to do this is to turn the meter on and off, effectively registering as a very short trip. One colloquial term for this is "rapid meter." The study requested monthly counts of taxi trips, such as those used by company management, that report real, or revenue, trips.

Trips reported to the Data Warehouse are in raw form and, depending on the company, may include rapid meter even among trips tagged as "completed" (as opposed to cancelled or no-show).

One approach to removing these non-revenue trips is to discard trips that show either zero revenue, or just the drop rate (no distance charge). Unfortunately, the fare reported to the Data Warehouse is often blank, either entirely, or for a great many of the trips taken. This may be related to the historical reluctance of the industry to share revenue data, combined with the relationship that each company has with its individual taxi operators (who may hold their Board license independently). Even the most compliant taxi companies are reporting fares for only some of the trips.

Another approach is to use trip duration in minutes. This is reported more consistently to the Data Warehouse. However, it is problematic in that a surprising portion of reported trips are very short, and not consistent with reported fares – which may be either blank, or much higher than could be earned for that duration. This data inconsistency may be related to individual driver behaviour in an attempt to keep insurance rates low.

Insurance for taxis is provided by a provincial body, the Insurance Corporation of British Columbia (ICBC). With the advent of TNS licensing, ICBC changed its method of charging for taxi insurance to one commonly used for TNS. Rates vary depending on the amount of time a taxi spends empty, en route to a call, and with a passenger in it. The greater the proportion of time with a passenger, the higher the insurance rate.

In an attempt to reduce insurance costs, individual taxi operators may negotiate a cash fare with customers so that they can shut off the meter and record the time as without a passenger. This behaviour is more likely when the driver is also the holder of the Board taxi license, either

directly or as a *licence share* issued by a Board licensed company.[7] The attempt may not be successful, depending on the reporting system maintained by the company, which files a separate report with ICBC. For example, a taxi trip booked through a smartphone app will process a credit card for a trip, along with true origin and destination. The app may take the place of the meter. Thus, the trip may show as very short in minutes (based on the meter), but still report the charge that was processed on the credit card (by the app).

After reviewing the data quality of individual companies, the study chose not to count trips that were reported cancelled or no shows, and any trip that lasted only one minute or less. This reduction was applied to both taxi and TNS trips. The approach eliminated the rapid meter issue, but also eliminated some trips that were likely real. Overall, counts of trips from the Data Warehouse files were reduced by 8.6%. The amount of reduction varied by the data quality of each company. Had all trips without reported fare been eliminated, a further 28% of trips would have been eliminated.

The net result of screening was to reduce the trip count, by an average of 8.6%. These counts are understated to the extent that individual taxi drivers cancelled their meter and negotiated fares with customers. However, the reduction by month was approximately proportionate, meaning that the story told over time of the percent decline in trip volume from Covid remained the same before and after cleaning up the data.

Choosing between Data Sources

In many cases, companies that were reporting through the Data Warehouse also provided their own history of trip counts by month directly to the study. While numbers differed somewhat, the general story told by both data sources was the same.

When both data sources were available, this study used the numbers provided directly by the company. The story told by each data source was the same, but the revenue-trip counts provided directly had a longer history before Covid, and were judged likely to better capture the number of revenue trips. The counts reported by companies directly tended to fall between the two Data Warehouse counts – gross count, and after adjustment for rapid meter.

Projecting to Total Taxi Trips

As reported in Table 1, the coverage of the sample of reporting taxi companies was not complete outside of the Lower Mainland. To estimate total taxi trips, the total number among reporting companies was increased in proportion to the size of the nonreporting taxi fleet in each of the five regions.

This projection from the sample to the whole may understate the loss of business from Covid. It treats nonreporting companies as performing similarly to those that had reported. In reality, the nonreporting taxi companies include those that had ceased operation or downsized to the

[7] The Board issues taxi operator licenses with authorization for a fixed number of taxis. The Licensee may, as a matter of practice, issue the right to operate under the license to individual taxi operators. Thus the term *licence-share*.

point of being unable to make reports. *Comments from a few of these are included in the qualitative information for each region.*

For greater transparency, graphs in this report show the estimated total taxi trips by month (solid line), the volumes reported to the Data Warehouse (dotted line), and direct reports to the study (dashed line).

Total TNS Trips

TNS trips reported to the Data Warehouse were taken as total trips for all TNS companies. A check of news articles and company websites indicated that TNS licensees not reporting had largely suspended business, or postponed entry into the BC market. The count and status of TNS licensees is detailed in the TNS discussion in the next section of this report.

At the time of writing, the Data Warehouse had an additional month of data (May 2021) than had been collected in direct reports (April 2021). To estimate total trips for May, TNS trips and taxi trips were assumed to expand in proportion to the change reported for May 2021 through the Data Warehouse.

Similarly, the taxi trip data collected by this study included 10 months of data collected prior to establishment of the Data Warehouse. Total taxi trips for these months were assumed to move proportionate to the taxi trips reported by participating companies in each region.

Assigning Region to Multi-Region Companies

The Board assigns each company its own operating authority with a potentially unique geographic area. In many cases that operating authority encompasses more than one of the five regions. For example, a number of companies headquartered on the Sunshine Coast (part of Region 5 on the mainland) also have authority to operate on neighbouring Vancouver Island (Region 3). This allows passengers arriving at a mainland airport to take a taxi via ferry to Vancouver Island.

Where a company had multiple operating areas, its website and company location were reviewed. Company websites that declared specialization in one Region were assigned to that region for the purpose of counting trips. Companies having advertisements and/or locations that were clearly addressed to more than one region e used in the regional analysis for each region, but counted only once for the province as a whole.

Projecting Last Month and Earlier Months

One of the virtues of obtaining information from Data Warehouse is that it is available on demand, although there can be a slight delay due to the timing of reporting and data entry. For this report, the Data Warehouse had complete data for an additional month (May, 2021) than that collected directly from companies through the reports shared directly with this study (ending April 2021). To project total trips for May, 2021, total trips were assumed to increase in proportion to the increase in trips reported to the Data Warehouse between April and May (by region where available).

Similarly, to estimate taxi trips in the months prior to Data Warehouse reports, total trips were assumed to change proportionate to the monthly change in trips reported to the study in each region.

Organization of Report

The remainder of this report is organized into three parts:

- Overview: Effect on BC as a Whole
- Effect of Covid by Region
- Considerations Looking Forward

3 Overview: Impact on BC as a Whole

Covid had an impact across BC's economic sectors. In addition to the illness itself, government measures to protect the public restricted which businesses could remain open, how many people could use a given business, reduced or eliminated event attendance, and stringently curtailed tourism from other countries. The general impact of these measures also reduced economic activity as a whole, as businesses with lower revenues needed fewer workers and made fewer purchases.

In addition, the taxis and TNS sector was affected as a service industry with direct public contact. Providing service became riskier, especially prior to vaccines being made widely available. Drivers chose not to work, or to work less, and some undoubtedly became ill. As discussed below, the decline in business volume and labour shortages also raised operating costs for the sector.

Traditional sources of business for passenger directed vehicles also declined. These include declines in:

- airport passenger volumes
- tourism
- local travel to restaurants and entertainment
- local work travel as more people worked online from home
- school attendance (resulting in less contract travel delivering students to school).

This section quantifies the impact on taxi and TNS business volumes for the province as a whole, discusses likely consequences for the costs of operation, and provides the broader context of impact through employment statistics, airport passenger volumes, and tourism indicators.

Subsequent sections provide a picture of Covid in each of five unique geographic regions of BC.

3.1 Effect on Business Volume of Taxis and TNS

Figure 1 shows the impact of Covid on trip volumes. Table 2 on the following pages shows the progression of Covid and Covid restrictions by month.

In the figure, the solid blue line indicates estimated total trips by taxis each month. For transparency, the dotted and dashed blue lines show reported taxi trip volumes from each of the two data sources discussed in the introduction to this report: trips reported through the

province's Data Warehouse (dotted), and trips reported directly to the study by participating taxi licensees and their associated dispatch companies.

Each data source involves different, but overlapping, sets of reporting by taxi companies. It is noteworthy that the month-by-month ups and downs of trip volumes show the same pattern from each source – lending credibility to the representativeness of both. The solid blue line puts the two sets of estimates together, eliminating duplicate reporting, and adding a proportionate adjustment for the taxi fleet not covered by reporting in each region (see Introduction and Data Sources for details).

The yellow line shows TNS trips reported to Data Warehouse. TNS operations began in January 2020. For reasons discussed below, the reported TNS trips are expected to be the vast majority of trips and have not been adjusted upwards.

The yellow and blue lines together add up to total estimated trips by passenger directed vehicles – represented by the green line at top of the figure starting in January 2019. Prior to January 2019, total trips are the same as total taxi trips (the blue line).

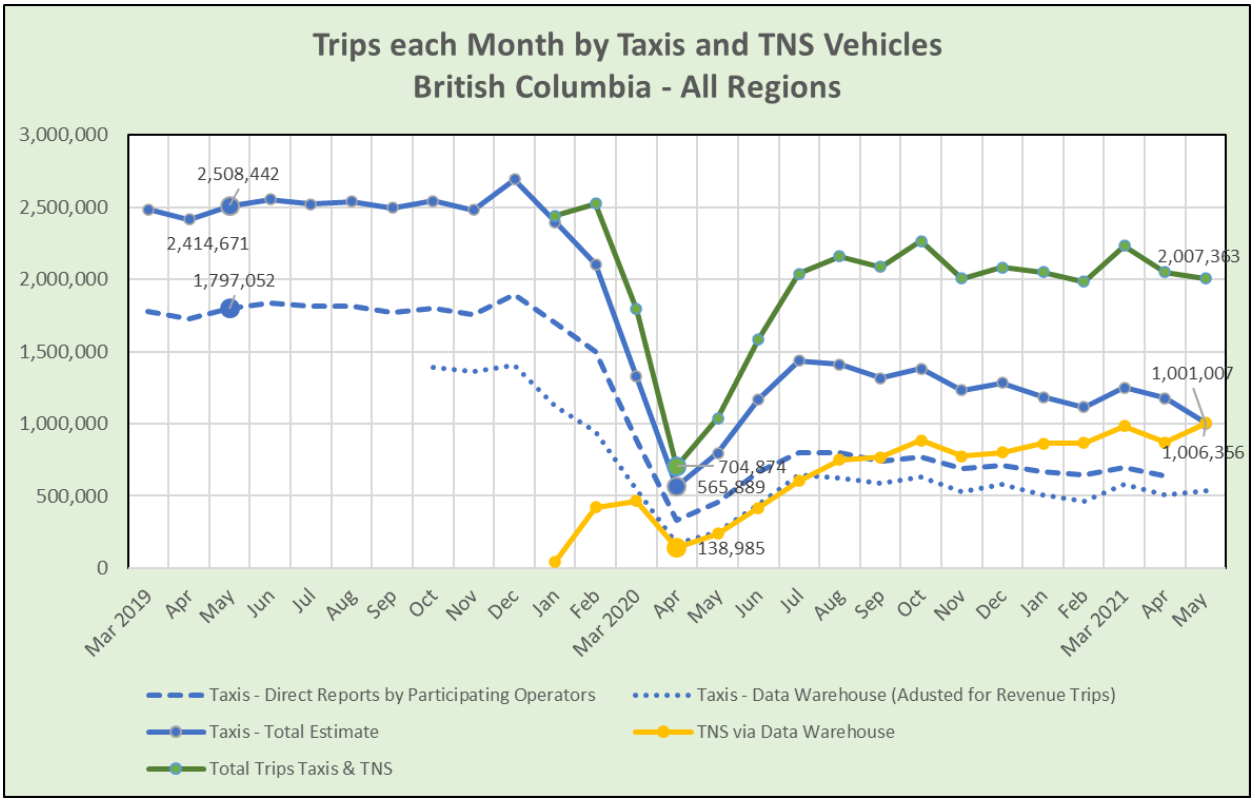


Figure 1

Selected numbers are shown in the graph. A full table is provided in Appendix B. Data on individual companies has been suppressed to protect commercial confidentiality.

Impact of Covid-19

The strong initial impact of Covid can be seen in Figure 1. Headlines began to identify the growing risk of Covid in early 2020. On March 11, the Province declared a pandemic. Over the remainder of the month, guidance and restrictions were issued by both federal and provincial

governments. Canada and other governments warned against international travel and called their citizens home. By the end of March:

- Many of those who could began working from home in compliance with guidelines
- Gatherings of more than 50 were banned
- Only essential visitors were permitted to enter long-term care facilities
- A public health emergency had been declared in BC
- Classes were cancelled indefinitely for students from kindergarten through grade 12
- All dine-in establishments were closed, although takeout and delivery were permitted
- Personal service businesses such as salons were shut down
- Mandatory federal quarantine rules were established for visitors, followed in early April by mandatory rules by the province for isolating returning travellers
- Canada closed its borders to non-citizens, with some exceptions (e.g., working international truckers).
- Canada restricted international air travel to just four airports. In BC, only Vancouver International (YVR) was able to receive international flights. Victoria, Abbotsford, and others were limited to domestic flights

Trip volumes began a rapid decline in March, reaching their bottom in April 2020. Taxi trips had declined an estimated 77%, to 556,500 from 2.4 million 12 months earlier.[8] A small portion of this drop was due new competition from TNS. However, comparing combined total trips in April (704,900) to the previous April still shows a dop of 71%.

TNS growth (yellow line) was also truncated by the advent of Covid. TNS companies had been licensed and permitted to operate at the beginning of 2020. Growth was rapid through February, slowed in March, and then declined steeply in April to 138,985 trips.

Following the initial drastic reduction in trips, there was some improvement as British Columbians began to partially normalize their travel as the ongoing health crisis abated somewhat. Total trips rose sharply, but did fully not recover and continued to respond to ongoing waves of Covid and adjustments to related government restrictions.

May 2021, the last month of data at the time of writing, shows trip volumes depressed in a month that would have normally shown a seasonal increase with the arrival of summer. Cases of Covid had risen to a new high in BC, almost twice the previous high in November 2020. Changing government restrictions, including internal limits on travel between BC health regions, also have contributed to the decline in trips.

Compared to the same month pre-Covid (May 2019), total trips had fallen by 20%, from 2.5 million trips to 2 million trips in May 2021.[9] The taxi industry suffered substantially more as it

[8] Where possible, trip volumes are compared to the same month a year ago to avoid distortion from natural seasonal variation.

[9] Estimates may understate the drop in trip volumes for taxis. As discussed in the section *Introduction and Data Sources, the* sample on which the estimates are based tended not to include companies that had discontinued operations entirely. However, 79.8% of BC's authorized taxi fleet is accounted for in the sample.

was also experiencing new competition from a different business model: Transportation Network Services. Over the same period, taxi trips for May fell from the estimated 2.5 million to just above 1 million, or about 60%. TNS companies had grown to roughly equal market share with taxis, with an estimated one million trips by each type of company in May, 2021.

Thus, the industry has experienced significant change as a result of two major events: the ongoing Covid health crisis, and the introduction of a new kind of service by TNS companies.

Table 2 – Selected Covid Restrictions by BC and Federal Government to May 2021

Date	Measure
March 7 2020	Dr. Bonnie Henry, Provincial Health Officer, begins recommending physical distancing.
March 11 2020	**Pandemic declared**. Province says the "British Columbia Pandemic Provincial Co-ordination Plan is in motion…"
March 12 2020	**Gatherings of more than 250 people must be cancelled.** **Unessential travel outside of Canada not recommended.**
March 12 2020	BC's top health officials discourage all nonessential travel outside BC and announce a 14-day self-isolation period for international arrivals. (The federal government doesn't require 14-day quarantines until March 25.)
March 13 2020	The federal government warns against all international travel.
March 16 2020	Many **people start working from home**, as per directives from public health. **Gatherings of more than 50 people are banned,** including sporting events, meetings, conferences, concerts, and religious gatherings. Any businesses that cannot avoid large groups of people (restaurants, etc.) are ordered to shut down. LTC visits are restricted to essential visitors only.
March 17 2020	**Dr. Bonnie Henry declares a public health emergency in BC.** **Classes are cancelled indefinitely for BC students from K-12**. Prime Minister tells Canadians abroad to come home.
March 18 2020	BC declares a provincial state of emergency.
March 20 2020	Dr. Bonnie Henry orders the **closure of all dine-in establishments.** Takeout and delivery are still allowed.
March 21 2020	BC Ministry of Health orders **personal service businesses, such as salons, to shut down immediately**.
March 22 2020	**Vancouver International Airport becomes one of four Canadian airports to accept international flights as Canada closes it borders to anyone who is not a Canadian citizen, a permanent resident, or a US citizen**, with some exceptions.
March 26 2020	Federal government imposes strict, mandatory quarantine rules on travellers returning to Canada.
April 8 2020	The government of BC announces it is now mandatory for returning travellers to have an approved self-isolation plan upon arrival. Those who don't will not be allowed home until they do. All provincial parks in BC are closed to deter travellers during Easter weekend.
April 20 2020	Major events (e.g., Pride Parade) are cancelled.
May 6 2020	Number of new cases dropping, the **province announced plans for a gradual reopening in time for May 24 weekend**.
May 14 2020	Provincial parks reopen, though with cautions to stay close to home and still physically distance.
May 19 2020	**PHASE 2** of BC's pandemic response goes into effect: nonessential businesses like restaurants, arts facilities, retail and health services can reopen, if they meet guidelines.
June 1	**Children can go back to class on a voluntary basis.**

Table 2 – Selected Covid Restrictions by BC and Federal Government to May 2021	
Date	**Measure**
2020	
June 6 2020	The number of active cases in BC dips below 200, the lowest number since the pandemic began.
June 8 2020	Prime Minister Justin Trudeau announces an exemption to the Canada-US border shutdown to **allow immediate family members of Canadian citizens or permanent residents to visit from the US.**
June 18 2020	The provincial government announces it is closing its portion of Peace Arch Provincial Park at the Canada-US border, after the number of visitors to the park in May was twice that of the previous year. (It apparently was being used as a cross border loophole.)
June 24 2020	**Provincial PHASE 3** begins permitting responsible travel within the province, and many tourism related businesses to reopen including hotels, spas, etc. The film industry and movie theatres are also allowed to open.
June 30 2020	Restrictions on LTC visits eased.
July 1 2020	**Canada Day – most events cancelled.**
Sep 8 2020	**Nightclubs and banquet halls are ordered to close.**
Oct 19 2020	Dr. Bonnie Henry says the **province is in its second wave** of the pandemic as cases rise dramatically.
Oct 26 2020	Visits to homes limited to six guests. Playdates for children are discouraged and wearing masks in public places is expected.
Nov 7 2020	A two-week regional order is announced for the **Fraser Health and Vancouver Coastal Health regions**. Social gatherings with people outside one's household are prohibited, many physical activities are limited, and some travel is restricted.
Nov 19 2020	**The Lower Mainland restrictions are extended to the rest of BC.**
Dec 7 2020	BC's health officials announce a further extension of public health orders, banning gatherings through the holiday season.
Dec 20 2020	The Government of Canada suspends entry into Canada of all commercial and private passenger flights from the United Kingdom for 72 hours, effective midnight.
Jan7 2021	**Restrictions on social gatherings are extended** once again, this time until Feb. 5, with Dr. Bonnie Henry saying it's time for British Columbians to "stay the course".
Jan 29 2021	**The federal government suspends all flights to and from Mexico and Caribbean countries effective January 31, 2021 until April 30, 2021**
March 29 2021	The BC government announces a three-week "circuit breaker" starting at midnight on March 30, 2021. Under the circuit breaker, **the exception allowing indoor religious gatherings and worship services is suspended until May 13, 2021, indoor low intensity group exercise classes are cancelled, indoor dining is cancelled for restaurants, pubs, and bars.**
April 23 2021	Transport Canada **suspends all commercial and private passenger flights from India and Pakistan for 30 days.**
April 23 2021	**The BC government restricts travel to prohibit nonessential travel between three regional zones in the province, using health authority boundaries. In effect from April 23 through May 25, 2021. The three areas are** *** Lower Mainland and Fraser Valley (Fraser Health and Coastal Health regions);** *** Vancouver Island (Island Health region); and** *** Northern/Interior (Interior Health and Northern Health regions).**
May 25 2021	The federal government extends temporary travel measures restricting entry into Canada by foreign nationals until June 21, 2021

Source: Compiled from review of various news and government websites

It is important to note that the experience shown in Figure 1 is only an average for BC as a whole. The situation in individual regions varied considerably, especially with respect to competition between taxis and TNS. The regional difference in TNS experience is explored below.

3.2 What about TNS companies?

Overall, it appears TNS companies began operation just prior to the advent of Covid, suffered an immediate setback, and then went on to grow and capture half the Covid depressed market for trips.

However, this story is only true for Region 1, Lower Mainland and Whistler. As of May 2021, 99.99% of BC TNS Trips were in Region 1, led by the international companies Uber and Lyft. Uber and Lyft's licenses from the Board currently restrict them to Region 1.

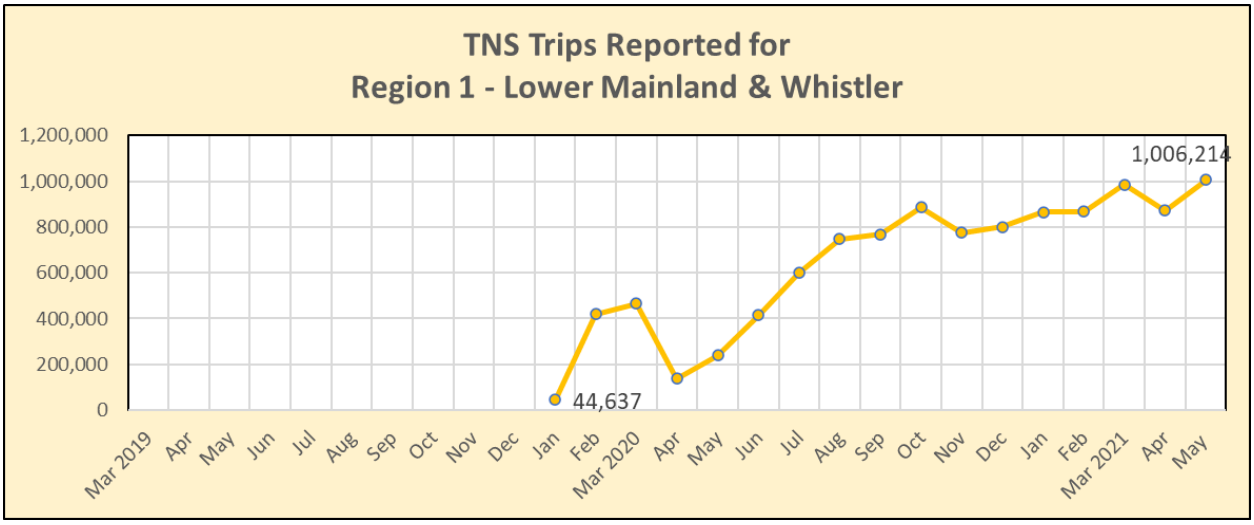


Figure 2

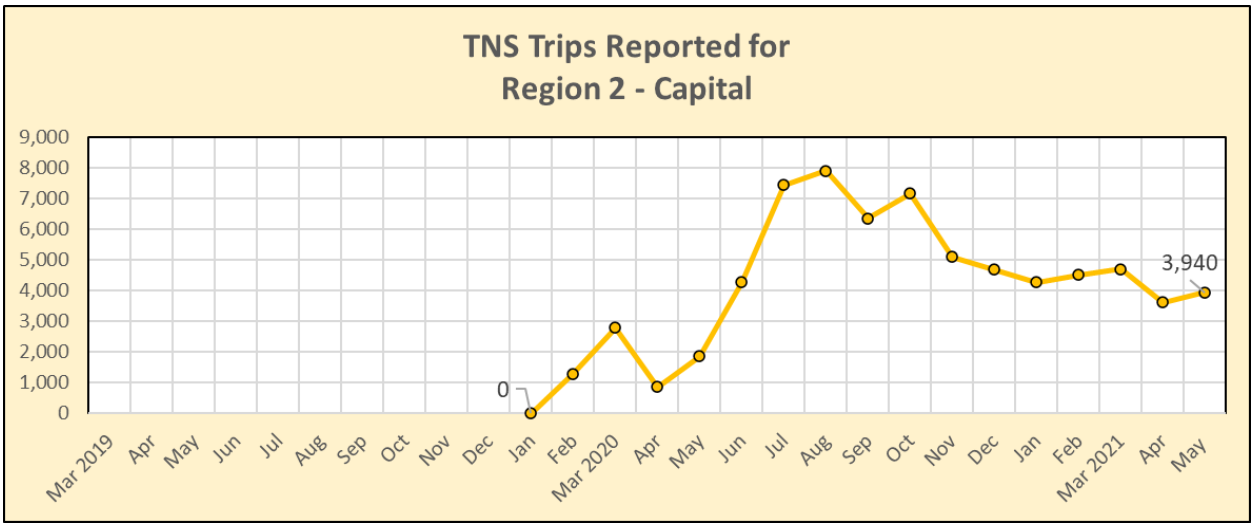


Figure 3

Figures 2 and 3 compare Lower Mainland TNS trips to Capital Region. They are on separate graphs because the scale is different. Lower Mainland trips are measured in the hundreds of thousands, while Capital Region is measured in the thousands. Comparison to taxis is provided further below in the analysis by region.

The pattern is also different – while TNS trips in the Lower Mainland are trending upwards, TNS trips in Capital Region are low and trending downwards.

TNS volume in the other three regions is negligible. None were reported for Region 4. In May 2021, the total across Regions 3 and 5 was just 57 trips – a relative high.

Different Stories Behind TNS Companies

At the time of writing, the Board had issued 23 TNS licenses for BC. To date, seven are providing reports to the Data Warehouse.

This does not mean that the other 16 are in operation and not reporting. A search of news articles and licensee websites revealed a general pattern: announcing operations after licence approval by the Board, followed by trial operation and then announcement of suspension of operation during the pandemic. The announcements of commencement of operations included many municipalities outside the lower mainland. Announcements of suspension of operations were often not made, but sometimes evident on websites.

In addition, many of the licenses involved business models that were not what might be called classic TNS, such as Uber and Lyft, which rely entirely on an app for dispatch, use private vehicles and qualified drivers, and may have computer adjusted floating prices to help match customer demand to available drivers. Their business model means the operator does not have a fleet, a garage, dispatch operators, telephone call takers, or even a local office unless required by legislation. The visible signs of an active classic TNS include a website where customers and potential drivers can download the app. The website may also take driver applications.

Of the 16 licenses not-reporting to the Data Warehouse, six were issued to existing taxi companies whose business plan appeared to be to use smartphone apps to dispatch their taxis. These companies may have been concerned that their app dispatch fell under the regulatory definition of TNS operation, and wished to be covered for that possibility. None of these companies have been reporting TNS trips separately to the Data Warehouse, although they are offering web apps to customers. It appears likely that the Data Warehouse reports consolidate all taxi trips, including those that might be deemed TNS.

Of the remaining TNS licensees, two other firms appear to have not yet implemented a TNS business model. One appeared to be an airport shuttle operator that lacks a website, but has a well advertised telephone number. Another is a limousine service with an active website, but no link to a downloadable app.

Of the remaining eight TNS licensees who advertised as a TNS/rideshare business model:

- Three were active TNS operators in other Canadian provinces who advertise BC services as “coming soon” or similar. (Tappcar, Uride, ReRyde);

- Four had websites that lacked full functionality. This included, a simple and dated notice of future operation, websites to sign up drivers but no downloadable apps, and links to downloadable apps that were not active.
- *One* remaining website had full functionality, a downloadable app, with updates as recent as May 2021, and seven customer reviews, the most recent of which was by a passenger on March 2021.

Thus, at the time of writing this report, there was only one TNS licensee who was not reporting to the Data Warehouse and was potentially active. This licensee was also unique in that their business plan and statements to the media indicated that their primary source of vehicles would be taxis. Thus, it is possible that reporting requirements are being met during the pandemic by using only taxi drivers who are covered by taxi company reports, although this would require further investigation to confirm. In any event, this operator is licensed only for Region 1 – the Lower Mainland and Whistler. Given the large number of TNS trips already reported for Region 1, a small number of additional trips would not add materially to the analysis.

3.3 Impact of Covid-19 on TNS Companies Starting Up

An effective vehicle-for-hire operation needs to enter new markets at scale. Having just a few vehicles to cover a large area means customers must wait a long time for a car to arrive, and will quickly turn back to their former favourite companies. In addition, operating costs per trip rise because with fewer vehicles, the likelihood of one being near a customer when they call is lower. More time driving to pick up the passenger raises the cost and displaces revenue time with the passenger in the car.

The requirement to enter at a large enough scale imposes natural entry barriers to new companies. Not only must they have enough drivers and vehicles from the beginning to cover the area efficiently, they must also advertise and gain market share quickly to give their drivers enough business.

Covid added to this barrier. The decline in customers meant less passenger volume, especially at peak weekend times when restaurant and entertainment travel would normally produce a shortage of taxis and an opportunity for new TNS entrants. There is also a shortage of drivers, at first because of the risks, and later also because of the general shortage of labour in service occupations as the economy began to revive.[10] BC's requirement for a commercial level driver's licence also adds to the difficulties since upgrading one's BC driver license requires an in-person driver test. Covid has meant cancelled tests and a large backlog and long waiting time.[11]

It is apparent from the data that international companies with good access to long-term capital were able to overcome the additional cost and scale barriers imposed by Covid and launch their

[10] See for example: https://globalnews.ca/news/8008835/salaries-labour-shortages-canada/ https://www.bnnbloomberg.ca/canada-is-desperate-for-service-workers-as-provinces-reopen-1.1612180 and https://www.cbc.ca/news/canada/sudbury/demand-taxi-rideshare-drivers-needed-1.6083510

[11] See https://www.cbc.ca/news/canada/british-columbia/icbc-backlog-covid-1.6017718

services, while smaller companies were not. The TNS growth to date is driven by Uber and Lyft in Region 1. Their licenses are restricted to Region 1. Other licensees who employ the TNS/app-based business model have restricted their offering and entry. BC companies like Kuber and Lucky to Go have full rights to operate across the province, but have limited their operations to small scale operations in Region 1 and Region 2. Canadian companies with active and fully functional TNS operation in other provinces, have delayed entry into the BC market (e.g., Tappcar, Uride, Reryde).

3.4 Did TNS Operators Add to Passenger Trip Volume, or Just Replace Taxi Service?

An interesting question is whether the growth in TNS trip volumes came solely at the expense of taxi companies, or added to the volume of trip demand by passengers as well?

Although providing the same point-to-point transportation, taxis and TNS offer different kinds of services to customers. Taxis are more highly regulated and equipped to enable them to safely pick-up customers hailing them from the street. The TNS business model is based on private vehicles driven by qualified drivers and, allegedly, providing a different feel as a "shared ride."

Passenger choice drives the numbers. Even in the absence of a net increase in passenger trips, passengers who choose TNS likely see a higher value in it. The different service approach by TNS is also alleged to attract a greater number of passengers that would result in more combined taxi and TNS trips than were generated by taxis alone.

Other Canadian jurisdictions have seen such increases in total taxi plus TNS trips. Notably, Calgary experienced a 26% increase in trips shortly after the introduction of TNS licensing. Toronto experienced a 48% increase, and Ottawa a 75% increase.[12]

These other Canadian jurisdictions all introduced TNS well before the onset of Covid. Has there been a similar increase in BC total passenger trips following the introduction of TNS, given the headwinds from the pandemic? The short answer is no, since combined taxi and TNS trips have declined across the province and in each region. This might be expected not only from the economic recession resulting from Covid, but also from the impact of Covid on the TNS business model.

The TNS model typified by Uber and Lyft has flexible prices, as opposed to the fixed prices of a taximeter. Taximeters can accommodate peak period surcharges, but the TNS pricing model is adjusted constantly in response to circumstances. If it rains and demand goes up, TNS prices rise until passenger demand matches the available supply. Over time, this means shorter wait times and, if you are willing to pay the going rate, reliable availability even during peaks. On off-peak periods, this means lower prices for passengers – a key factor in generating larger trip volumes.

[12] Sources and methodology: *Modernizing Taxi Regulation. Hara Associates* (2018), British Columbia Ministry of Transportation and Infrastructure. Section 1.3.

With the advent of Covid, the smaller supply of drivers across the industry meant higher prices, even on off-peak for TNS companies. The lower volume of trips also means higher costs per trip, for the same reasons as they rise for taxis (see previous discussion).

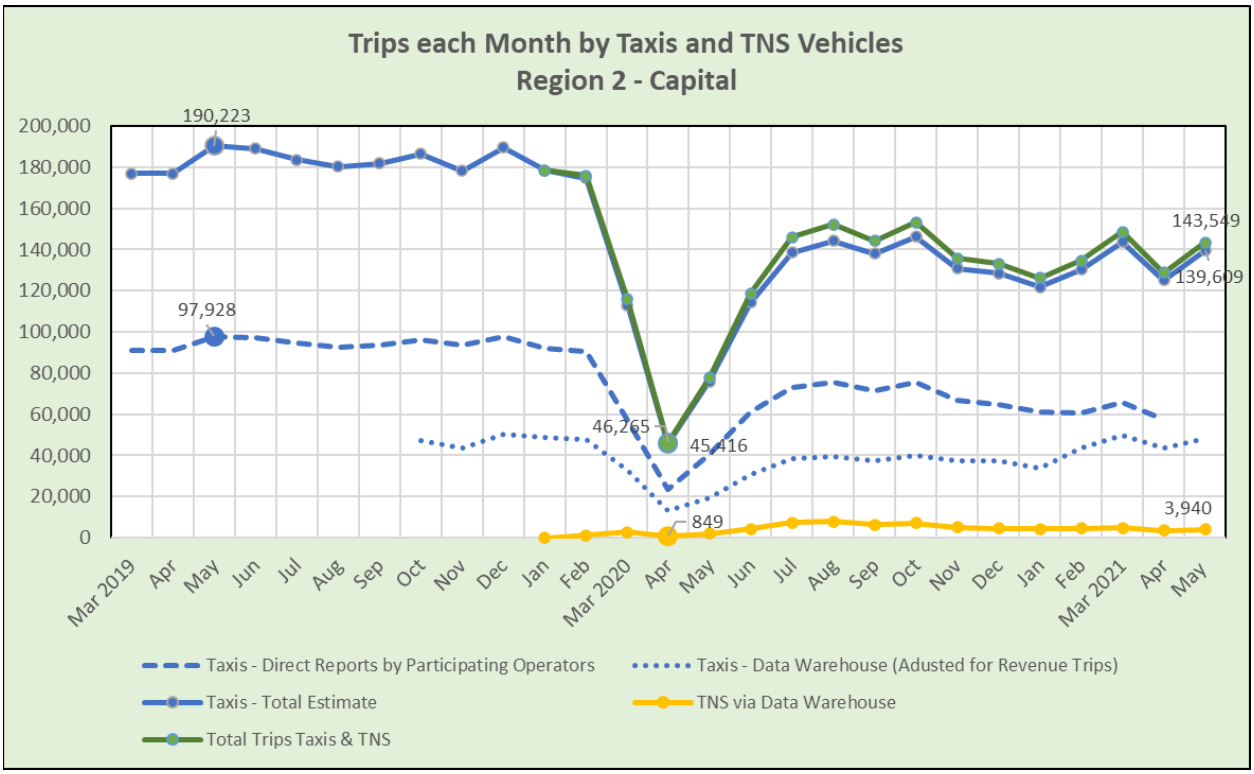


Figure 4

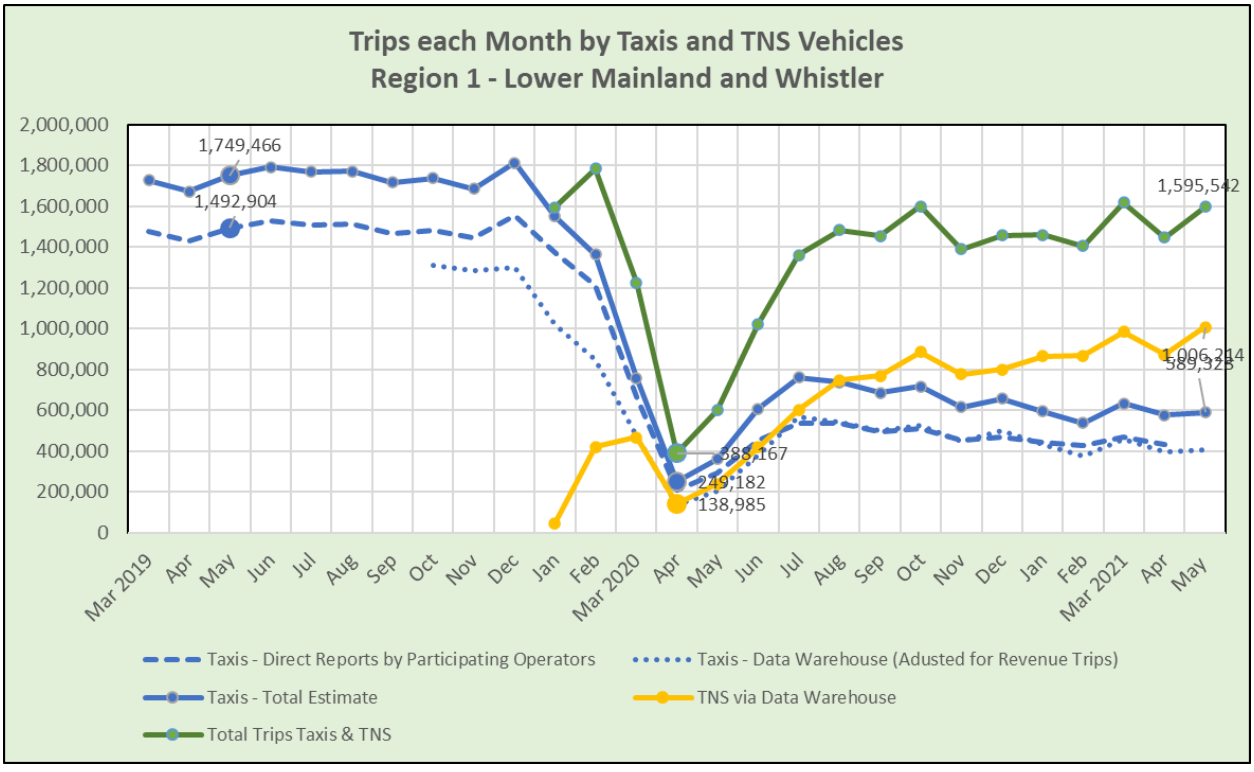


Figure 5

The Relevant Question: Comparing Region 1 and Region 2

Nevertheless, TNS companies in the Lower Mainland experienced vigorous customer growth even during Covid. The relevant question is: *Did combined total trips fall less during Covid because of expanded passenger demand from TNS offerings?*

Some insight into the question can be gained by comparing Region 1 and Region 2. More than 99% of TNS trips came from Region 1, led by Uber and Lyft. Uber and Lyft are not licensed for Region 2 (Victoria and Capital Regional District). However, both regions are relatively urbanized. Although they are not the same, we can compare relative movements in total trips, taxi trips and TNS trips in the two areas. Region 1 has full scale TNS offerings, while Region 2 has very little TNS.

Figure 4 shows estimated trips for Region 2. Comparing May 2021 to May 2019 (pre-Covid) total trip volume fell from 190 thousand to 144 thousand, or 24.5%. Growth in trip volume by TNS in Region 2 (yellow line) was very low at just short of 4,000. As a result, taxi trip reduction was nearly identical to total trip reduction at 26.6%

Figure 5 shows estimated trips for Region 1. Total trips declined 8.8% over the same May to May period (1,749 thousand to 1,595 thousand). TNS trips rose rapidly to roughly one million trips in May 2021, significantly higher than the 589 thousand taxi trips. By themselves, taxi trips fell an estimated 66.3%, or two-thirds.

Overall, trips in Region 1 fell 8.8% during Covid, while trips in Region 2 fell 24.5%, roughly three times as much.

There are many factors that may account for the more severe impact on Capital Region trips, such as greater reliance on tourism. However, it is possible that the vigorous presence of TNS offerings also contributed to the relatively better performance of industry total trips in Region 1.

3.5 Broader Context: Airports, Ferries, Hotels, and Employment

Airline Passenger Volumes

Airline passenger volumes are a driver of trip volumes by taxis and TNS. In addition to getting to and from the airport, business visitors and tourists need local transportation. Similarly ferry transport generates taxi trips directly, plus travellers need local transportation if they arrive without their own vehicle.

Table 3 is reproduced in part from the Destination BC website, a crown corporation. It summarizes passenger volumes by month at BC's two largest airports (Vancouver and Victoria) as well as vehicles and passengers carried by BC Ferries.

The effect of Covid is seen in sharp drop in passenger volumes beginning in March/April 2020. March saw the federal government introduce travel restrictions and quarantine for international visitors and returning Canadians. This was followed in early April by additional provincial measures (see Table 2 this report).

Table 3: BC Transportation Indicators, Seasonally Adjusted

Period	Air Passenger Traffic (000s)[1]					Other Transportation (000s)	
	Vancouver				Victoria[2]	BC Ferries	
	Total	Domestic	Trans-border	Other Int'l.	*Total*	Vehicles	Passengers
Mar '19	2,193	1,043	539	618	166	764	1,898
Apr	2,215	1,064	547	637	164	752	1,867
May	2,187	1,058	521	634	164	753	1,873
Jun	2,200	1,059	534	628	162	759	1,918
Jul	2,175	1,048	534	610	161	753	1,875
Aug	2,166	1,031	531	595	156	737	1,845
Sep	2,222	1,082	541	588	154	745	1,832
Oct	2,179	1,051	537	591	156	753	1,857
Nov	2,208	1,052	531	600	157	767	1,898
Dec	2,266	1,072	528	592	157	768	1,896
Jan '20	2,231	1,064	515	594	158	695	1,706
Feb	2,180	1,058	513	536	165	771	1,900
Mar	**1,107**	**567**	**243**	**297**	**81**	547	1,151
Apr	**69**	**43**	**6**	**20**	**4**	290	463
May	**89**	**61**	**6**	**21**	**7**	392	670
Jun	**193**	**146**	**14**	**34**	**13**	544	1,052
Jul	**332**	**269**	**18**	**45**	**34**	609	1,210
Aug	**417**	**346**	**22**	**50**	**47**	633	1,305
Sep	**355**	**288**	**21**	**47**	**39**	683	1,408
Oct	**334**	**267**	**25**	**42**	**26**	675	1,325
Nov	**276**	**207**	**26**	**43**	**22**	548	1,016
Dec	**294**	**214**	**30**	**49**	**18**	458	766
Jan '21	**252**	**183**	**23**	**46**	**18**	522	912
Feb	**178**	**140**	**11**	**26**	**13**	522	917
Mar	**202**	**172**	**10**	**21**	**17**	575	1,049
Apr	**190**	**154**	**11**	**24**	**16**	488	787
May	200	158	14	28	**13**	403	596

Source: Destination BC Tourism Indicators https://www.destinationbc.ca/content/uploads/2020/07/Provincial-Tourism-Indicators-2020.pdf

In April 2020, travellers to airports, for domestic and international flights dropped to less than a tenth of their previous levels, and have only marginally recovered since. The similar lower ferry volumes indicate less travel within the province as well, with consequences for passenger directed vehicles. Although Vancouver was the only designated airport for international arrivals to BC during Covid, there were few such passengers.

Vancouver airport is also illustrated in Figure 6 below. Impact on regional airports is reported in regional analyses later in this report.

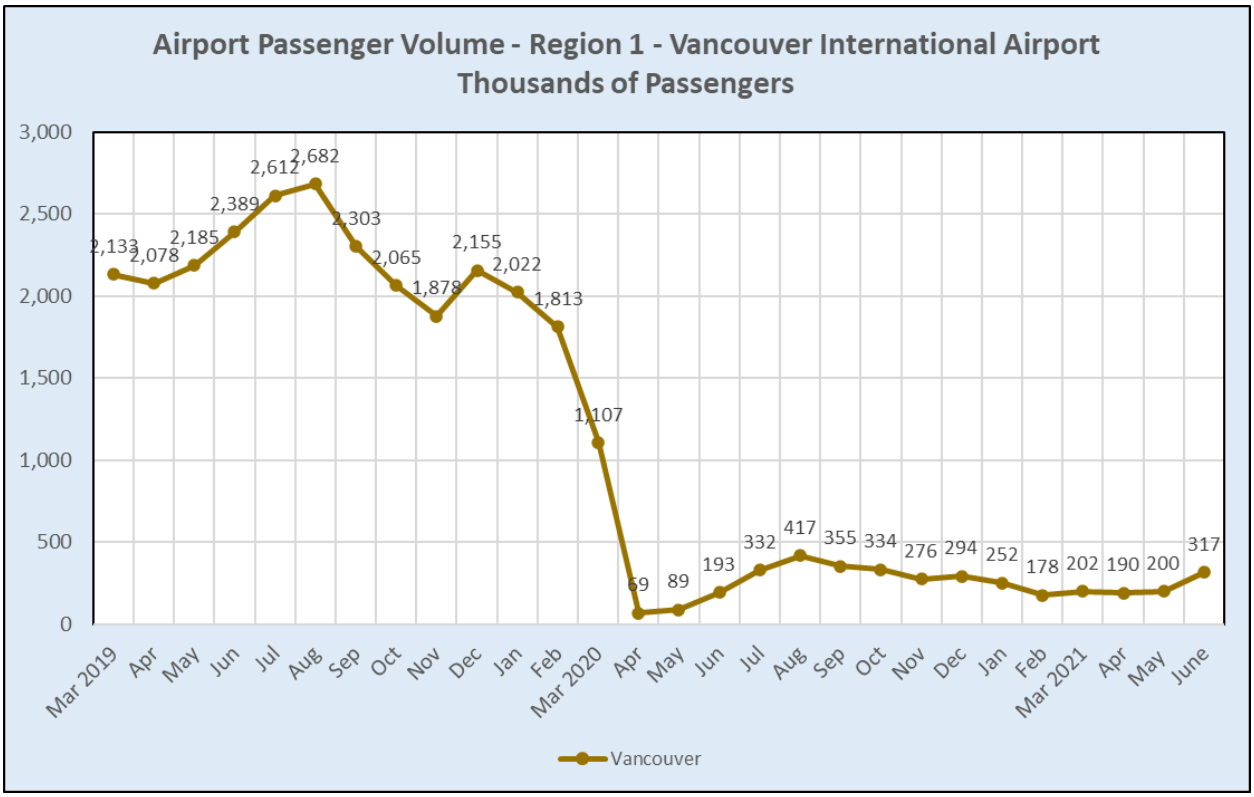


Figure 6

Hotel Occupancy

A key indicator of tourism is the hotel occupancy rate. This too has significant consequences for demand for taxis and TNS vehicles. Figure 7 shows the percentage of hotel rooms occupied in Vancouver and Victoria, the two largest destinations.[13] Figures are available for up to July 2021, a more recent indicator than our trip data, volume which ends in May.

The pattern up to February 2020 represents normal seasonal variation, higher in the summer (80% to 90%) to lowest in January (69% and 44% for Vancouver and Victoria respectively). However, the immediate impact of Covid and associated health measures was to dramatically reduce hotel occupancy in April to 15% and 7% respectively. This parallels what is seen in Airport volumes, and in trip volumes for Taxis and TNS.

The most recent months of June and July 2021 are beyond the range of our trip volume data, and indicate a possible recovery. Hotel occupancy had risen significantly to 50% and 62% respectively. This is still down from the pre-Covid July of 2019 rates, when occupancy was 91% and 81% for the respective cities.

Although a hopeful sign, we note that more recent events since July 2021 make recovery less certain. In the most recent quarter, cases of the Covid Delta variant have been rising, some restrictions have been reimposed, and there has been negative national GDP growth.

[13] Source: STR and CBRE via Destination BC https://www.destinationbc.ca/tourism-industry-dashboard/

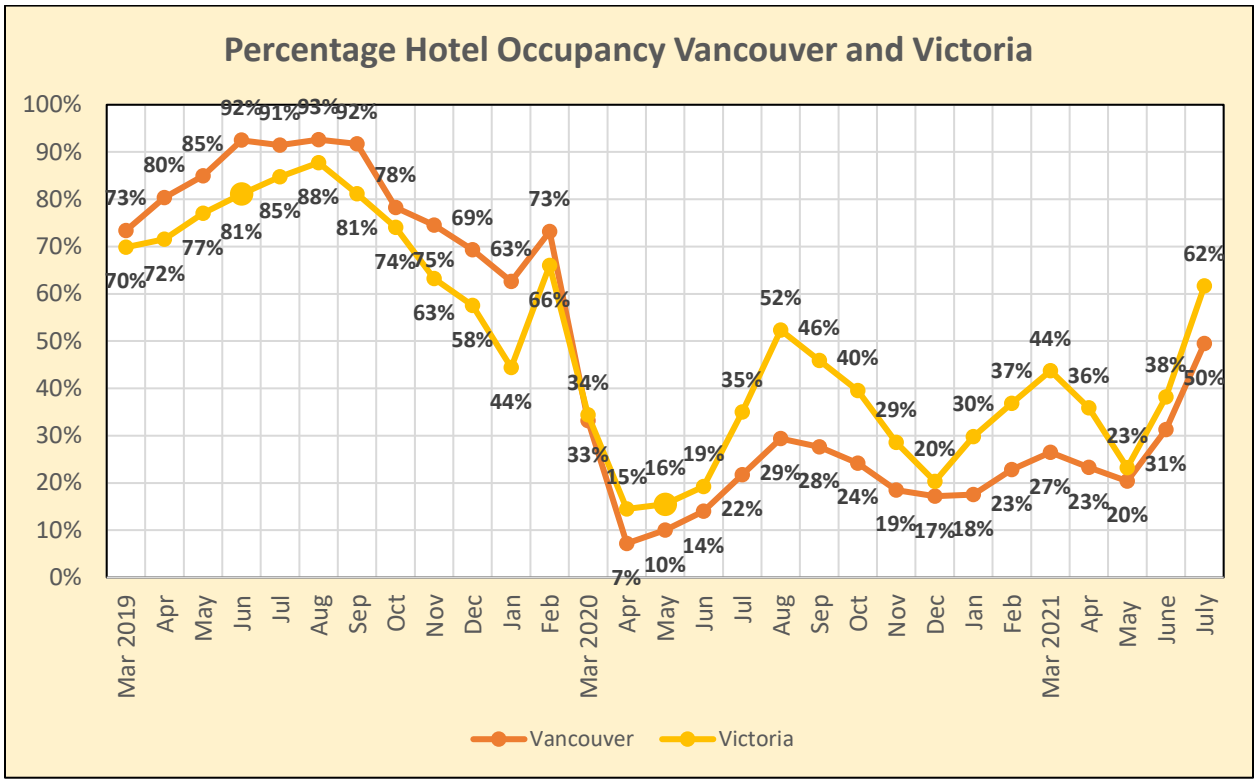


Figure 7

Employment

The general level of employment and unemployment across the economy has a follow-on effect on the taxi industry. Less economic activity means less travel for business, and less income for leisure travel.

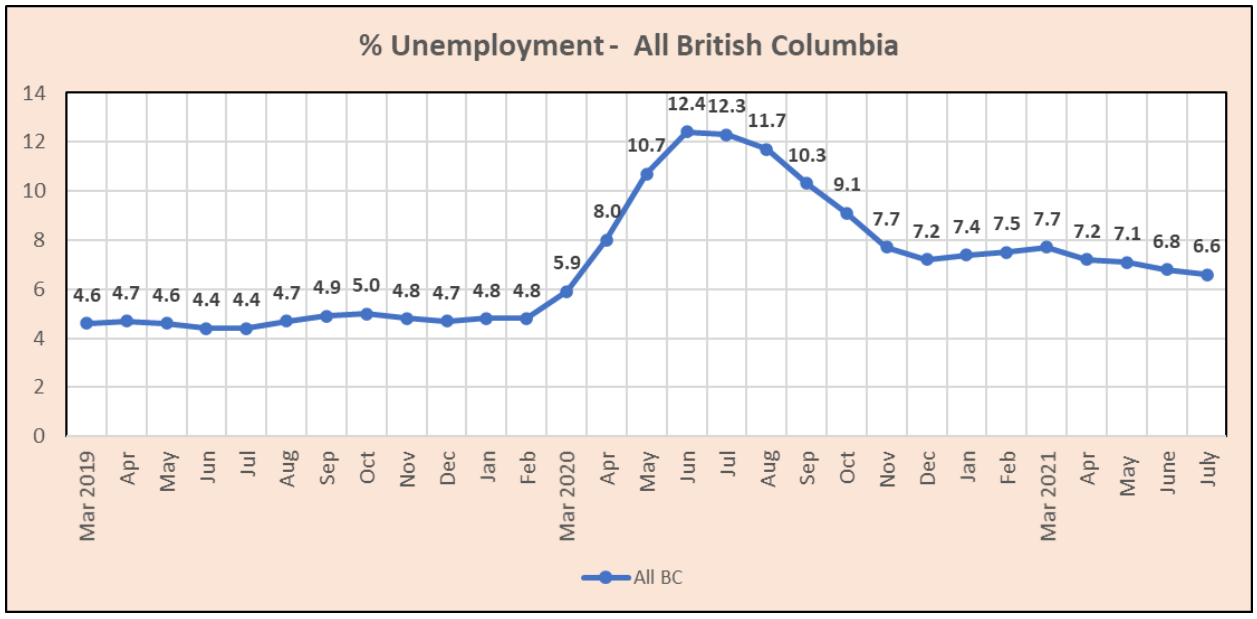


Figure 8

Figure 8 shows the unemployment rate each month for BC as a whole.[14] There is a delayed peak as businesses adapted and individuals were laid off due to Covid. The unemployment rate began to climb in April 2020, the same month that taxi and TNS trips bottom. Peak unemployment was reached in June 2020 at 12.4%. Economic recovery began afterwards, with a small peak in March 2021 related to Covid cases rising and health measures being put in place. As of July 2021, unemployment was at 6.6%, still significantly higher than the 4.4% of July 2019.

4 Region 1 Analysis: Lower Mainland and Whistler

The balance of this document adds regional detail to the analysis. Region 1 has already been discussed, but more region-specific information on hotel occupancy, airport passenger volumes, and employment can be added. Figure 9 below is the same as Figure 5. It is repeated to augment the details provided in subsequent figures.

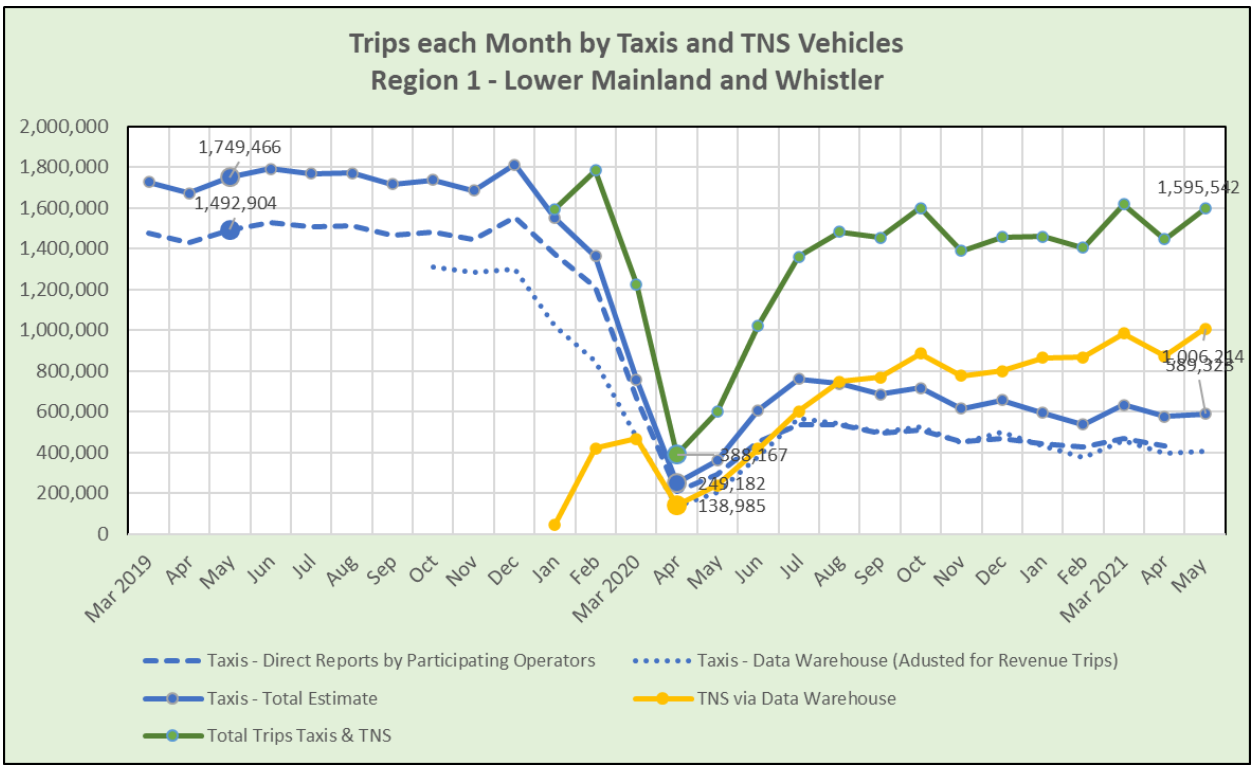


Figure 9

Combined trips for TNS and taxis declined 8.8% over the May 2019 to May 2020 period (1,749 thousand to 1,595 thousand). TNS trips rose rapidly to roughly one million trips in May 2021, significantly higher than the 589 thousand taxi trips. By themselves, taxi trips fell an estimated 66.3%, or two-thirds.

As discussed earlier, this rapid growth in TNS trips only occurred in Region 1, where international TNS companies like Uber and Lyft had been licensed to operate and led this

[14] Source: Statistics Canada, Labour force characteristics, three month moving average, unadjusted for seasonality. Product ID 14100387.

expansion. The net result is that total trips have recovered to a little over 90% of previous levels, with more recent data on hotel occupancy and trip volumes suggesting further recovery. Taxi companies, however, have lost significant market share as a large proportion of passengers chose the TNS. TNS trips now exceed taxi trips in the region.

Some respondents to the survey on taxi trip volumes also added comments and additional information. Region 1 comments included[15]:

- "Our monthly revenue dropped almost half a million dollars between March 2019 and 2021." (Medium size company outside of Metro Vancouver).
- "Fare revenue has dropped more than two-thirds due to less demand during Covid. Drop in fares to airport hurt very much."
- "More than $190,000 drop from 2019 and 2020."
- "Covid has not only caused a drop in business; it has also resulted in a driver shortage (difficult to get licences)."
- "We have laid off our dispatchers due to shortage of dispatch trips. Drivers are not formally laid off since they are independent contractors. Most of our drivers decided to stay home to be safe. Only a few drivers are working and lease volume has dropped in a similar fashion. We are struck particularly hard by Covid since a significant portion of our business normally comes from the Airport and Casino."

These comments confirm the discussion in the overview section concerning difficulties in obtaining drivers, and the loss of employment within the industry. Not mentioned in the comment about the lack of dispatch trips is the likely impact of rising market share by TNS companies – whose apps are an alternative to dispatch.

Figure 10, hotel occupancy, shows two additional months beyond the trip data, and adds Whistler hotels.[16] June and July 2021 show strong increases, more than the seasonal increase seen between June and July 2019. While still 20 percentage points short of a normal peak season, the result is encouraging. Whether this optimism carries over to directed passenger vehicle volumes is less likely, given the low growth in airport passenger volumes shown further below.

Airport passenger volumes have not yet recovered to the same degree. Figures 11 and 12 show Vancouver International Airport and Abbotsford International Airport.[17] This suggests the recovery in hotel occupancy is driven by local tourism.

Since local tourists are more likely to have their own vehicles, the implications for taxis and TNS volumes are weaker than the strong increase in hotel occupancy might suggest.

[15] Edited for grammar and to protect anonymity.
[16] Source: STR and CBRE via Destination BC https://www.destinationbc.ca/tourism-industry-dashboard/
[17] Source: Respective airports via Destination BC website.

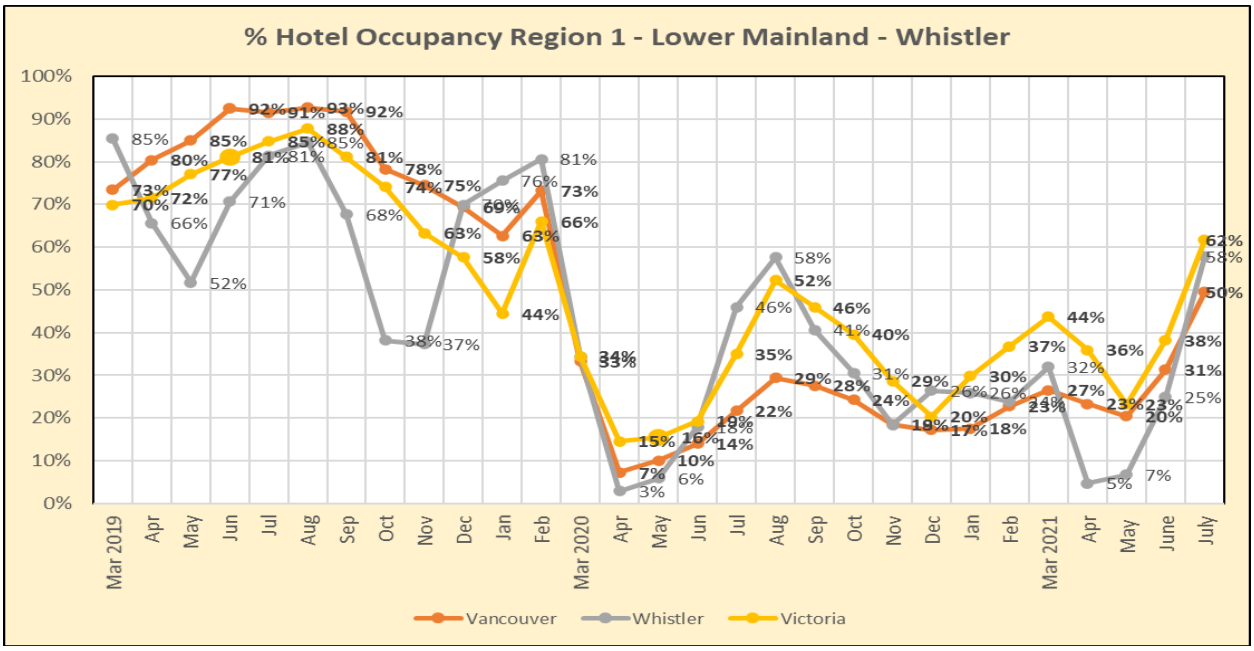


Figure 10

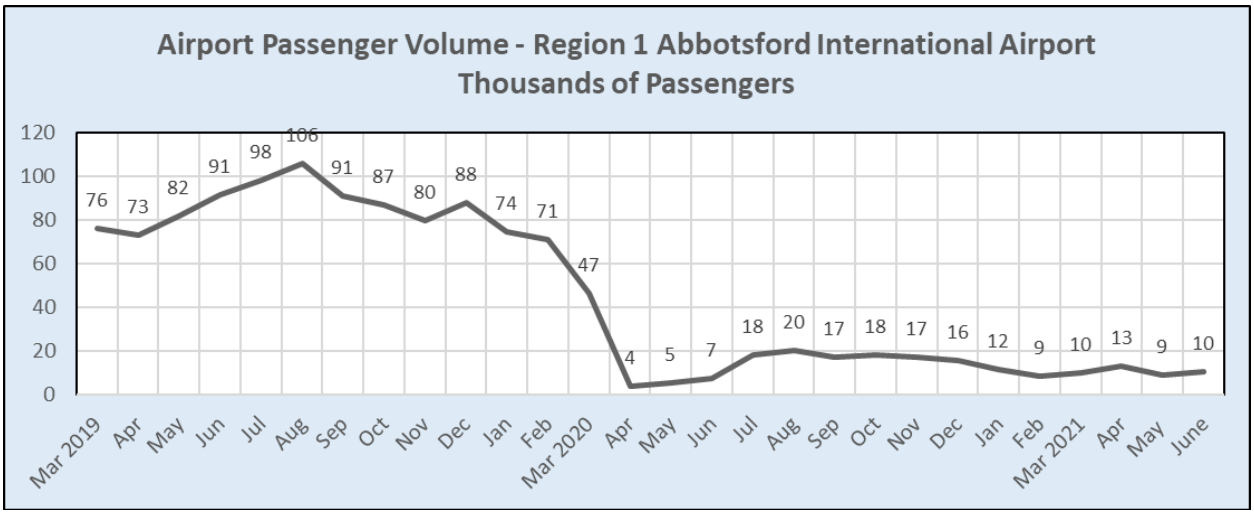


Figure 11

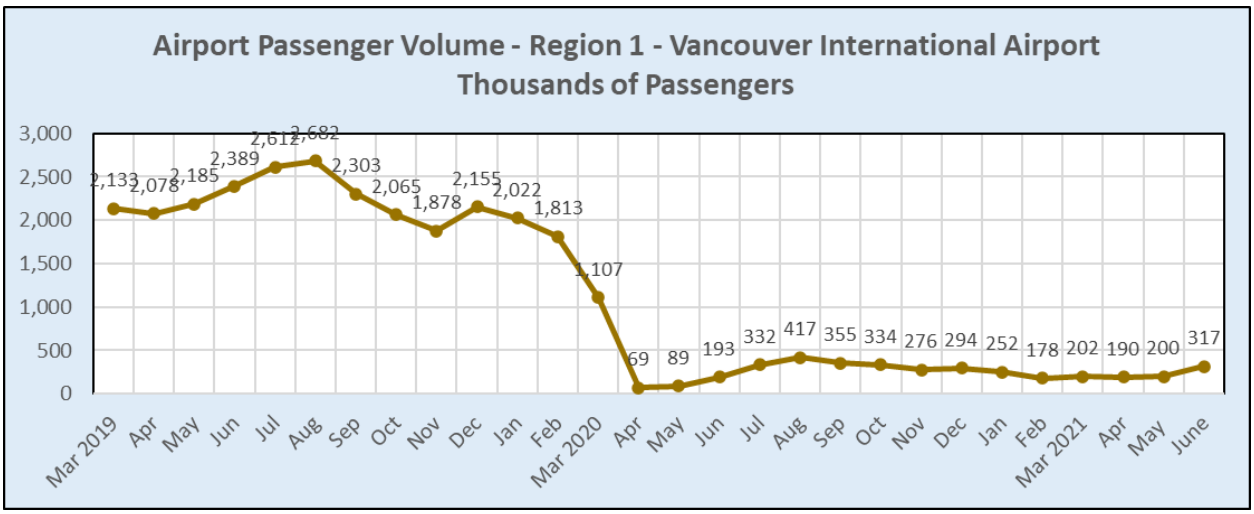


Figure 12

For further context, unemployment in Region 1 can be compared to that in the province as a whole. Regional unemployment figures are available from Statistics Canada according to the seven BC economic development regions.[18] These regions correspond roughly to the five regions used for this study. Figure 13 shows unemployment for the economic development region Lower Mainland and Southwest. The dotted blue line is the average for all of BC. Given that the Lower Mainland is the most populous region, it is not surprising that the unemployment experience of this area closely follows the provincial average.

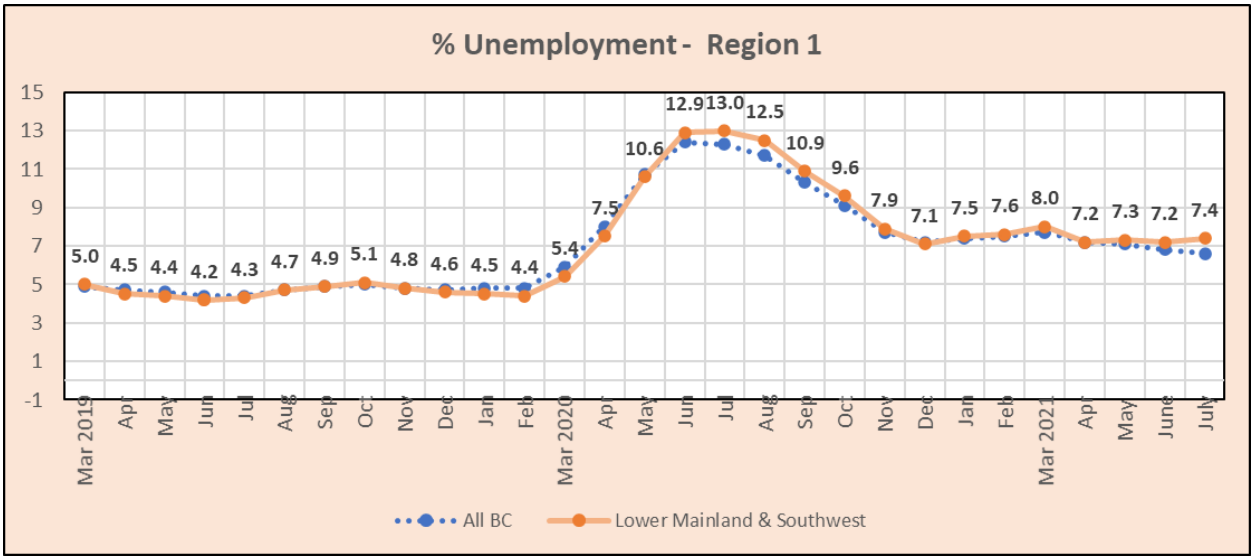


Figure 13

Peak unemployment occurred in June/July of 2020. There was a partial recovery as unemployment fell back to the 7% range, with bumps for additional waves of Covid and associated health measures. As of July 2021, the lower mainland was doing slightly worse than the province as a whole, with unemployment rising slightly from June, compared to a slight decline for the whole province.

5 Region 2 Analysis: Capital Regional District

Region 2 has already been discussed in Section 3, but again, adding more region-specific information on hotel occupancy, airport passenger volumes, and employment lends greater depth to the analysis. Figure 14 showing Capital Region taxi and TNS monthly trip volumes is the same as Figure 4.

Figure 14 shows estimated trips for Region 2. Comparing May 2021 to May 2019 (before Covid) total trip volume fell from 190 thousand to 145 thousand, or 24.5%. Growth in trip volume by TNS in Region 2 (yellow line) was very low at just short of 4,000. As a result, taxi trip reduction was nearly identical to total trip reduction at 26.6%

[18] Source: Statistics Canada, Labour force characteristics, three month moving average, unadjusted for seasonality. Product ID 14100387.

Combined trips for TNS and taxis declined 24.5% over the same May to May period (190 thousand to 143 thousand). Unlike the Lower Mainland, TNS trips were negligible. During Covid, TNS companies were active, but minimally, which may account for the lower recovery in total trips, although this is not certain (see Section 3 discussion comparing TNS growth in Regions 1 and 2).

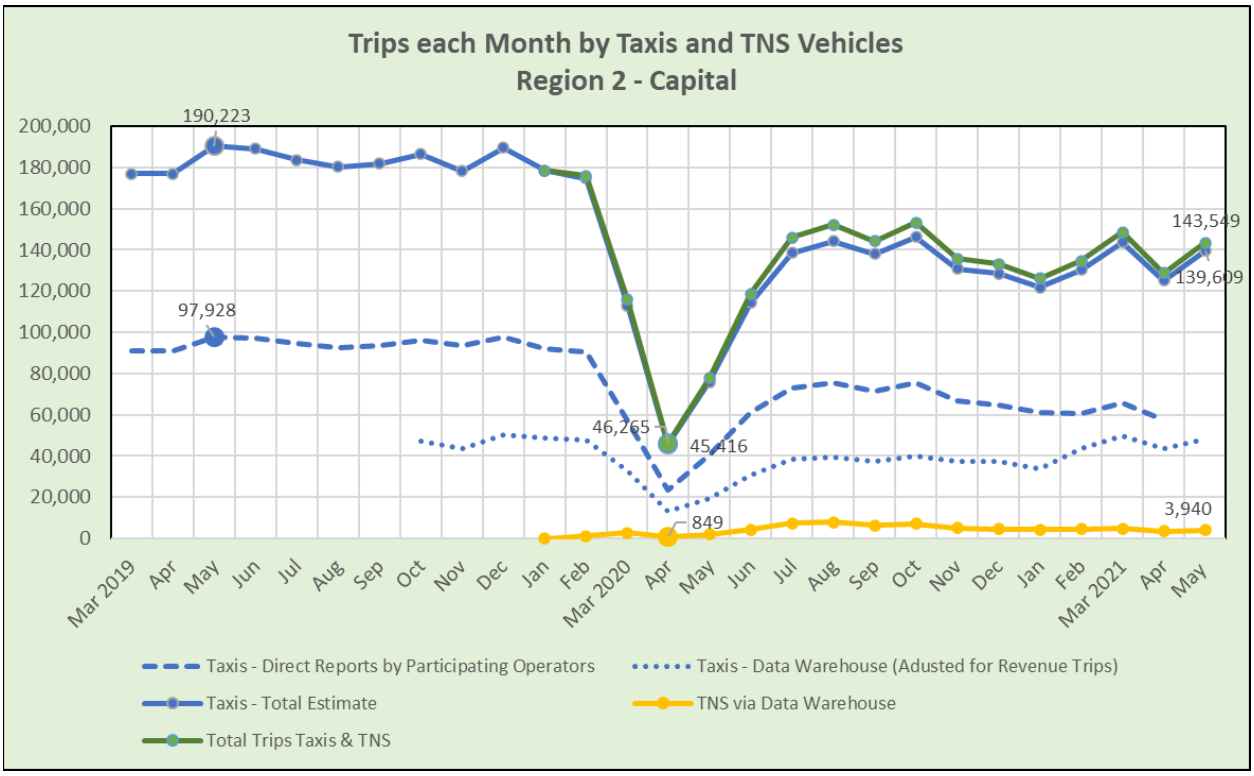


Figure 14

The net result is that total trips have recovered only 75.4% of their previous levels in Region 2. Taxi companies by themselves have fared relatively better in Region 2 than in Region 1, with trips declining only 26.6% from May 2019, compared to a 66.3% decline in Region 1.

Some respondents to the survey on taxi trip volumes also added comments and additional information. Region 2 comments included[19]:

- "In March of 2020 the number of trips we did on a Saturday night went from 60 to 3. My income last year was $11,000." (Small operator).
- "Most trips in June 2020 to April 2021 were very short with few trips to the airport or ferries."
- There were several comments indicating anger over the introduction of TNS companies, exacerbated by business decline due to Covid.

As the comments indicate, airport passenger volumes have declined substantially. Figure 15 shows the decline at Victoria International Airport.[20] As of June 2021, passenger volumes were

[19] Edited for grammar and to protect anonymity.
[20] Source: Respective airports via Destination BC website.

only 16% of June 2019. The slight uptick in June still leaves passenger volumes at very low levels.

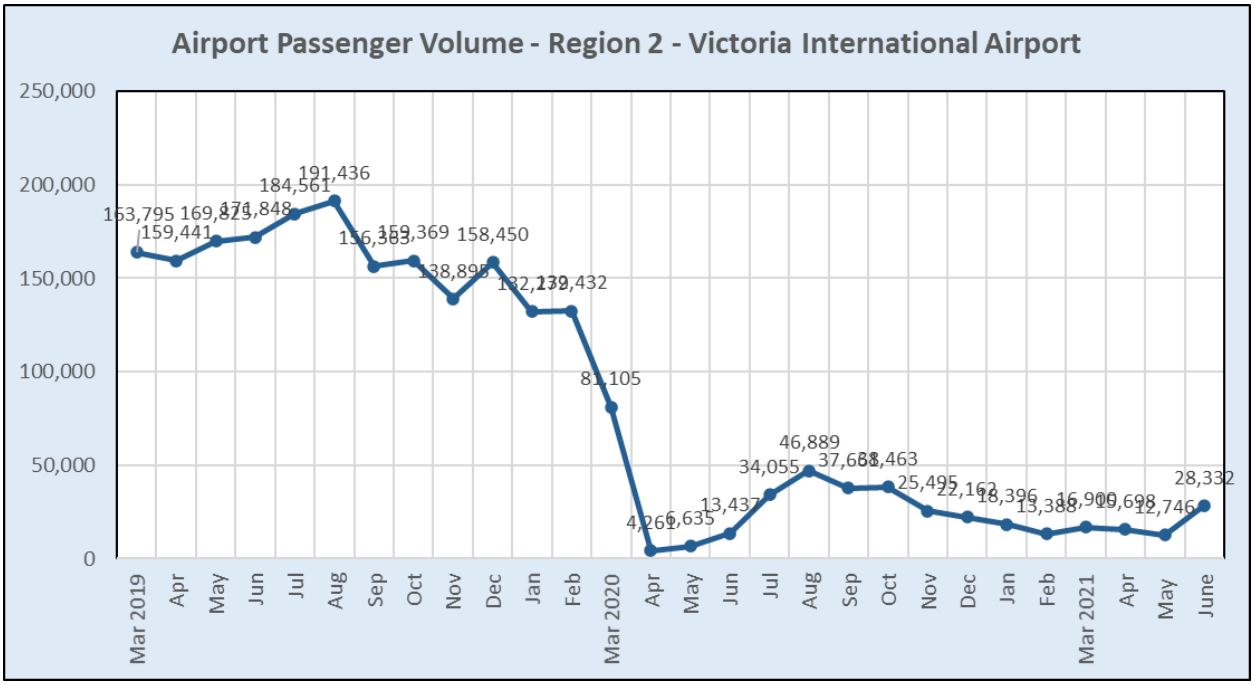


Figure 15

Changes in hotel occupancy in the Capital Region are shown in Figure 16. Here we have two months that are more recent than our trip data (June and July). Occupancy rates have gone a longer way to recovery with 62% in July compared to 81% in July two years previously. Given low airport volumes it is likely that more visitors are from within BC and have personal vehicles, reducing the positive impact of the increased hotel occupancy on passenger directed vehicles.

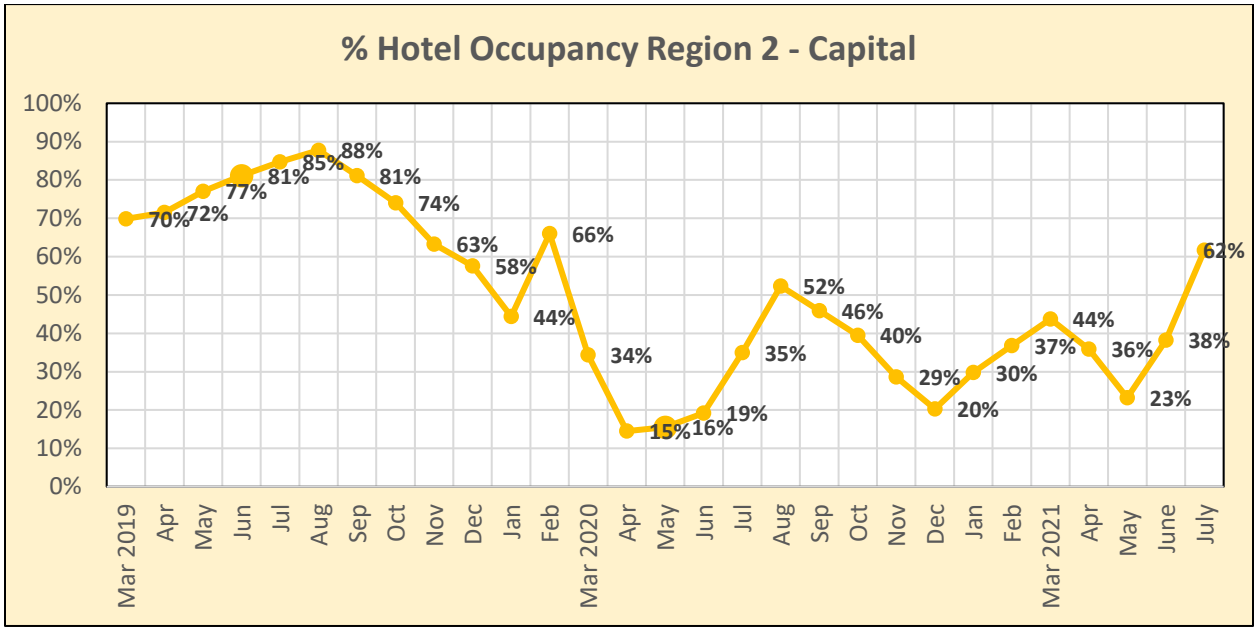


Figure 16

Further context is provided by comparing unemployment in Region 2 to the province as a whole. Regional unemployment figures are available from Statistics Canada according to the seven BC economic development regions.[21] These regions correspond roughly to the five regions used for this study. Figure 17 shows unemployment for the economic development region Vancouver Island and Coast. The dotted blue line is the average for all of BC. The region has generally had slightly lower unemployment than BC as a whole, with the improvement in July 2021 notably above seasonal variation. Unemployment has improved from its peak of 11.8% in July of 2020, but remains one and a half percentage points higher than in July 2019.

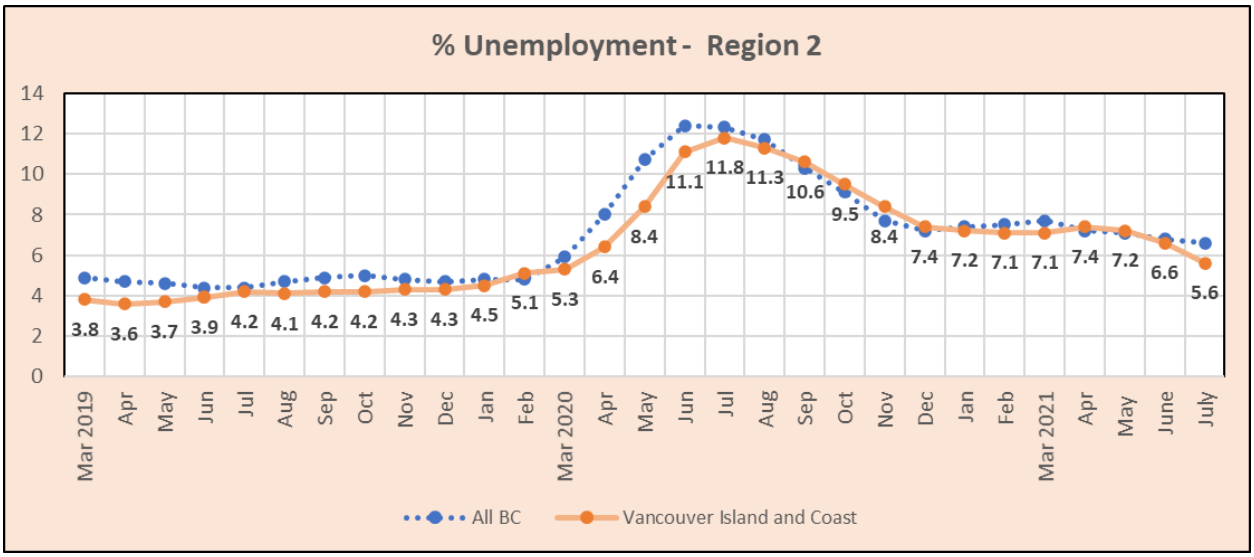


Figure 17

6 Region 3 Analysis: Vancouver Island Excluding Capital Region

Figure 18 provides estimated monthly trip volumes for taxis and TNS. Total results for taxis are projected from the 36.2% of the licensed taxi fleet participating in the survey for this study. Data Warehouse reports are not yet available for this region. The solid blue line is total taxi trips. The green line indicates when TNS operation began in the province but there was no significant TNS activity reported (other than TNS trips that may have originated in Capital Region, etc.).

As with other regions, trip volumes plummeted in March and April 2020 with the advent of the pandemic. Initially there was some recovery, but there has been a continuous shallow decline since July 2020. As of May 2021, monthly trips had declined 32.8% from May 2019, from 151 thousand to 101 thousand. The small bump upwards seen in the Capital region did not occur in the rest of the island.

[21] Source: Statistics Canada, Labour force characteristics, three month moving average, unadjusted for seasonality. Product ID 14100387.

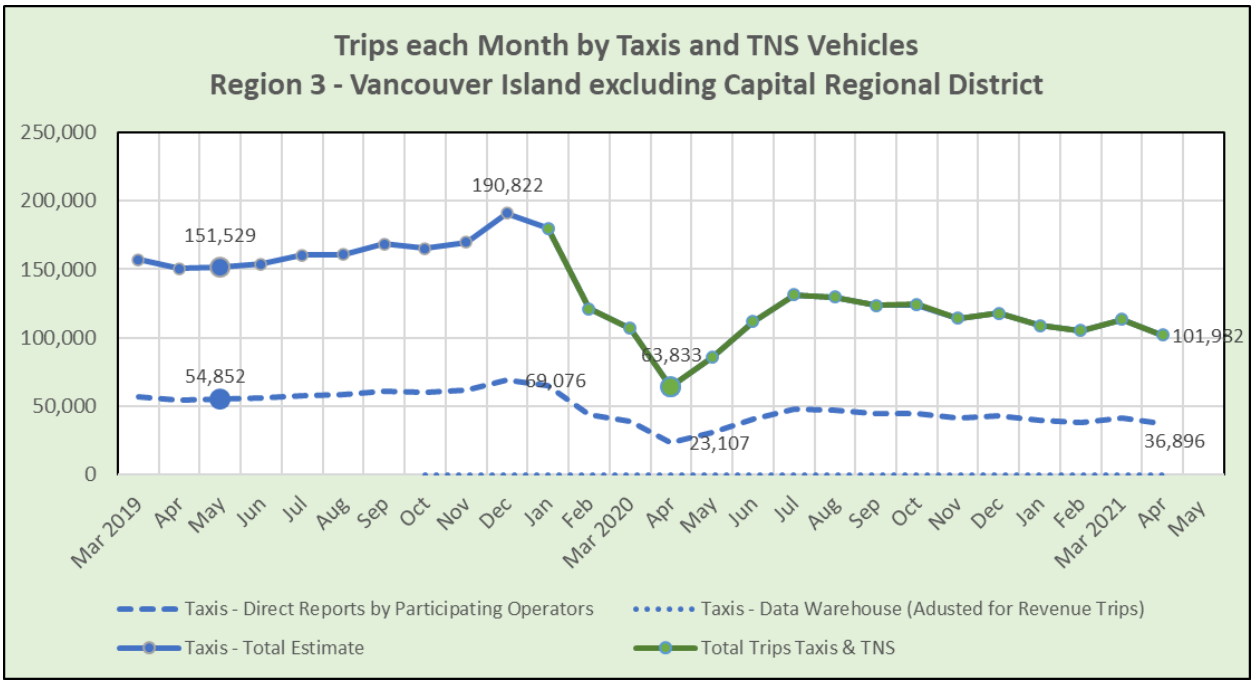


Figure 18

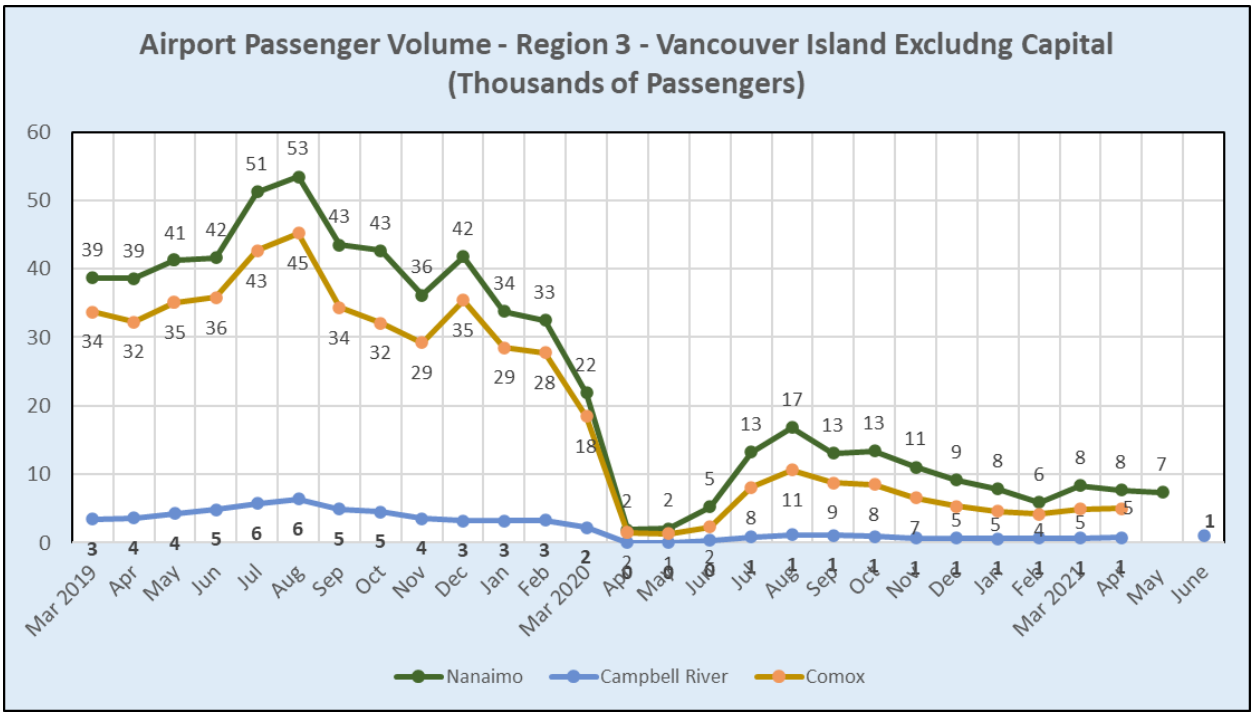


Figure 19

Some respondents to the survey on taxi trip volumes also added comments and additional information. Region 3 comments included[22]:

- "Revenue is down 50% and running only half the cars. Other companies in the region have cut their hours from 24 hour to not taking calls between midnight and 7a.m."

[22] Edited for grammar and to protect anonymity.

- "Gross earnings have dropped to about one quarter of what they were in 2019."
- "Our wheelchair taxi is booked only twice a week."

Airport passenger volumes show a similar ongoing shallow decline after an initial partial recovery. Figure 19 shows passenger volumes for three regional airports: Nanaimo, Campbell River, and Comox. Data is not available for all months. For example, Campbell River data skips May 2021

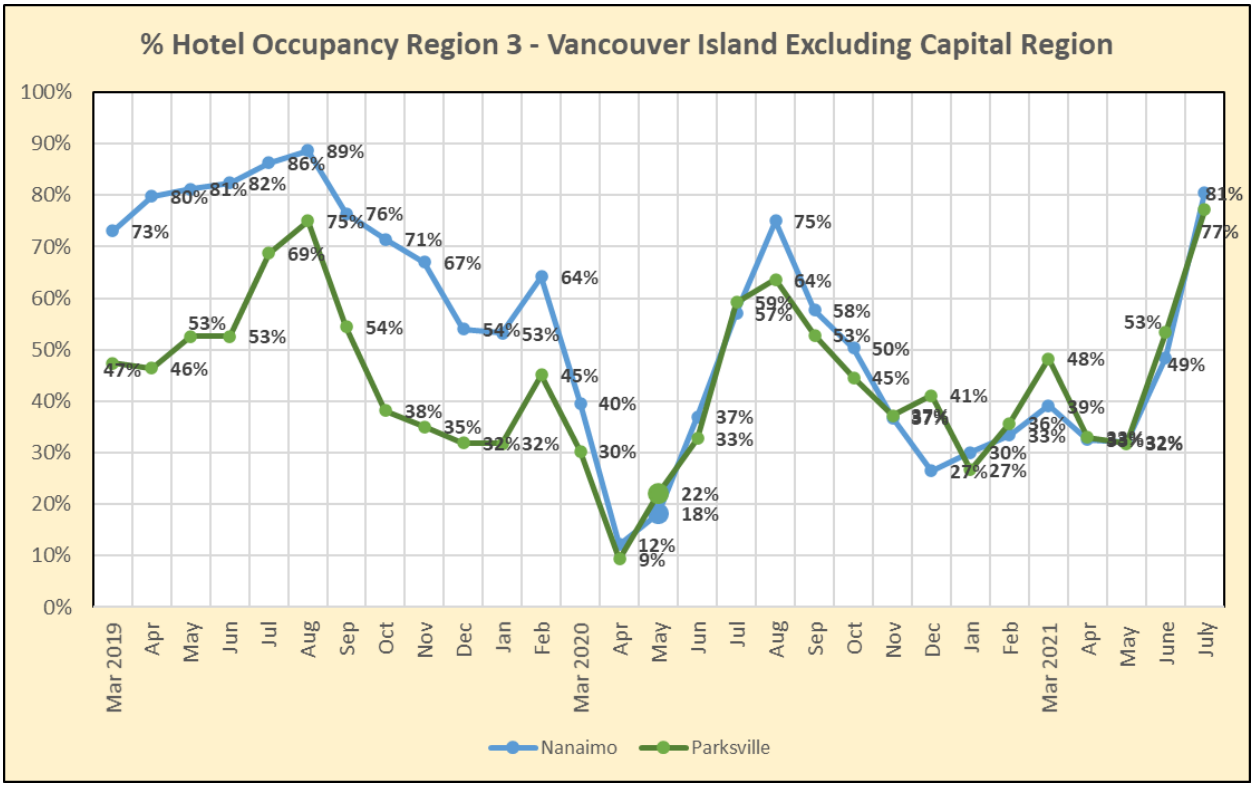


Figure 20

Hotel occupancy rates for Region 3 (excluding the Capital Region) for communities reported by Destination BC are shown in Figure 20.[23] As with elsewhere in BC, June and July 2021 hotel occupancy shows a strong resurgence that is not reflected in air passenger volumes. This suggests a positive impact post May in taxi trip volumes moderated by the likelihood that many hotel visitors are from within BC and are using their own vehicles.

For further context, unemployment in Region 3 can be compared to the province as a whole. Regional unemployment figures are available from Statistics Canada according to the seven BC economic development regions.[24] These regions correspond roughly to the five regions used for this study. Figure 21 shows unemployment for the economic development region of Vancouver Island and Coast, the same region relevant for Region 2 (Capital Regional District). The dotted blue line is the average for all of BC.

[23] Source: STR and CBRE via Destination BC https://www.destinationbc.ca/tourism-industry-dashboard/
[24] Source: Statistics Canada, Labour force characteristics, three month moving average, unadjusted for seasonality. Product ID 14100387.

As previously noted, the region has had slightly lower unemployment than BC as a whole, with improvement in July exceeding seasonal variation. Unemployment has improved from its peak of 11.8% in July of 2020, but remains one and a half percentage points higher than in July 2019.

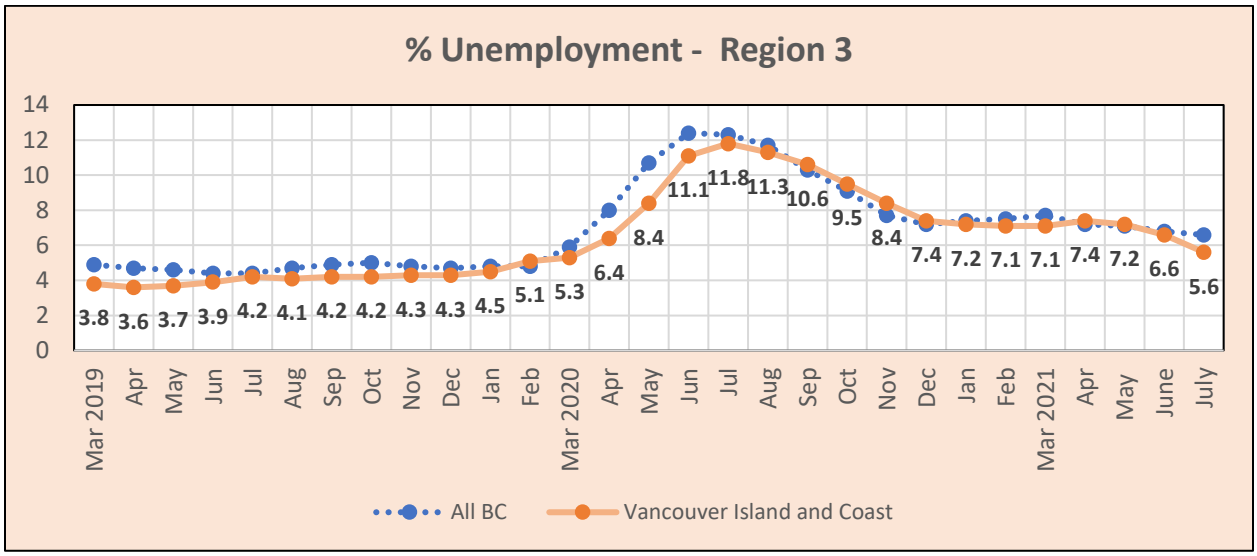


Figure 21

7 Region 4 Analysis: Okanagan-Kootenay-Boundary-Cariboo

Figure 22 provides estimated monthly trip volumes for taxis and TNS. Total results for taxis are projected from the 35.6% of the licensed taxi fleet for this region participating in the study survey and/or reporting to the Data Warehouse. The solid blue line is total taxi trips to December 2020. The green line indicates when TNS operation began in the province but there was no significant TNS activity reported in Region 4, although there may have been some TNS trips that originated in other regions.

As with other regions, trip volumes plummeted in March and April 2020. There was a partial recovery that peaked in July and August. However, unlike upper Vancouver Island there was a significant uptick in trip volume in the last two months of data (April/May 2021). *Estimated trip volume (all taxi) is above its pre-Covid levels for May 2019*. It is also at 84% of its December 2021 peak – although it is not clear how much of that peak was seasonal for pre-Covid. This pattern is similar to the uptick in Regions 1 and 2 at the end of the observation period, but the recovery in Region 4 is stronger.

Because the sample for Region 4 only covers 35.6% of the licensed taxi fleet, the recent recovery shown in Figure 22 may be over-stated. The projection from the sample to the whole does not fully account for taxi companies that closed completely during Covid (see discussion in Section 2 Data Quality and Corrections). Comments received suggested at least two companies had closed their doors temporarily and were unable to participate in data collection for this study.

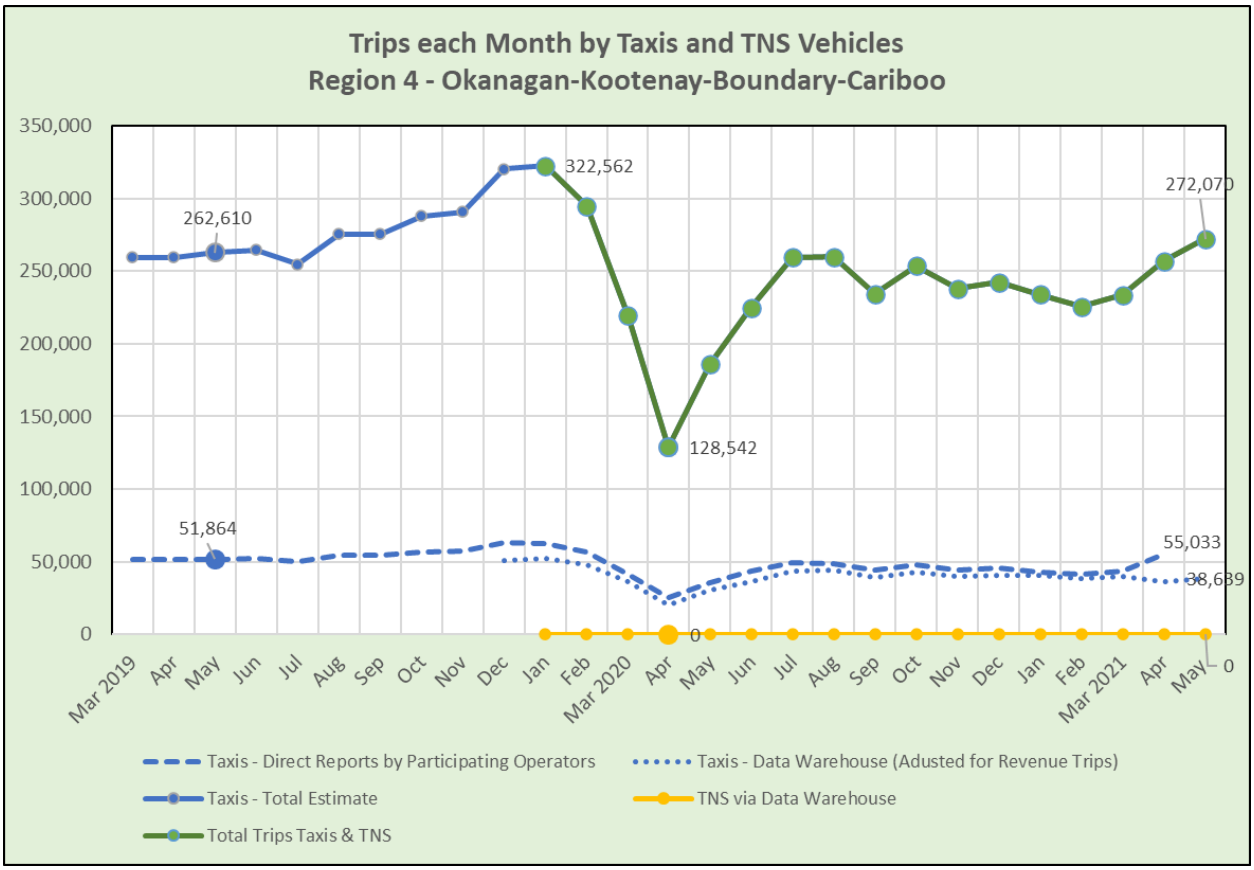


Figure 22

Some respondents to the survey on taxi trip volumes also added comments and additional information. Region 4 comments included[25]:

- "Our company has kept its full staff of drivers, unlike other companies in the area."
- "We were not operating due to Covid from March 2020 onwards."
- "We have been closed due to Covid since March 2020. We could not meet operating expenses."
- "We are running on limited capacity and have lost 60% to 70% of our business."
- "Stopped operating as of December 2020 due to driver shortage, not because of demand."

These comments suggest the recovery in trips shown in the graph is overstated, although the uptick in April and May still reflects a pattern seen in Regions 1 and 2.

Airport passenger volumes show a similar ongoing shallow decline after the initial partial recovery. Figure 23 shows passenger volumes for regional airports: Nanaimo, Kelowna, and Kamloops. Data is not available for all months. Kamloops' airport has continued to operate, but at low volumes, and has not released numbers for every month.

[25] Edited for grammar and to protect anonymity.

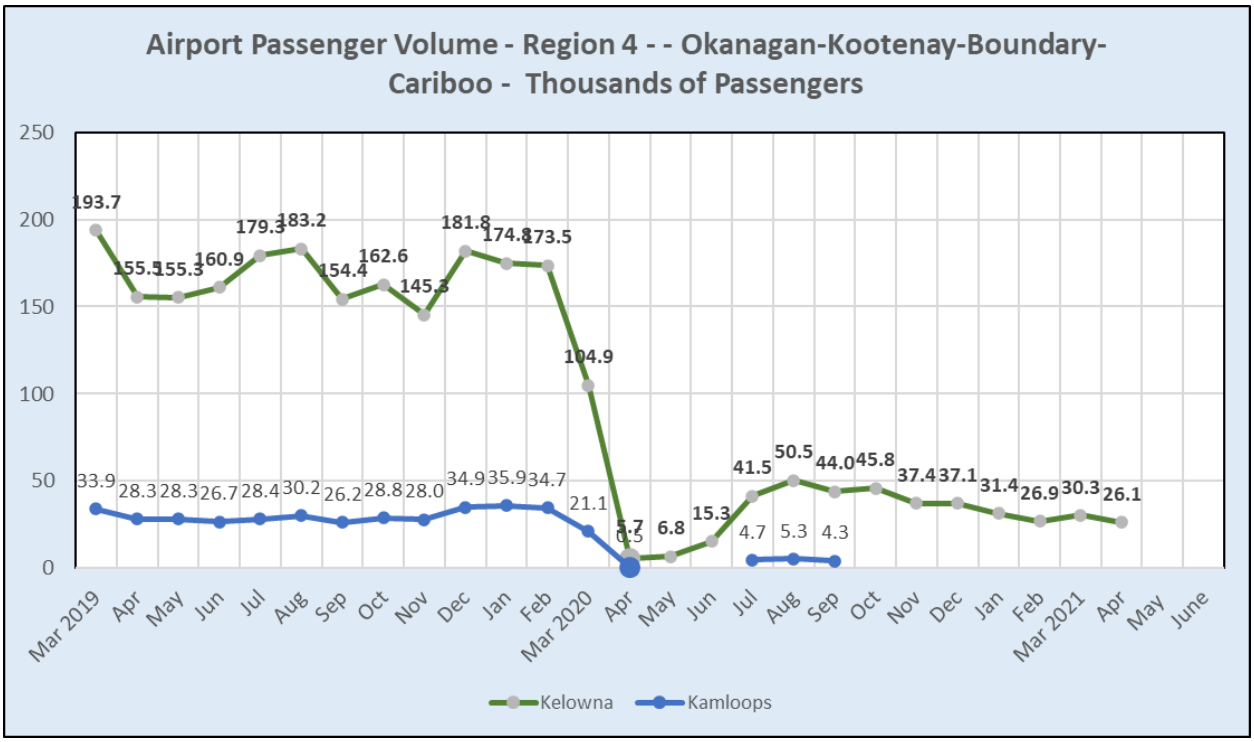


Figure 23

Hotel occupancy rates are shown in Figure 24 for Region 4 communities reported by Destination BC.[26] There are seven communities that report their hotel occupancy, but to simplify presentation, only the numbers for the largest community, Kelowna, are shown here. Complete data tables are provided in Appendix B.

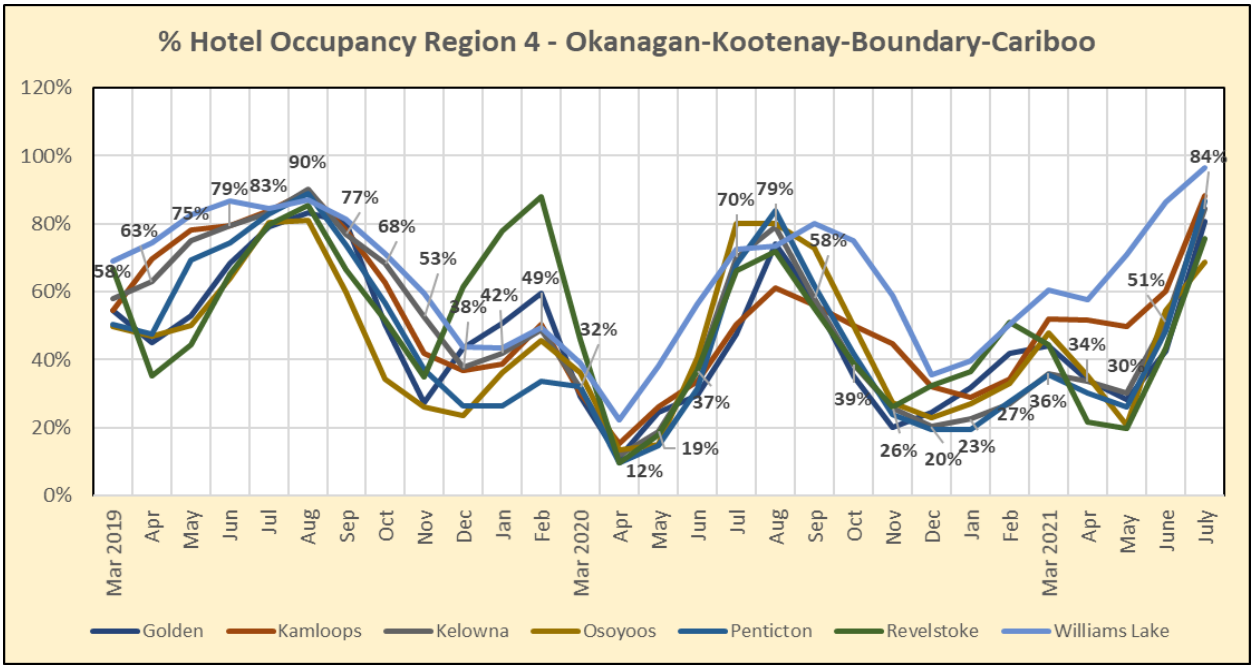


Figure 24

[26] Source: STR and CBRE via Destination BC https://www.destinationbc.ca/tourism-industry-dashboard/

As with other parts of BC, June and July show a strong recovery in hotel occupancy that is not reflected in air passenger volumes. This suggests a positive impact post-May in taxi trip volumes moderated by the likelihood that the hotel visitors are from within BC and may be using their own vehicles.

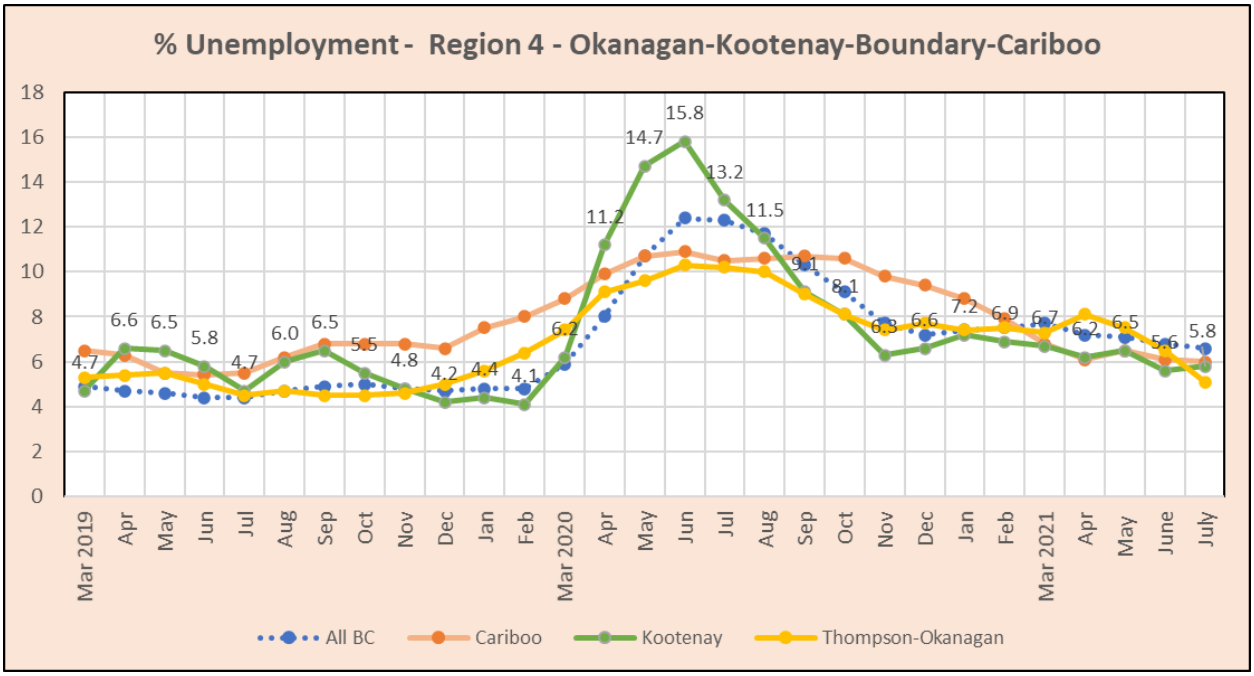


Figure 25

For further context, unemployment in Region 4 can be compared to the province as a whole. Regional unemployment figures are available from Statistics Canada according to the seven BC economic development regions.[27] These regions correspond roughly to the five regions used for this study. Figure 25 shows unemployment for three economic development regions relevant to Region 4, Cariboo, Kootenay, and Thompson-Okanagan. The dotted blue line is the average for all of BC. To simplify the diagram, numbers are shown for the most highly affected community, Kootenay.

Within the region, Kootenay experienced the highest impact from Covid, with unemployment peaking at 15.8% in June 2020. This gradually fell back into line with other parts of the region and the provincial average, indicating a slowly improving economic situation up to July, the last month for which data is available.

8 Region 5 Analysis: BC North Central and Other Areas

Figure 26 provides estimated monthly trip volumes for taxis and TNS. Total results for taxis are projected from the 64.4% of the licensed taxi fleet participating in the survey for this study. Data Warehouse reports are not yet available for this region. The solid blue line is total estimated taxi trips. The green line indicates when TNS operation began in the province but

[27] Source: Statistics Canada, Labour force characteristics, three month moving average, unadjusted for seasonality. Product ID 14100387.

there was no significant TNS activity reported, although there may have been TNS trips that originated in Capital Region or elsewhere.

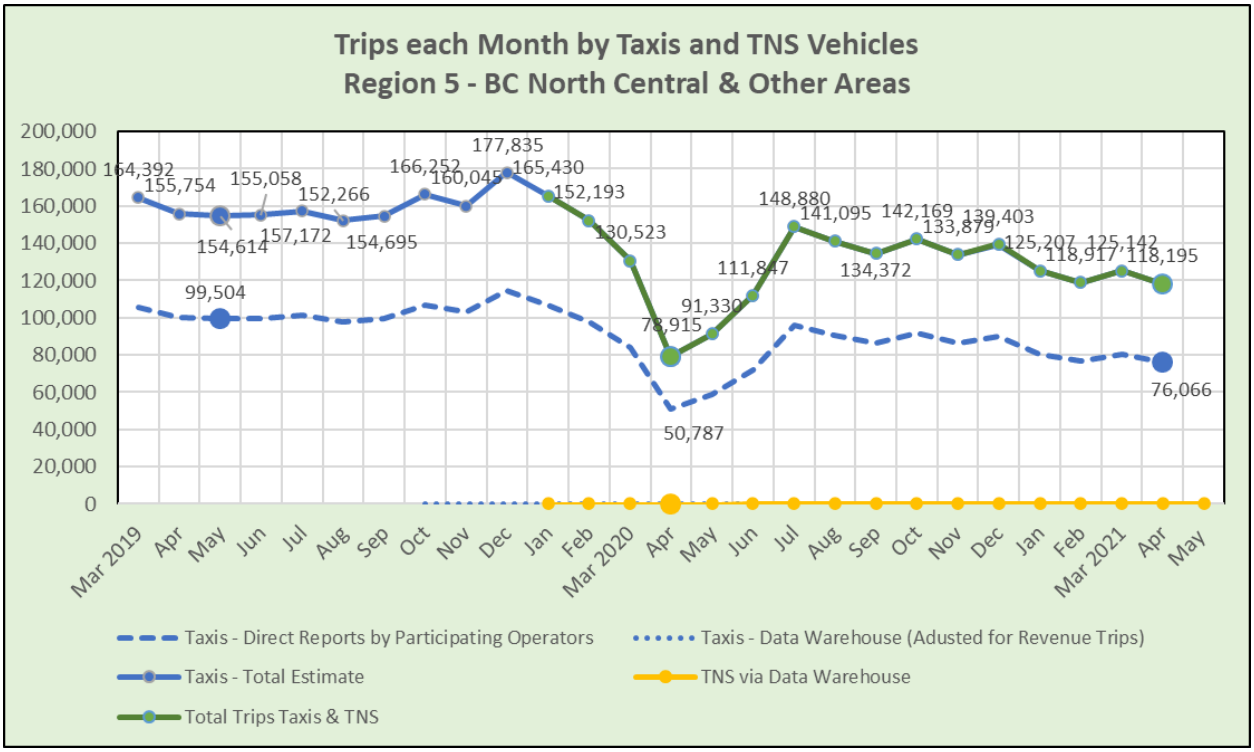


Figure 26

As with other regions, trip volumes plummeted in March and April 2020. There was an initial partial recovery, but since July 2020 there has been a continuing shallow decline. As of May 2021, monthly trips had declined 23.5% from May 2019, from 154 thousand to 118 thousand.

Some respondents to the survey on taxi trip volumes also added comments and additional information. Region 5 comments included[28]:

- "Our trip demand remained high because another company in the region is running less than half their licences. Thus, our numbers do not accurately reflect demand or need for other service providers. Despite appearing higher, there has been a drop in business since Covid."
- "Prior to Covid, we were averaging 17 accessible taxi trip requests a day. These are now down considerably more than our regular trip counts."
- "Sales are down 66% between 2019 and 2021." (Owner-driver).

The first comment above is consistent with an issue that was noted for Region 4. Projection from the sample to the whole may overstate any recent recovery because the projection is unable to account for survey bias from the inability of companies that closed down to participate in the data collection for this study (see discussion under *2 Data Quality and*

[28] Edited for grammar and to protect anonymity.

Corrections). However, Region 5 appears to have a large enough sample to capture the issue. The pattern of decline in Region 5 is shared by other regions.

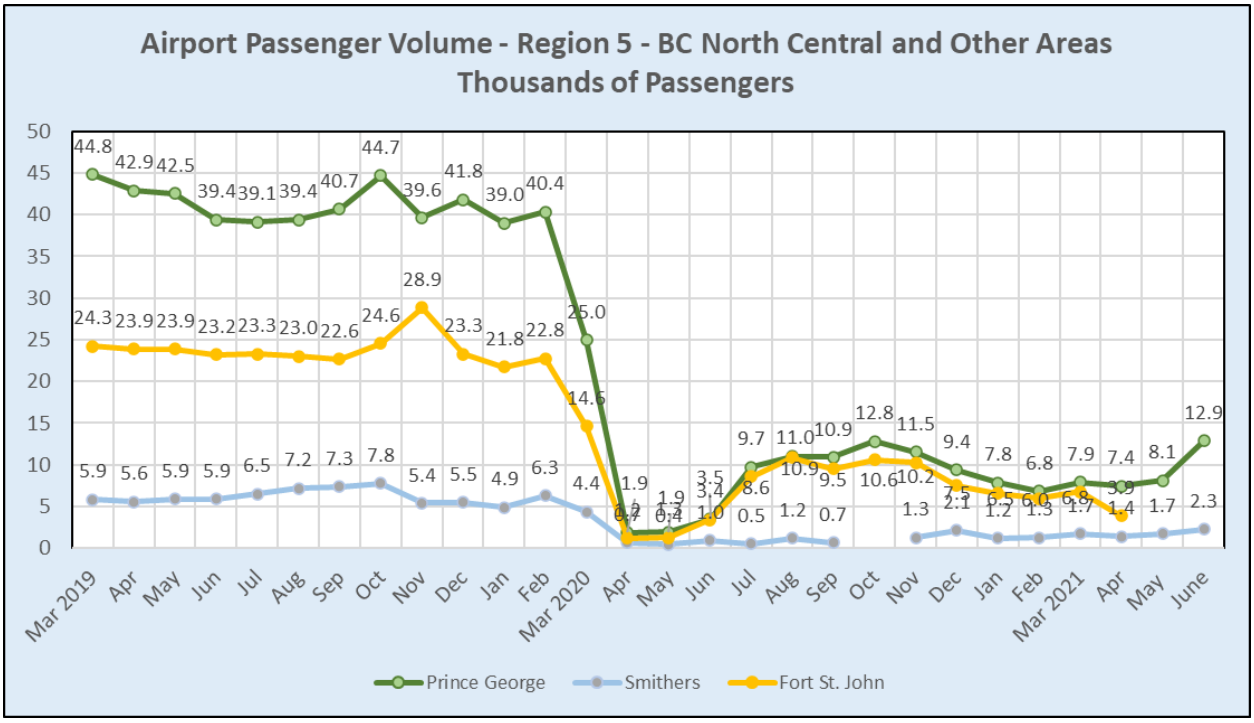


Figure 27

Airport passenger volumes plummeted with Covid's onset. There was a partial recovery followed by a slow decline. However, Prince George shows a unique bump upwards in the last month, June 2021. The bump still leaves passenger volumes very depressed. Figure 27 shows passenger volumes for three regional airports: Prince George, Smithers, and Fort St. John. Data is not available for all months.

Hotel occupancy rates are shown in Figure 28 for Region 5 communities reported by Destination BC.[29] As with other parts of BC, June shows a partial recovery, however Dawson Creek suffered a downturn in July 2020. From December 2021 forwards there is a general uptrend in hotel occupancies. Notably, Prince George shows a full recovery at 74% occupancy in July 2021, comparable to 64% in July 2019. The sharp jump in the last month parallels the increase in airline passengers, suggesting that more occupants of Prince George arrive without their own vehicles. This bodes relatively better for passenger directed vehicles in Prince George.

For further context, unemployment in Region 5 is compared to that in the province as a whole. Regional unemployment figures are available from Statistics Canada according to the seven BC economic development regions.[30] These regions correspond roughly to the five regions used for this study. Figure 29 shows unemployment for two relevant economic development areas North Coast and Nechako, and Northeast. The dotted blue line is the average for all of BC.

[29] Source: STR and CBRE via Destination BC https://www.destinationbc.ca/tourism-industry-dashboard/

[30] Source: Statistics Canada, Labour force characteristics, three month moving average, unadjusted for seasonality. Product ID 14100387.

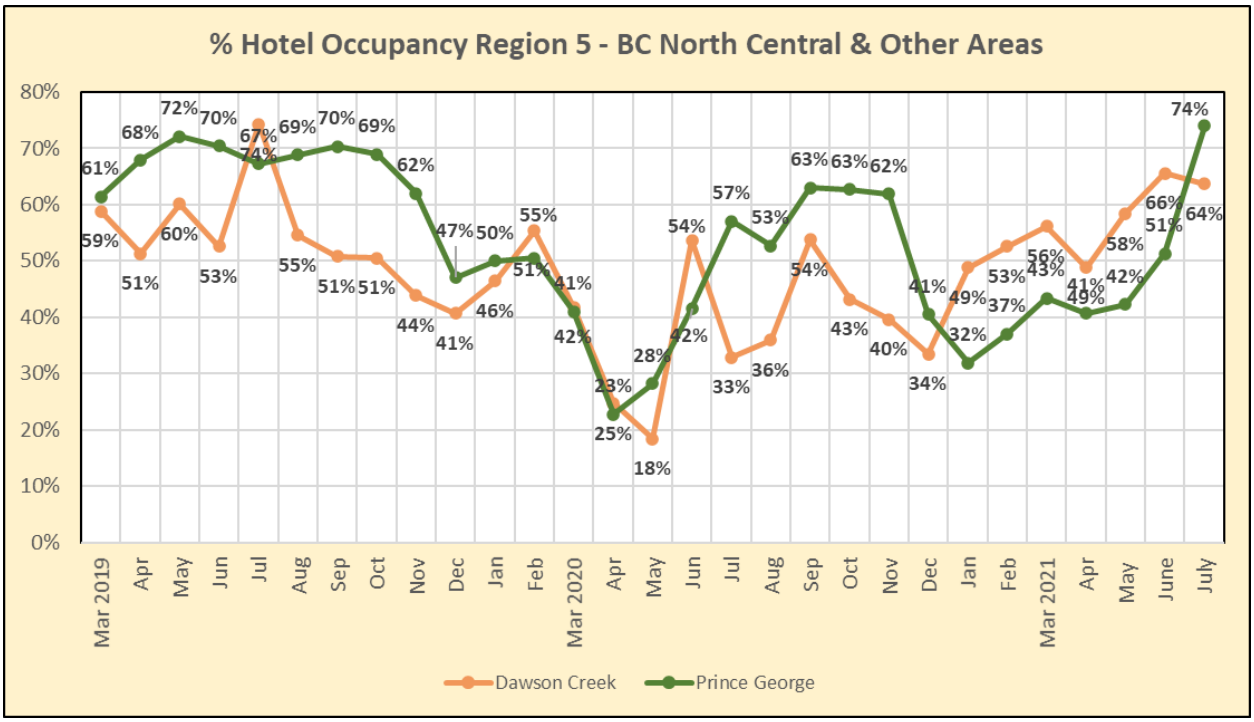


Figure 28

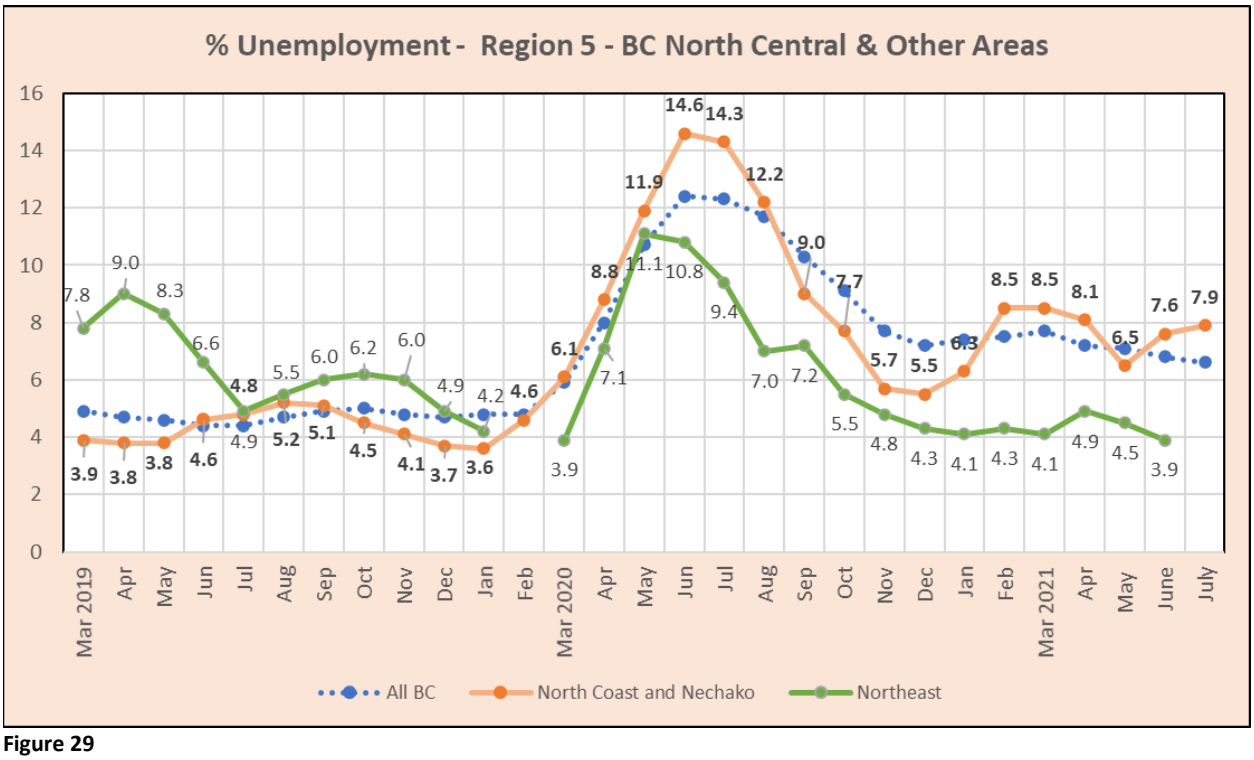


Figure 29

Covid hits the North Coast the hardest, with unemployment peaking at 14.6% in June of 2020. There is recovery after that, but the region appears to show greater sensitivity to the waves of Covid and associated health measures. Unemployment remains high for the North Coast, while the Northeast shows unemployment being down to pre-Covid levels.

9 Considerations Looking Forward

This section offers some observations and questions that may assist future Board decisions related to Covid and the future.

9.1 Passing Storm or New World?

When it rains, there is a tendency to wait until the sun comes out. Is Covid like a passing storm? Should policy decisions be delayed until the economy recovers fully and the situation is clarified?

There is a significant risk that Covid will not end any time soon. On Labour Day weekend, 2021, Canada's chief medical officer spoke to new forecasts for a fall wave of Covid, largely based on the highly contagious Delta variant, the still large number of unvaccinated people, and incautious behaviour. Under present conditions, the median forecast is for cases to rise in October to twice the previous peak in April/May. It is estimated that additional health measures sufficient to reduce transmission rates by 25% would be needed to cut the next wave short.[31]

Even under current conditions, the resurgence of Covid and the associated reintroduction of health measures contributed to a decline Canadian GDP in the April/May/June quarter by a 1.1% annualized rate.[32]

With a significant portion of North Americans resisting vaccination, and many parts of the world largely unvaccinated, Covid cases and potentially dangerous mutations may continue.

In this context, it may be worthwhile considering a policy approach of *resilience*, where we develop approaches to enact policy in the current context and adapt as we go. The case for a policy approach of resilience is further supported by recalling that Covid is just one of several health crises that have come close to being world events. Avian flu (H5N1, 1997), SARS (2004), and H1N1 (2009) came close to also being major pandemics. The risk is ongoing.

9.2 Recessions, Taxi Entry Restrictions, and an Economic Recovery Like No Other

For now, the economic recovery appears to still be ongoing, despite setbacks. It is an economic recovery like no other. Even though unemployment levels are higher than normal, there is a frequently reported shortage of labour in the service sector. This includes the taxi industry. Although this study did not include stakeholder consultations, taxi companies submitted additional comments in response to the survey stating how hard it has been to get drivers, and in one case stating that it was not the shortage of customers that held them back, but a shortage of drivers. The shortage of taxi drivers has also been reported in other parts of the

[31] https://www.ctvnews.ca/health/coronavirus/canada-on-course-for-worst-wave-of-covid-19-yet-new-modelling-data-shows-1.5572673

[32] https://globalnews.ca/news/8154668/statistics-canada-economic-growth-data-second-quarter-2021/#:~:text=Economy-,Canadian%20economy%20shrank%20by%201.1%25%20in%20second,of%202021%2C%20Statistics%20Canada%20says&text=Canada's%20economy%20had%20its%20worst,possibly%20dropping%20further%20in%20July.

country (see https://www.cbc.ca/news/canada/sudbury/demand-taxi-rideshare-drivers-needed-1.6083510)

In BC's case, the more stringent requirement for a commercial driver's licence increases the challenge for companies seeking drivers. This is compounded by Covid-related delays for drivers getting an ICBC driver test to upgrade their licences.[33]

How is it possible to have a service sector labour shortage in a recession with higher-than-usual numbers of unemployed? The answer is in the success of government macro-economic policy to engineer a quick economic recovery. Special income support measures and wage subsidy programs have caused a strong demand-led recovery. Employers have customers and are looking for employees. Although the unemployment rate remains high, the ratio of job openings to unemployed people is also at its highest since record keeping began.[34] Job seekers have more choice, and can wait for a better job offer. Wages are up, and part-time work has decreased while full-time work has increased.[35]

The unique character of this economic recovery is highly relevant for policy-making for passenger-directed vehicles (traditionally taxis and limousines and now TNS as well). In the past, a principal rationale for limiting entry to the taxi business was *excess entry due to high unemployment.*

Historically, the taxi industry experiences economic recessions differently from other industries. In most industries, supply tends to contract along with demand during a recession. In the taxi industry, supply has normally expanded during a recession, even as demand for taxis shrinks. In the absence of restrictions, the industry is easy to enter for anyone with a vehicle.

The result is a flood of entrants. Income for each taxi falls as more vehicles share less revenue. The following 1933 editorial from *The Washington Post* illustrates civic reaction to the increase in taxis caused by the great depression:

> *Cut-throat competition in business of this kind always produces chaos. Drivers are working as long as sixteen hours per day, in their desperate attempt to eke out a living. Cabs are allowed to go unrepaired.*
>
> *Together with the rise in the accident rate, there has been a sharp decline in the financial responsibility of taxicab operators. Too frequently, the victims of taxicab accidents must bear the loss because the operator has no resources of his own and no liability insurance. There is no excuse for a city exposing its peoples to such dangers.*

However, this recession and recovery are unique – there is a labour shortage, including of drivers for passenger directed vehicles. This removes the traditional policy concern for

[33] https://www.cbc.ca/news/canada/british-columbia/icbc-backlog-covid-1.6017718
[34] https://www150.statcan.gc.ca/n1/daily-quotidien/210622/dq210622a-eng.htm
[35] https://globalnews.ca/news/8008835/salaries-labour-shortages-canada/

preventing new companies entering the market during an economic recession. There is little risk of excessive entry driven by pools of unemployed drivers.

9.3 Regulatory Risks of Fare Regulation During a Driver Shortage

Another feature of the driver shortage is the relative advantage of the TNS business model over the taxi business model with fixed and regulated meter rates.

Within boundaries, the TNS business model allows flexible fares. Fares rise when there is a shortage of vehicles and drivers, attracting more drivers and deterring some customers who will wait for a less busy time. This is an advantage for customers in that it allows reliable supply in peak period, at least for those willing to pay. It is also a disadvantage to customers in that the rate is not fixed, and those wishing to return home on a Saturday night may face a higher fare than they planned for. For fixed rate fares – taxis are the alternative offered by the system.

Both approaches have virtues and can be jointly offered in a regulatory system that permits diversity of services and customer choice.

However, in the face of an ongoing driver shortage, taxis can be put under a rate-squeeze. During a driver (and therefore vehicle) shortage, passenger demand can exceed supply. This will drive up TNS rates, a mixed blessing since the higher rates mean fewer customers, but the higher rates also retain drivers and attract more of them. Since taxi companies have fixed fares, their ability to raise returns to drivers is more limited. During a shortage, taxis will be busier. However, at a given meter rate there is a limit to how many fares can be carried and to the amount that can earned at a fixed meter rate.

In normal conditions an equilibrium will be reached. But, during an ongoing driver shortage, it is possible that taxi company margins will be squeezed by fixed meter rates to the point where they cannot retain drivers even though taxi demand justifies it. The drivers will then tend to move to TNS where the hourly earnings are higher because of the higher average rates and the high customer demand.

9.4 All of BC Currently Open to TNS Competition

There may be a tendency to think that because Uber and Lyft have been restricted to the Lower Mainland and Whistler, that issues concerning TNS vs. taxis are currently restricted to that region. That is certainly the current outcome with TNS activity being largely dormant in the rest of BC.

However, the Board has already licensed four TNS operators[36] for the whole province, and an additional five to operate across multiple regions.[37] In addition to local BC operators, these include three Canadian operators who are already active in other provinces but have chosen to suspend the use of their BC licenses during Covid. The success of the TNS business model rests

[36] Excluding taxi companies who also hold a TNS licence.
[37] https://www.ptboard.bc.ca/TNS_decisions.htm as of June 2021.

on its innovations. It is more than viable even if not backed by the long-term capital available to large international companies.

We may expect TNS operations to eventually emerge in all regions of BC from current licensees, either because the Covid crisis comes to an end, or because it becomes the new normal and TNS licensees stop postponing entry at scale in BC markets.

9.5 What Will Happen to Accessible Vehicle Service?

At present, wheelchair accessible service is provided only by taxis. A fee per trip is now collected from TNS companies to help fund accessible service, but a system for distributing those funds has yet to be implemented.

What will happen to accessible service by taxis in less populated regions of British Columbia if taxi companies come under financial pressure from competition by TNS operations? The answer is not wholly within the jurisdiction of the Board, which looks after licensing, not funding distribution.

However, the Board has made significant steps to promote accessible service as part of its licensing requirements, and may wish to consider what steps to take in the future in light of TNS and taxi service coexisting.

Appendix A

Sample Letter Requesting Data

Appendix A
Letter Requesting Data

Hara Associates

May 10, 2021

Dear *** Association member:

Re: Request for Assistance – Impact of COVID-19 on BC Transportation Industry

The BC Passenger Transportation Board has retained Hara Associates to investigate the impact of the COVID-19 pandemic on the BC Passenger Transportation Industry, including the taxi industry. We would like to document the impact on monthly taxi trip volumes. In consultation with the *** Association, we send this letter to ask for your assistance.

Our first source of data will be the company reports many of you have already made to the Data Warehouse of the Ministry of Transportation & Infrastructure. However, those reports begin in October 2019, only a few months before the COVID-19 impacts began. Since taxi trip volumes vary seasonally, we would like to have a full 12 months of data from before COVID-19 in order to compare the before and after. Therefore, we are asking for your cooperation.

Attached is a form in Excel asking for monthly taxi trip volumes of your company from March 2019 to present. We ask that you e-mail the form to BCTaxiCovidImpact@HaraAssociates.com, completed with what data you have. Public reports will not reveal individual company data. A reply by *June 7, 2021* would be appreciated.

While we only need data from months prior to your company beginning reports to the Data Warehouse, Hara Associates suggests you provide data all the way to the current month. This will allow a cross-check to ensure that central data reflects accurately the pattern seen in your own records.

Another reason we are requesting your help is that some companies have yet to begin making reports to the Ministry's Data Warehouse, or have only recently begun to provide these reports. We would like to have a complete picture of the COVID-19 experience of all companies, large and small, in all regions of the province.

We believe documenting the depth of the pandemic's impact on the taxi industry is in the interest of both the public and the industry, and hope you will participate by returning the form to BCTaxiCovidImpact@HaraAssociates.com. Any questions or concerns may also be sent to this e-mail address. Background to this request is also provided at https://www.ptboard.bc.ca/.

Sincerely,

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Appendix B

Data Tables

Appendix B – Data Tables

Trip Volume Region 1					
Month	**Taxis - Direct Reports by Participating Operators**	**Taxis - Data Warehouse (Adjusted for Revenue Trips)**	**Taxis - Total Estimate**	**TNS via Data Warehouse**	**Total Trips Taxis & TNS**
Mar 2019	1,473,491		1,726,717		
Apr	1,426,637		1,671,811		
May	1,492,904		1,749,466		
Jun	1,528,632		1,791,334		
Jul	1,507,906		1,767,047		
Aug	1,509,996		1,769,496		
Sep	1,464,335		1,715,988		
Oct	1,483,185	1,311,986	1,738,077		
Nov	1,441,966	1,281,032	1,683,651		
Dec	1,551,677	1,301,214	1,812,474		
Jan	1,372,658	1,017,921	1,548,979	44,637	1,593,616
Feb	1,208,626	849,520	1,362,131	420,245	1,782,376
Mar 2020	663,564	475,466	758,600	465,541	1,224,141
Apr	206,235	137,451	249,182	138,985	388,167
May	290,433	203,837	359,460	238,993	598,453
Jun	451,137	377,241	605,533	416,017	1,021,550
Jul	534,600	564,242	760,169	600,624	1,360,793
Aug	536,323	538,214	735,632	746,876	1,482,508
Sep	493,523	501,373	685,023	768,571	1,453,594
Oct	507,439	525,553	715,033	885,137	1,600,170
Nov	450,545	449,087	613,539	774,967	1,388,506
Dec	470,050	498,790	655,889	799,666	1,455,555
Jan	441,915	431,013	593,868	864,649	1,458,517
Feb	427,929	374,964	536,074	867,420	1,403,494
Mar 2021	468,544	459,264	633,160	984,414	1,617,574
Apr	430,215	395,655	574,741	871,666	1,446,407
May		405,697	589,328	1,006,214	1,595,542

Trip Volume Region 2					
Month	**Taxis - Direct Reports by Participating Operators**	**Taxis - Data Warehouse (Adjusted for Revenue Trips)**	**Taxis - Total Estimate**	**TNS via Data Warehouse**	**Total Trips Taxis & TNS**
Mar 2019	91,057		176,876		
Apr	91,144		177,045		
May	97,928		190,223		
Jun	97,318		189,038		
Jul	94,550		183,661		
Aug	92,804		180,270		
Sep	93,628		181,870		
Oct	95,986	47,133	186,450		
Nov	93,749	43,372	178,361		
Dec	97,717	50,099	189,663		
Jan	91,828	48,936	178,468	0	178,468
Feb	90,273	47,805	174,579	1,281	175,860
Mar 2020	57,191	32,866	113,041	2,792	115,833
Apr	23,567	13,139	45,416	849	46,265
May	40,755	19,605	75,883	1,862	77,745
Jun	61,353	30,539	114,396	4,266	118,662
Jul	72,812	38,310	138,503	7,422	145,925
Aug	75,621	39,244	144,222	7,888	152,110
Sep	71,530	37,504	137,947	6,344	144,291
Oct	75,579	39,864	146,166	7,151	153,317
Nov	66,844	37,429	130,705	5,082	135,787
Dec	64,956	37,527	128,592	4,679	133,271
Jan	60,982	34,006	121,825	4,270	126,095
Feb	60,540	43,609	130,241	4,498	134,739
Mar 2021	65,885	49,681	143,796	4,699	148,495
Apr	57,327	43,483	125,263	3,605	128,868
May		48,463	139,609	3,940	143,549

Trip Volume Region 3					
Month	**Taxis - Direct Reports by Participating Operators**	**Taxis - Data Warehouse (Adjusted for Revenue Trips)**	**Taxis - Total Estimate**	**TNS via Data Warehouse**	**Total Trips Taxis & TNS**
Mar 2019	56,933		157,277		
Apr	54,492		150,534		
May	54,852		151,529		
Jun	55,748		154,004		
Jul	58,003		160,233		
Aug	58,188		160,744		
Sep	61,029		168,593		
Oct	59,845	0	165,322		
Nov	61,419	0	169,670		
Dec	69,076	0	190,822		
Jan	65,176	0	180,049	0	180,049
Feb	43,889	0	121,243	0	121,243
Mar 2020	38,612	0	106,666	0	106,666
Apr	23,107	0	63,833	0	63,833
May	31,040	0	85,748	0	85,748
Jun	40,436	0	111,704	5	111,709
Jul	47,501	0	131,222	20	131,242
Aug	46,995	0	129,824	51	129,875
Sep	44,805	0	123,774	31	123,805
Oct	44,963	0	124,210	44	124,254
Nov	41,287	0	114,055	31	114,086
Dec	42,713	0	117,995	25	118,020
Jan	39,406	0	108,859	32	108,891
Feb	38,042	0	105,091	28	105,119
Mar 2021	40,997	0	113,254	58	113,312
Apr	36,896	0	101,925	57	101,982
n/a					

Trip Volume Region 4					
Month	**Taxis - Direct Reports by Participating Operators**	**Taxis - Data Warehouse (Adjusted for Revenue Trips)**	**Taxis - Total Estimate**	**TNS via Data Warehouse**	**Total Trips Taxis & TNS**
Mar 2019	51,240		259,451		
Apr	51,255		259,527		
May	51,864		262,610		
Jun	52,234		264,484		
Jul	50,331		254,848		
Aug	54,442		275,664		
Sep	54,425		275,578		
Oct	56,824		287,725		
Nov	57,401		290,646		
Dec	63,254	50,829	320,283		
Jan	62,614	52,281	322,562	0	322,562
Feb	56,920	48,139	294,948	0	294,948
Mar 2020	41,718	36,402	219,318	0	219,318
Apr	25,181	20,605	128,542	0	128,542
May	35,476	30,709	185,811	0	185,811
Jun	43,877	36,279	225,034	0	225,034
Jul	49,153	43,260	259,445	0	259,445
Aug	48,479	44,080	259,855	0	259,855
Sep	44,588	38,844	234,231	0	234,231
Oct	47,602	42,730	253,603	0	253,603
Nov	44,571	40,245	238,117	0	238,117
Dec	45,836	40,423	242,168	0	242,168
Jan	42,584	40,801	234,100	0	234,100
Feb	41,643	38,701	225,562	0	225,562
Mar 2021	43,562	39,666	233,659	0	233,659
Apr	55,033	36,492	256,952	0	256,952
May		38,639	272,070	0	272,070

Trip Volume All BC					
Month	**Taxis - Direct Reports by Participating Operators**	**Taxis - Data Warehouse (Adjusted for Revenue Trips)**	**Taxis - Total Estimate**	**TNS via Data Warehouse**	**Total Trips Taxis & TNS**
Mar 2019	1,778,518		2,484,713		
Apr	1,723,766		2,414,671		
May	1,797,052		2,508,442		
Jun	1,833,722		2,553,918		
Jul	1,811,940		2,522,960		
Aug	1,813,423		2,538,439		
Sep	1,772,973		2,496,723		
Oct	1,802,834	1,394,499	2,543,826		
Nov	1,757,534	1,361,073	2,482,373		
Dec	1,896,172	1,402,142	2,691,077		
Jan	1,698,741	1,119,138	2,395,488	44,637	2,440,125
Feb	1,497,654	945,464	2,105,095	420,245	2,525,340
Mar 2020	885,085	544,736	1,328,148	465,541	1,793,689
Apr	328,877	171,195	565,889	138,985	704,874
May	456,481	254,151	798,232	238,993	1,037,225
Jun	668,784	444,059	1,168,516	416,022	1,584,538
Jul	799,880	645,812	1,438,219	602,124	2,040,343
Aug	798,222	621,538	1,410,628	748,824	2,159,452
Sep	740,923	584,164	1,315,348	769,899	2,085,247
Oct	767,078	634,019	1,381,182	885,942	2,267,124
Nov	689,407	527,921	1,230,295	775,308	2,005,603
Dec	713,270	576,740	1,284,046	799,879	2,083,925
Jan	665,466	505,820	1,183,859	864,829	2,048,688
Feb	644,685	466,218	1,115,885	867,581	1,983,466
Mar 2021	699,525	580,425	1,249,011	984,593	2,233,604
Apr	641,914	505,777	1,177,076	871,793	2,048,869
May		536,447	1,001,007	1,006,356	2,007,363

HOTEL OCCUPANCY - by Community													
Region	**Community**	**Mar 2019**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**
1	Richmond	77%	79%	81%	89%	87%	89%	91%	83%	77%	71%	71%	74%
1	Vancouver	73%	80%	85%	92%	91%	93%	92%	78%	75%	69%	63%	73%
1	Whistler	85%	66%	52%	71%	81%	85%	68%	38%	37%	70%	76%	81%
2	Victoria	70%	72%	77%	81%	85%	88%	81%	74%	63%	58%	44%	66%
3	Nanaimo	73%	80%	81%	82%	86%	89%	76%	71%	67%	54%	53%	64%
3	Parksville	47%	46%	53%	53%	69%	75%	54%	38%	35%	32%	32%	45%
4	Golden	55%	45%	53%	68%	79%	83%	81%	51%	27%	43%	51%	60%
4	Kamloops	54%	70%	78%	79%	84%	89%	78%	63%	42%	37%	39%	50%
4	Kelowna	58%	63%	75%	79%	83%	90%	77%	68%	53%	38%	42%	49%
4	Osoyoos	50%	47%	50%	64%	80%	81%	60%	34%	26%	24%	36%	46%
4	Penticton	51%	47%	69%	74%	83%	89%	74%	57%	37%	26%	27%	34%
4	Revelstoke	67%	35%	44%	65%	80%	85%	67%	52%	35%	61%	78%	88%
4	Williams Lake	69%	74%	83%	87%	85%	87%	81%	71%	59%	44%	44%	49%
5	Dawson Creek	59%	51%	60%	53%	74%	55%	51%	51%	44%	41%	46%	55%
5	Prince George	61%	68%	72%	70%	67%	69%	70%	69%	62%	47%	50%	51%
Region	**Community**	**Mar 2020**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**
1	Richmond	46%	32%	32%	41%	38%	35%	35%	34%	33%	30%	36%	42%
1	Vancouver	33%	7%	10%	14%	22%	29%	28%	24%	19%	17%	18%	23%
1	Whistler	34%	3%	6%	18%	46%	58%	41%	31%	18%	26%	26%	24%
2	Victoria	34%	15%	16%	19%	35%	52%	46%	40%	29%	20%	30%	37%
3	Nanaimo	40%	12%	18%	37%	57%	75%	58%	50%	37%	27%	30%	33%
3	Parksville	30%	9%	22%	33%	59%	64%	53%	45%	37%	41%	27%	36%
4	Golden	29%	11%	24%	30%	48%	74%	58%	35%	20%	25%	32%	42%
4	Kamloops	30%	16%	26%	34%	50%	61%	56%	50%	45%	32%	29%	34%
4	Kelowna	32%	12%	19%	37%	70%	79%	58%	39%	26%	20%	23%	27%
4	Osoyoos	36%	13%	15%	41%	80%	80%	73%	50%	27%	23%	27%	33%
4	Penticton	32%	10%	15%	32%	68%	84%	62%	42%	24%	19%	19%	28%
4	Revelstoke	46%	10%	18%	37%	66%	72%	55%	39%	26%	32%	37%	51%
4	Williams Lake	39%	22%	38%	57%	73%	73%	80%	75%	59%	36%	40%	50%
5	Dawson Creek	42%	25%	18%	54%	33%	36%	54%	43%	40%	34%	49%	53%
5	Prince George	41%	23%	28%	42%	57%	53%	63%	63%	62%	41%	32%	37%
Region	**Community**	**Mar 2021**	**Apr**	**May**	**June**	**July**							
1	Richmond	59%	51%	51%	68%	71%							
1	Vancouver	27%	23%	20%	31%	50%							
1	Whistler	32%	5%	7%	25%	58%							
2	Victoria	44%	36%	23%	38%	62%							
3	Nanaimo	39%	33%	32%	49%	81%							
3	Parksville	48%	33%	32%	53%	77%							
4	Golden	44%	34%	28%	43%	81%							
4	Kamloops	52%	52%	50%	60%	88%							
4	Kelowna	36%	34%	30%	51%	84%							
4	Osoyoos	48%	35%	21%	55%	69%							
4	Penticton	36%	30%	26%	49%	87%							
4	Revelstoke	45%	22%	20%	44%	76%							
4	Williams Lake	61%	58%	71%	86%	97%							
5	Dawson Creek	56%	49%	58%	66%	64%							
5	Prince George	43%	41%	42%	51%	74%							

Regional Airport Passenger Volume											
Region:	**1**	**1**	**2**	**3**	**3**	**3**	**4**	**4**	**5**	**5**	**5**
Month	**Abbotsford**	**Vancouver**	**Victoria**	**Nanaimo**	**Campbell River**	**Comox**	**Kelowna**	**Kamloops**	**Prince George**	**Smithers**	**Fort St. John**
Mar 2019	76,107	2,132,943	163,795	38,719	3,460	33,725	193,715	33,898	44,817	5,852	24,250
Apr	73,127	2,077,843	159,441	38,566	3,646	32,271	155,532	28,299	42,911	5,554	23,859
May	81,917	2,184,854	169,825	41,177	4,265	34,994	155,259	28,256	42,537	5,883	23,873
Jun	91,337	2,389,024	171,848	41,598	4,850	35,799	160,894	26,705	39,368	5,904	23,198
Jul	98,347	2,612,363	184,561	51,255	5,692	42,656	179,263	28,369	39,146	6,525	23,311
Aug	105,819	2,681,698	191,436	53,486	6,363	45,206	183,191	30,217	39,400	7,198	23,028
Sep	91,112	2,303,396	156,363	43,471	4,949	34,327	154,396	26,162	40,697	7,341	22,644
Oct	87,065	2,064,711	159,369	42,641	4,504	32,088	162,597	28,753	44,674	7,764	24,587
Nov	79,884	1,878,207	138,895	36,172	3,548	29,205	145,266	27,975	39,633	5,401	28,873
Dec	88,157	2,155,151	158,450	41,815	3,213	35,447	181,799	34,884	41,810	5,519	23,261
Jan	74,493	2,021,682	132,279	33,814	3,213	28,516	174,824	35,859	39,015	4,869	21,752
Feb	70,956	1,812,964	132,432	32,516	3,254	27,774	173,517	34,701	40,353	6,296	22,751
Mar 2020	46,554	1,107,135	81,105	21,918	2,220	18,432	104,948	21,123	24,964	4,371	14,626
Apr	3,787	68,853	4,261	1,903	0	1,500	5,706	493	1,899	676	1,196
May	5,232	88,798	6,635	2,098	0	1,363	6,805	*	1,910	441	1,296
Jun	7,436	193,102	13,437	5,252	306	2,269	15,335	*	3,505	960	3,405
Jul	18,281	331,695	34,055	13,234	855	8,059	41,515	4,675	9,707	521	8,558
Aug	20,285	417,445	46,889	16,856	1,165	10,618	50,514	5,293	11,006	1,176	10,896
Sep	17,266	355,353	37,661	13,096	1,091	8,728	43,983	4,265	10,902	672	9,526
Oct	18,399	333,694	38,463	13,384	910	8,496	45,842	*	12,835	*	10,628
Nov	17,164	276,041	25,495	11,066	683	6,534	37,351	*	11,519	1,267	10,236
Dec	15,725	293,525	22,162	9,135	658	5,344	37,107	*	9,379	2,126	7,493
Jan	11,808	251,632	18,396	7,836	615	4,568	31,417	*	7,831	1,214	6,545
Feb	8,504	177,834	13,388	5,903	641	4,153	26,892	*	6,834	1,289	5,967
Mar 2021	9,902	202,133	16,900	8,320	711	4,949	30,339	*	7,939	1,740	6,754
Apr	12,955	189,686	15,698	7,725	733	4,971	26,146	*	7,427	1,407	3,858
May	8,931	200,491	12,746	7,347	*	*			8,124	1,746	
June	10,480	317,293	28,332		965	*			12,870	2,291	

Percent Unemployment by BC Economic Development Area								
Month	**All BC**	**Lower Mainland & Southwest**	**Vancouver Island and Coast**	**Cariboo**	**Kootenay**	**Thompson-Okanagan**	**North Coast and Nechako**	**Northeast**
Mar 2019	4.6	5.0	3.8	6.5	4.7	5.3	3.9	7.8
Apr	4.7	4.5	3.6	6.3	6.6	5.4	3.8	9
May	4.6	4.4	3.7	5.5	6.5	5.5	3.8	8.3
Jun	4.4	4.2	3.9	5.4	5.8	5	4.6	6.6
Jul	4.4	4.3	4.2	5.5	4.7	4.5	4.8	4.9
Aug	4.7	4.7	4.1	6.2	6	4.7	5.2	5.5
Sep	4.9	4.9	4.2	6.8	6.5	4.5	5.1	6
Oct	5.0	5.1	4.2	6.8	5.5	4.5	4.5	6.2
Nov	4.8	4.8	4.3	6.8	4.8	4.6	4.1	6
Dec	4.7	4.6	4.3	6.6	4.2	5	3.7	4.9
Jan	4.8	4.5	4.5	7.5	4.4	5.6	3.6	4.2
Feb	4.8	4.4	5.1	8	4.1	6.4	4.6	
Mar 2020	5.9	5.4	5.3	8.8	6.2	7.4	6.1	3.9
Apr	8.0	7.5	6.4	9.9	11.2	9.1	8.8	7.1
May	10.7	10.6	8.4	10.7	14.7	9.6	11.9	11.1
Jun	12.4	12.9	11.1	10.9	15.8	10.3	14.6	10.8
Jul	12.3	13.0	11.8	10.5	13.2	10.2	14.3	9.4
Aug	11.7	12.5	11.3	10.6	11.5	10	12.2	7
Sep	10.3	10.9	10.6	10.7	9.1	9	9	7.2
Oct	9.1	9.6	9.5	10.6	8.1	8.1	7.7	5.5
Nov	7.7	7.9	8.4	9.8	6.3	7.4	5.7	4.8
Dec	7.2	7.1	7.4	9.4	6.6	7.7	5.5	4.3
Jan	7.4	7.5	7.2	8.8	7.2	7.4	6.3	4.1
Feb	7.5	7.6	7.1	7.9	6.9	7.5	8.5	4.3
Mar 2021	7.7	8.0	7.1	6.8	6.7	7.3	8.5	4.1
Apr	7.2	7.2	7.4	6.1	6.2	8.1	8.1	4.9
May	7.1	7.3	7.2	6.5	6.5	7.5	6.5	4.5
June	6.8	7.2	6.6	6.1	5.6	6.5	7.6	3.9
July	6.6	7.4	5.6	6	5.8	5.1	7.9	