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Downtown Peterborough COVID Measures Evaluation



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EXECUTIVE SUMMARY

Over the course of 2020 the COVID-19 pandemic had devastating impacts on cities around the world and their local businesses. To adapt to this new reality, public space changes were made to downtown Peterborough, as in many other cities around the world, giving pedestrians more space to maintain physical distance and businesses more space to accommodate customers. From June to October 2020, the City of Peterborough implemented a pilot project designed to increase the amount of space available for pedestrians and businesses, creating safe, inviting streets for people to shop and dine.

Although the changes to the downtown were temporary, there is potential for some form of public space measures to be implemented again in the future. An evaluation of the measures previously in place is key to understanding its successes, challenges and impacts. To sufficiently assess the COVID measures implemented in Peterborough we progressed through five project phases including field study, a survey of local stakeholders, and a review of implemented measures, both in Peterborough and measures implemented in other Canadian cities.

This report presents the findings from each of the project phases and utilizes this information to inform the final recommendations. We encourage the City of Peterborough and Downtown Business Improvement Area (DBIA) to implement similar measures in the future and have provided specific recommendations for consideration to further improve the function, appearance, and implementation of public space changes. Our recommendations are organized into six themes: Consultation & Outreach; Expanded Business Space – Patios and Product Displays; Parking and Loading Zones; Pedestrian Comfort; Accessibility; and Vehicle Traffic. The detailed recommendations can be seen in Section 5. The following key findings informed the recommendations and provide a broader picture of the evaluation of implemented measures.

- There is strong support for the implementation of similar public space changes to downtown in the future. In the survey of local stakeholders, 62% of respondents indicated some level of support.
- Expanded business space is crucial for businesses to survive when indoor dining is limited. Half of restaurant business-owners who responded to the survey indicated they would have had to close the business if they could not expand outdoors.
- Case studies of measures implemented in other cities and research into best practices show expanded patios and business space should be placed in the roadway (repurposed parking spaces or vehicle travel lanes) to keep sidewalks clear of obstructions, improving accessibility and pedestrian comfort.
- Expanded pedestrian space can be utilized for a variety of purposes including patios, business space, queuing zones, parklets, and walking space. Having a clear purpose when expanding pedestrian space and making it attractive to users is key to creating a vibrant space and building support for the measures.
- The measures implemented in Peterborough did not significantly impact travel and parking patterns as 89% of survey respondents did not change their main mode of travel and 87% did not change their parking location.
- A clear, consistent design is crucial to mitigate confusion and frustration among road users. Linear elements such as pavement markings or consistent barriers define space and clearly articulate to users where they should be.



1. INTRODUCTION

In the midst of a global pandemic, cities across Canada and around the world have reorganized their public space to enable residents to comfortably move through their community while maintaining appropriate physical distance. Beginning in spring 2020, the COVID-19 pandemic had many realizing the space traditionally allocated to pedestrians and cyclists was insufficient for comfortable use under such circumstances.

In Peterborough, more space was needed in the downtown to allow customers to return to shopping and main street experiences that would help to avoid business closure and mitigate the impacts of reduced activity. Like many cities around the world, the City of Peterborough made major changes to their downtown streetscapes. In June 2020, they implemented a pilot project designed to increase the amount of space available for pedestrians and businesses, creating safe, inviting spaces for people to shop and dine. These measures were temporary and were removed in October 2020.

Although the changes to the downtown were temporary, there is potential for some form of public space measures to be implemented again in the future. This may be in response to a pandemic or could be an option for the city to create an environment that is more inviting for pedestrians and cyclists. An evaluation of the measures previously in place is key to understanding its successes, challenges and impacts. An independent assessment based on both quantitative and qualitative data was undertaken to understand potential next steps. The unpredictability of COVID-19 may continue to threaten the viability of local businesses and the economic damage resulting from the height of the pandemic means the recovery will continue for years to come. Downtown Peterborough is the major commercial hub in the city and will need to be inviting and welcoming to all for the city and its businesses to thrive.

To sufficiently assess the COVID measures implemented in Peterborough from June to October 2020, we progressed through five project phases:

- Project Kick-off – To gain an understanding of the measures and the context surrounding their implementation.
- Field Study – To interpret the measures and collect data about how the space was being used.
- Survey of Local Stakeholders – To collect data and information on the perceptions of the changes from the perspective of local shop keepers.
- Review of Implemented Measures – To assess the design and function of the measures in addition to reviewing best practices from other Canadian cities to inform recommendations.
- Report – To present the findings of the previous steps and make recommendations for how the measures can be improved upon in the future.





2. FIELD STUDY

Downtown Peterborough is the heart of the city of Peterborough and is home to over 400 local businesses. George Street is the main commercial strip and is a two-lane one-way street running southbound through the downtown. Water Street runs parallel to George Street one block to the east and is also a two-lane one-way street running northbound. Several cross streets running east/west intersect George and Water and are also destination streets with shops, restaurants, and services.



Figure 1. George Street in downtown Peterborough while the measures were in place.

The measures implemented from June to October were mainly focused along George Street and spanned six blocks from Murray Street to Sherbrooke Street. One block on Water Street was modified, between Simcoe Street and Hunter Street, in addition to one block on both Hunter Street and Charlotte Street between George Street and Aylmer Street to the west. See Figure 2 for a map of the implemented measures.

The field study was the first step in the evaluation process. This step allowed us to see the downtown measures first-hand and collect data that would be useful for the evaluation. The field study was comprised of an observational study of people behaviour and the implemented measures, as well as people moving counts.



Figure 2. Map of the public space measures implemented in downtown Peterborough.





2.1 Observational Study

A site visit and field study were conducted on the afternoon (2 pm – 6 pm) of Friday, October 2nd and the morning (10 am – 12 pm) of Saturday, October 3rd. The site visit included walking and driving the study area and observing user behaviour, taking photos, and generally experiencing the measures put in place. As part of the field study the consultant team was taken on a walking tour of the study area by Terry Guiel, Executive Director of the Peterborough DBIA, to provide additional context to the measures taken and discuss site specific impacts that have been reported to him.

Though the behaviours observed during the limited timeframe of the field study should not be considered completely generalizable, they provide some insights into how users operate in the corridor. The following key observations were made during the visit:

- Pedestrians tend to stay on the sidewalk when possible.
 - As the sidewalks are not overly constrained based on the pedestrian volumes observed, pedestrians tended to remain on the sidewalk – leaving the additional space created on the roadway largely unused – until their path was interrupted by a patio or other fixed barrier (see “Evaluation of Design Measures” section for further explanation). During peak pedestrian periods it is possible that the additional space is used to a greater extent.
 - Low pedestrian volumes during observation period makes for a challenge to observe behaviours in large groups.
- Drivers seem to operate as expected with a few exceptions at locations with ambiguous design treatments (see “Evaluation of Design Measures” section).
 - Speed reduction measures appeared to be effective, though a thorough speed study would be required to fully understand compliance with the new 30 km/h speed limit.
 - Though intersection queues may have appeared longer due to the reduction to single lanes, at no point in the field study was it observed that this significantly impeded the flow of traffic or resulted in drivers waiting more than traffic light cycle.
- On-street parking appeared to be well utilized on Friday afternoon, though appeared to have a continuous availability of free spaces along George St. A more in-depth review of parking utilization would yield a more robust understanding of the parking needs.
- Cyclists were largely observed to be operating in the cycle lane with the exception of destination traffic (e.g., cyclists accessing businesses on the opposite side of the road from the cycle lane).



Figure 3. Wide sidewalks resulted in little use of the extended space.

2.2 People Moving Counts

People moving counts were conducted with the help of volunteers recruited by Peterborough GreenUP. The purpose of these counts was to get an understanding of who used the space, how they used it (i.e., sidewalk vs. extended space), and how they moved through the space (e.g., walking, cycling).



Four key locations were selected to conduct the counts. The locations were chosen to represent a variety of routes and contexts in the downtown. All count locations were located on street blocks that had been modified to some extent by the COVID measures implemented. The four locations were as follows and can be seen on Figure 4.

1. Hunter Street west of George Street – known as the café district with several restaurants and cafés
2. Water Street south of Hunter Street – a prominent northbound route with some shops and restaurants and the only block on Water Street that was modified
3. Charlotte Street west of George Street – a prominent east/west route connecting to downtown with several shops and restaurants
4. George Street south of Charlotte Street – the main street in Peterborough with shops and restaurants

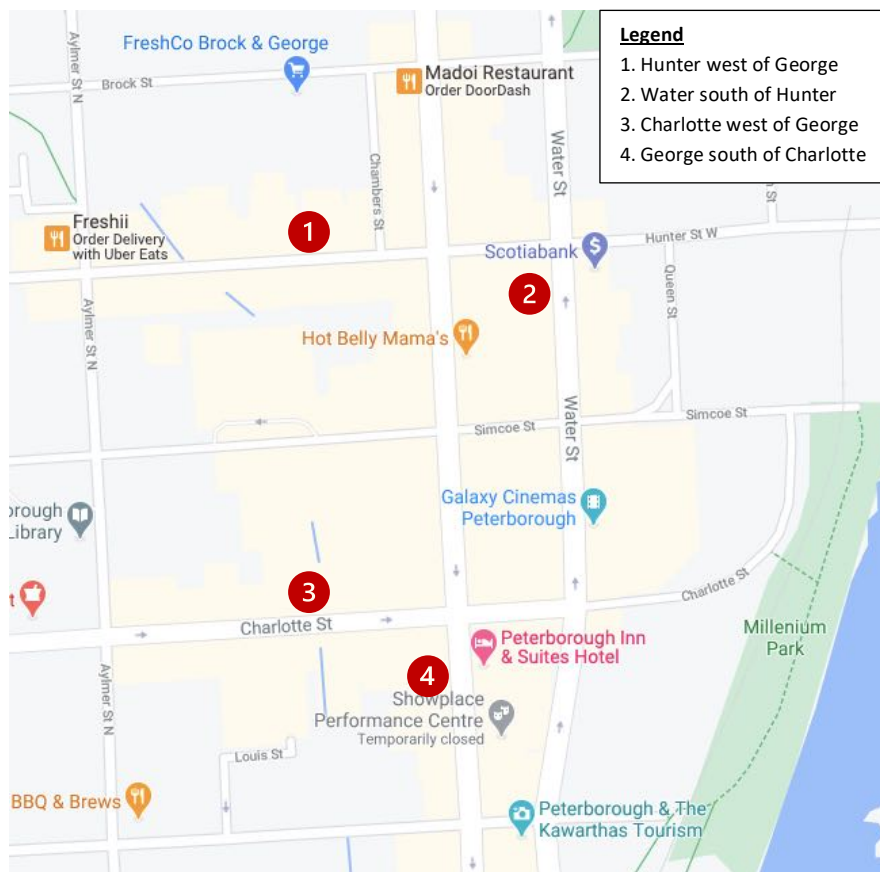


Figure 4. Map of count locations.

Volunteers conducted the counts using the smartphone app CounterPoint. When someone passed through the count location, the volunteer selected the corresponding icon (pedestrian or cyclist) on the app to count that person. Counts were completed in two parts to collect data on the use of the sidewalk and the use of the extended space on the road. Volunteers were instructed to conduct a 15-minute count for one of the two spaces followed by a second 15-minute count for the other space. In doing this, one can compare and contrast the data between the



spaces to determine if and how their usage differs. Counts were conducted on various days of the week and at various times from October 8 to October 17, 2020. Full count data can be seen in Table 1.

Table 1. Summary of count results.

Location	Count Type	Sidewalk		Extended Space	
		Total	Per count	Total	Per count
Hunter Street	Pedestrians	65	9.3	95	13.6
	Cyclists	0	0.0	20	2.9
Water Street	Pedestrians	72	24.0	5	0.7
	Cyclists	0	0.0	3	0.3
Charlotte Street	Pedestrians	183	22.9	100	12.5
	Cyclists	2	0.3	20	2.5
George Street	Pedestrians	274	34.3	272	30.2
	Cyclists	22	2.8	26	2.9

Examining the count data, it can be seen that the space people used varied by location. This could be influenced by the design of the measures in place and whether or not the sidewalk was obstructed by a patio or product display. The following are observations drawn from the count data.

- Hunter Street** – Seven counts were conducted at this location. More pedestrians were observed using the extended space than the sidewalk. No cyclists were counted on the sidewalk while 20 were counted in the extended space. Although both the sidewalk and roadway were unobstructed at the count location, a large patio obstructed the sidewalk two doors west.



Figure 5. Street conditions at the Hunter Street count location.

- Water Street** – Three counts were conducted at this location. Several more pedestrians were observed using the sidewalk than the extended space with very few using the extra space at all. No cyclists were observed on the sidewalk and three were counted in the extended space. In this location, both the sidewalk and extended space were clear with no obstructions nearby.



Figure 6. Street conditions at the Water Street count location.





- **Charlotte Street** – Eight counts were conducted at this location. More pedestrians were observed using the sidewalk than the extended space. Only two cyclists were counted on the sidewalk while 20 were counted in the extended space. The sidewalk and extended space were both clear at this count location. Patios were set up, obstructing the sidewalk, two doors west and four doors east of the count location. The location was directly beside the arcade to Charlotte Mews which one volunteer noted to have a relatively high volume of foot traffic.



Figure 7. Street conditions at the Charlotte Street count location.

- **George Street** – Eight counts were conducted at this location. The sidewalk and extended space appear to be used fairly evenly by pedestrians. This location saw the greatest number of cyclists with 22 being counted on the sidewalk and 26 counted in the extended space. The sidewalk and extended space were both clear at the count location, but a patio was set up two doors south, obstructing the sidewalk.



Figure 8. Street conditions at the George Street count location.





3. SURVEY OF LOCAL STAKEHOLDERS

The next step in the process was the development of a digital survey distributed to business-owners for us to learn more about the businesses downtown, how they may have been affected by the measures, and the general opinions of the measures that were implemented.

3.1 Survey Development

The survey was initially distributed to business-owners on November 12, 2020 by the Peterborough DBIA. Google Forms was used to create the survey and it was distributed electronically to 405 business-owners in downtown Peterborough. The survey (Appendix A) was comprised of 40 questions split into the following five categories:

1. About Your Business – This section provided context to help us understand the type of the business the shopkeeper owned, the number of people they employ, and whether they noticed broad changes to the customer experience and business revenue over the past year.
2. Your Travel Patterns – The second section aimed to collect information about the travel patterns of the business-owner and their staff including what mode they use to travel downtown and if and how that changed while the measures were in place.
3. Customer Travel Patterns – The third section aimed to understand how business-owners perceived their customers travel patterns along with any feedback they may have received from customers.
4. Business Operations – This section collected information specific to the operation of the business including business hours, curb-side pickup, deliveries, and expanded business space (such as patios). The goal of this section was to learn if and how these operations were affected by the measures downtown.
5. Experiencing Downtown Peterborough – The final section sought to obtain the survey respondent's feelings and opinions about the downtown while the measures were in place. Questions asked about attractiveness and comfort, what the respondent liked and disliked, and if and how they would like to see the measures return in the future.

3.2 Survey Feedback

The survey was sent to 405 members of the DBIA and 45 responses were received for a response rate of about 11%. The results are presented below.

3.2.1 Overview of Respondents

The survey was completed by owners of a variety of businesses. The most common business type was retail shop, followed by professional services and dine-in restaurant. Some respondents classified their business as multiple types depending on the nature of their operations. Figure 9 demonstrates the breakdown of business types.



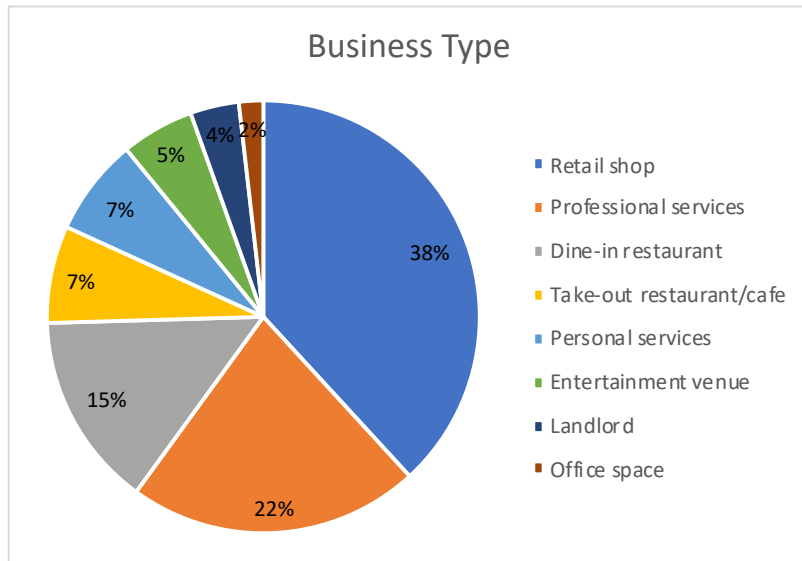


Figure 9. Proportion of respondents by business type.

Business-owners chose to locate their business downtown for a variety of reasons and this can vary depending on the type of business. Overall, the most frequently cited reason was the “vibrant feel of the downtown” with 56% of businesses selecting this option. Having “greater visibility” and a “large customer base” were also frequently chosen with 47% and 40% of businesses indicating these, respectively.



Figure 10. Respondents' reasons for locating their business downtown.





The “vibrant feel of the downtown” was the most common choice for every business type except for professional services. Overall, “lots of pedestrian traffic” was seen as more important than “easy access by car”. Additionally, “easy access by bike” was selected almost as frequently as “easy access by car” and was more important to respondents than “ample parking”. Retail shop owners and restaurant owners (dine-in and take-out) both valued “lots of pedestrian traffic” and “greater visibility” but restaurant owners but placed greater value on “easy access by bike” and “easy access by car”. Owners of professional services valued “greater visibility” the most and an equal number of respondents selected “proximity to major employers”, “vibrant feel of the downtown”, and “easy access by car”. An overview of key business types and reasons is shown in Table 2.

Table 2. Respondents' reasons for locating their business downtown by business type. Proportions represent the number of respondents in each business type that selected each reason.

	Retail Shop	Restaurant (dine-in, take-out)	Personal services	Professional services
Vibrant feel of the downtown	57%	92%	50%	25%
Greater visibility	43%	58%	50%	42%
Large customer base	38%	75%	50%	8%
Lots of pedestrian traffic	43%	75%	25%	0%
Easy access by car	19%	50%	25%	25%
Easy access by bike	14%	67%	25%	0%
Ample parking	19%	17%	25%	17%

Overall, 67% of respondents agreed that an attractive walking and cycling environment is beneficial for their business. While 100% of owners of restaurants (dine-in and take-out) and entertainment venues agreed with this statement, the opinions of other business types were more mixed.

Across the downtown, revenues decreased over the past year with respondents indicating an average revenue change of 2.25 on a scale from 1 to 5 with 1 representing much lower revenue than normal and 5 representing much higher revenue. Businesses were hit disproportionately with office spaces, landlords, and restaurants suffering the greatest decrease. All business types indicated a decrease in revenue.

3.2.2 Business-Owner and Staff Travel Patterns

Examining the travel patterns of business-owners and their staff allows us to understand if and how the measures influenced their daily routines. Driving a car is the most common mode of transportation among respondents with 82% reporting they drive to and from work at least 4 times a week. 22% indicated they walk at least once a week and 4% bike at least once a week. No respondents reported taking transit to and from work.

While the measures were in place, 89% of people said there was no change in their mode of travel while 9% indicated they drove less. Additionally, 87% said their parking location did not change.

Staff were more likely to change their behaviour with 16% of respondents indicating their staff walked or biked more. However, 79% of respondents said there was no change in their staff travel patterns and 75% of respondents said staff parking location did not change.





Although most respondents drive to and from work, a roughly even number of people indicated they drive or walk (~65%) to shop at other businesses downtown while few indicated they bike. Comparing respondents' mode of travel to how frequently they shop at other businesses downtown, there seems to be a trend that those who use active modes were more likely to keep shopping downtown. Respondents were asked to rate, on a scale of 1 to 5, if they changed how often they shopped downtown with 1 being they shopped much less and 5 being they shopped much more. The average rating for those who cycle to other shops was 3.33 and for those who walk it was 2.81. People who drive gave an average rating of 2.36 meaning they were the least likely to continue shopping downtown.

3.2.3 Customer Travel Patterns

Customer travel patterns are important to examine as customers determine whether or not downtown businesses survive. Understanding if and how customers changed their behaviour while the measures were in place provides a glimpse into how their habits may change with respect to visiting, shopping, and spending time downtown.

Numerous studies over the years have found that business-owners regularly overestimate the number of customers who arrive at their business by car and underestimate the number of people using other modes. In 2016, The Centre for Active Transportation (TCAT) in Toronto released the study *Bike Lanes, On-Street Parking and Business* to examine the transportation habits of visitors to a prominent commercial neighbourhood in the city. By conducting both a merchant survey and visitor survey, the authors found that almost half of merchants estimated that more than 25% of their customer base arrived by car. In reality, as evidenced by the visitor survey, only 4% of visitors reported that driving was their usual mode of transportation. Additionally, they found that 52% of merchants felt there was not enough vehicle parking nearby compared to only 19% of visitors. Similar results have been found in other studies around North America and the world with studies in other neighbourhoods of Toronto, Vancouver, and Brisbane, Australia revealing similar misjudgements about customer travel modes and the importance of vehicle parking.

Six business-owners indicated they have conducted a survey to understand how their customers travel to their business while the remaining 39 respondents have not. Overall, 78% of respondents said they saw no change in customer travel patterns while the measures were in place, but 13% indicated people walked more. There was no significant difference in results between those who have not conducted a customer travel survey and those who have not.

When estimating how customers arrive at their business, 98% of respondents said customers arrive by car "very frequently" or "somewhat often" and customers are believed to arrive much less often on foot, by bike, or transit (Figure 11). Interesting to note, a few respondents indicated they don't know how often their customers arrive on foot, by bike, or transit but no respondents indicated being unsure of how often their customers drive.

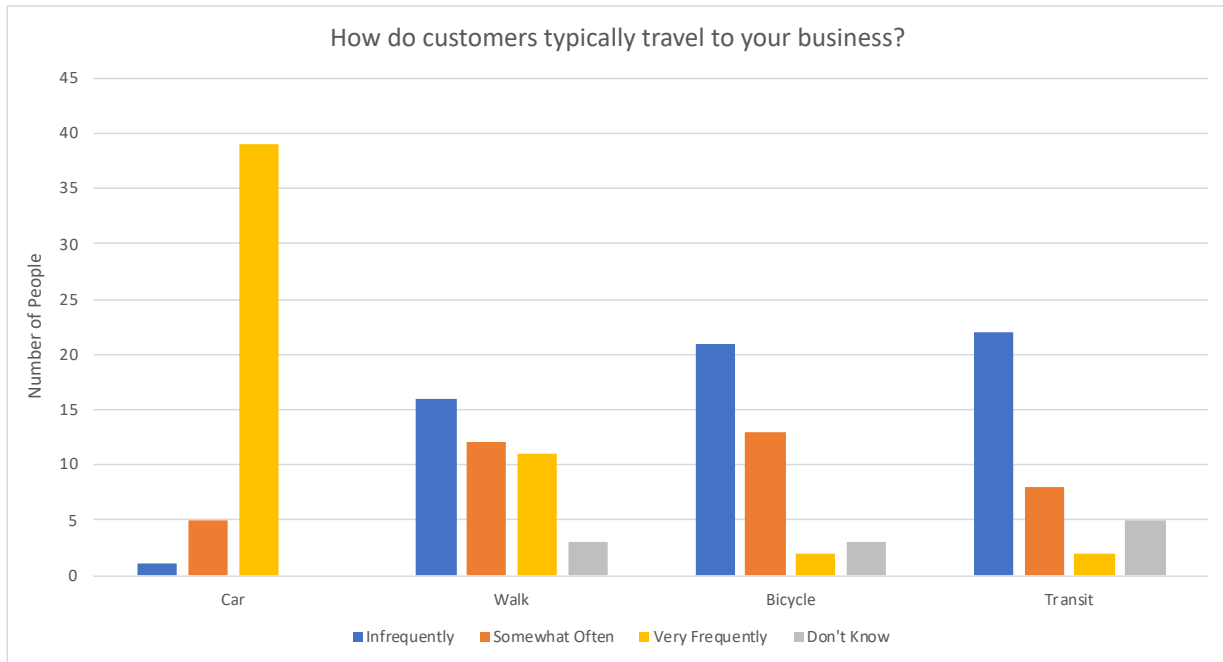


Figure 11. Respondents' estimates of how customers typically arrive at their business.

All respondents indicated they received customer feedback about the COVID measures implemented. Almost all respondents indicated that customers had said that “driving was confusing” with the measures in place. Other common remarks were that it was “more difficult to find parking” and that the measures created an “unattractive environment”. Positive remarks were provided but were less common.

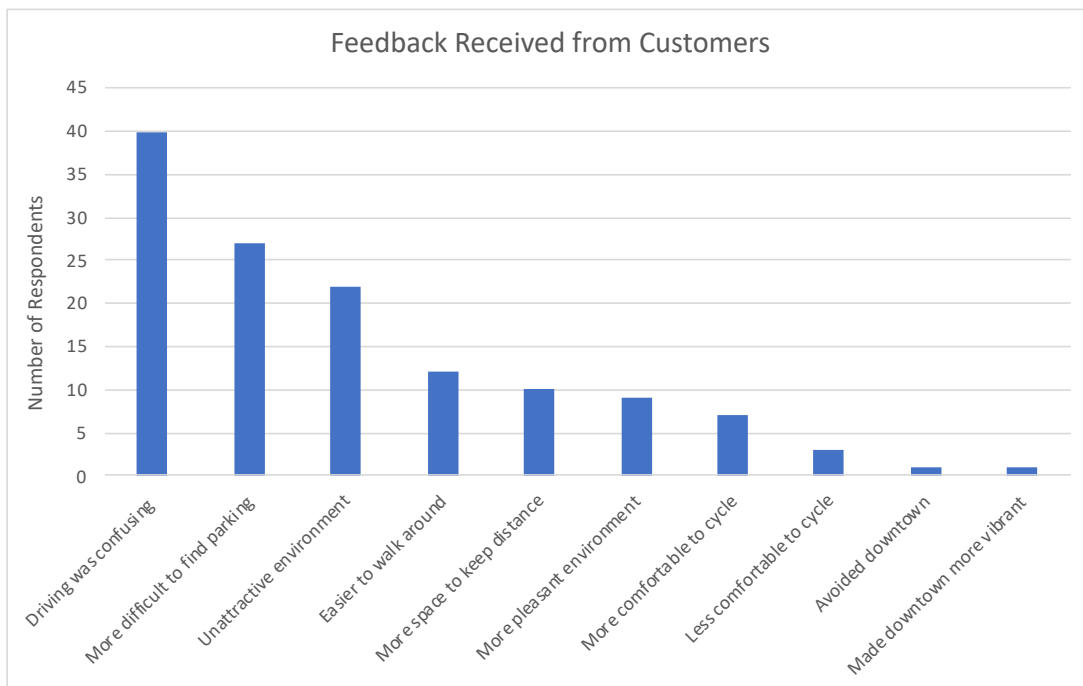


Figure 12. Most common feedback received from customers.





Respondents were asked to provide their feedback specific to travel patterns and several echoed the sentiment of customers saying the measures created confusion in a number of ways including navigating the downtown, parking, and receiving deliveries. A couple respondents mentioned specific issues with customers being confused about where to park. One respondent said they often saw people pull into the new parking lane and drive along thinking it was a travel lane. This confusion led to many saying they avoided downtown altogether.

3.2.4 Business Operations

The pandemic has had a major impact on businesses. The measures implemented in the downtown were partially intended to improve the viability of businesses and make it easy and inviting for people to shop local. Although some businesses reported benefiting from the measures, others did not experience such benefits.

Curbside pickup has become an important lifeline for businesses trying to maintain operations while minimizing close contact with customers. 71% of respondents offered curbside pickup while the measures were in place. Of those, 34% had very few (less than one per week) pickups and 47% had a moderate amount (a few per week). Regardless of how often curbside pickups were completed, 59% of respondents said customers had difficulty finding parking nearby when picking up.

Deliveries were also challenging for some business-owners with more than half indicating that it was more difficult for delivery drivers to physically access their business. However, 40% said there was no change in how they received deliveries.

Only 18% of respondents expanded their business onto the sidewalk. 20% said they had the opportunity but did not expand while 62% indicated they did not have the opportunity at all. Many who did not expand stated that their business type was not suited for outdoor space. Restaurants (dine-in and take-out) and entertainment venues were the only businesses to expand outside as well as one retail shop. All eight of these businesses indicated that the acquisition and cost of additional materials was the greatest challenge, followed by maintenance and poor weather.

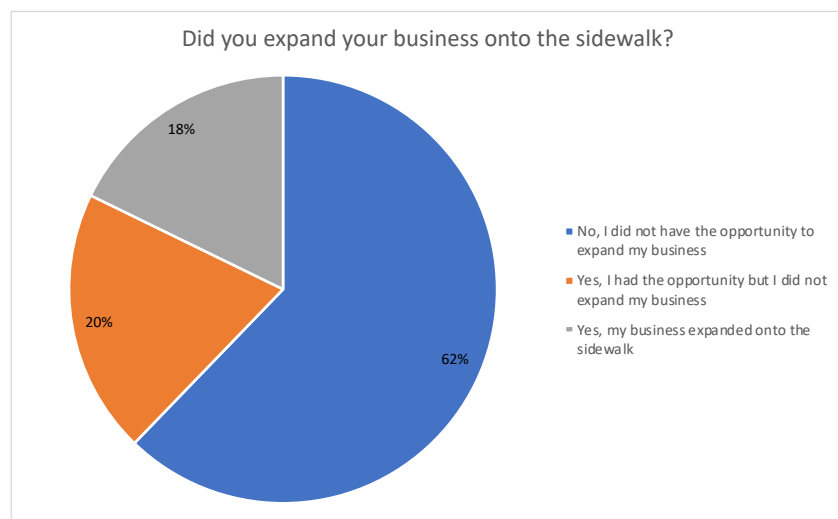


Figure 13. Proportion of respondents who expanded their business onto the sidewalk.



Despite the challenges, expansion onto the sidewalk allowed all but one business to hire new or re-hire previous employees. Half the businesses re-hired 1-5 employees while 38% of the expanded businesses re-hired six or more. Of the eateries that expanded outdoors, 50% said they would have had to close the business if the measures were not implemented allowing them to expand.

Comments from respondents regarding business operations included both positive and negative aspects. A few people expressed frustration with receiving deliveries and that drivers and companies were visibly frustrated when trying to physically access the business. Despite the negative feedback, more respondents acknowledged that there were difficulties and an adjustment period but that it was worth it to help businesses survive.

3.2.5 Experiencing Downtown Peterborough

Respondents were asked to rate various aspects of the downtown while the measures were in place in comparison to before they were implemented. Responses were provided on a scale of 1 to 5 with 1 being much worse and 5 being much better. Comfort for walking and staying tended to be rated the highest followed by vibrancy. Visual attractiveness received the lowest average rating. In all categories, aside from comfort for walking and staying, the average rating was below 3, indicating in general, people found the downtown to be less enjoyable after the measures were implemented.

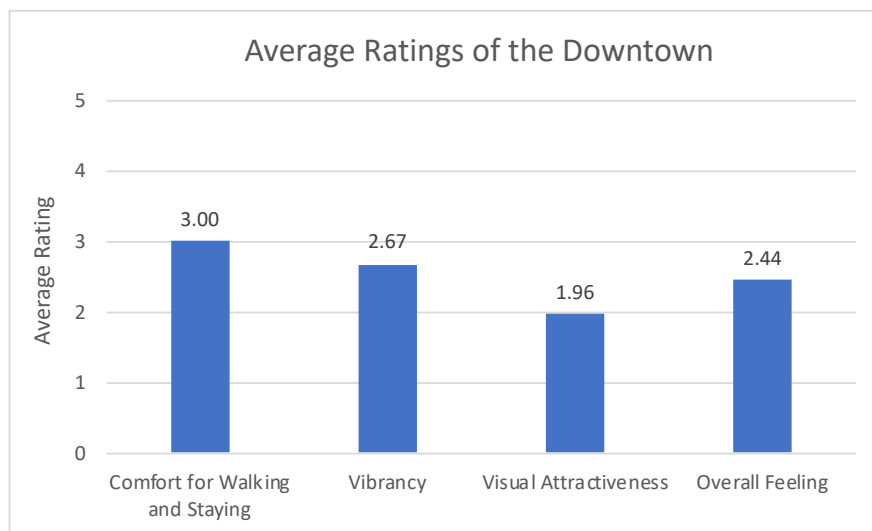


Figure 14. Average ratings of the downtown in each category.

Examining the average ratings based on different criteria reveals some trends. Breaking down the ratings by business type (Figure 15), there is a clear divide between the opinions of restaurant owners (dine-in and take-out) and others, particularly retail shop owners. The average rating in each category for restaurant owners was above 3 (ranging from 3.25 to 4.25) meaning that people tended to think the downtown was more comfortable for walking and staying, more vibrant, more attractive, and felt much better overall than compared to before the measures were in place. As discussed above, these are also the businesses that felt lots of pedestrian traffic and a comfortable environment for walking and cycling was beneficial for their business.





No other business type had average ratings over 3 for all categories. Of particular interest were the responses of retail shop owners who, on average, rated all four categories below 3 (ranging from 1.48 to 2.62). This indicates they tended to find the downtown less comfortable for walking and staying, less vibrant, much less attractive, and felt much worse overall compared to the downtown before the measures.

Trends can also be seen when comparing average ratings by the reason one located their business downtown. People who valued easy access by bike and transit were more likely to rate the measures highly. Interestingly, people who valued “easy access by car” and “ample parking” tended to rate the measures more highly than those who selected “vibrant feel of the downtown” and “lots of pedestrian traffic”. Those who previously indicated they feel an attractive walking and cycling environment is beneficial for their business were much more likely to give higher ratings (Figure 16), as were businesses who expanded onto the sidewalk. Businesses on streets that were modified tended to give slightly higher ratings than those on streets with no changes.

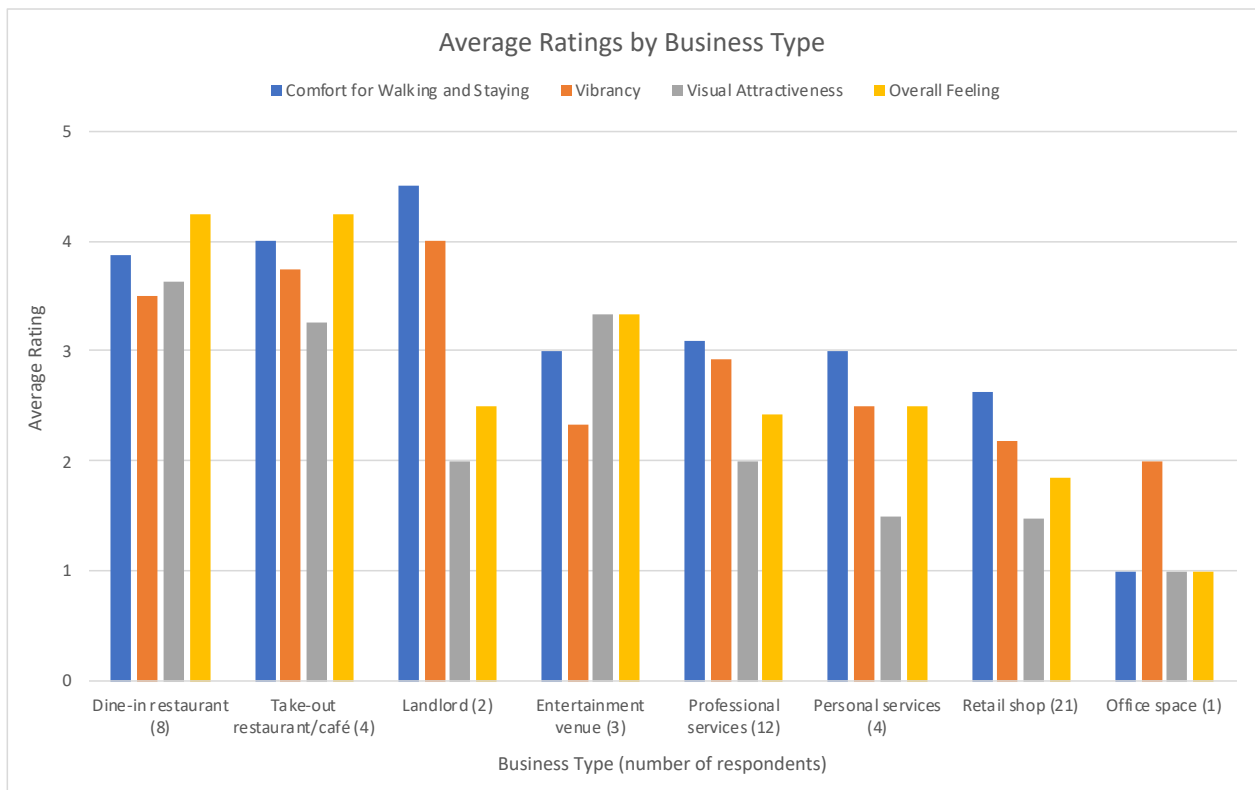


Figure 15. Average ratings of the downtown by business type.



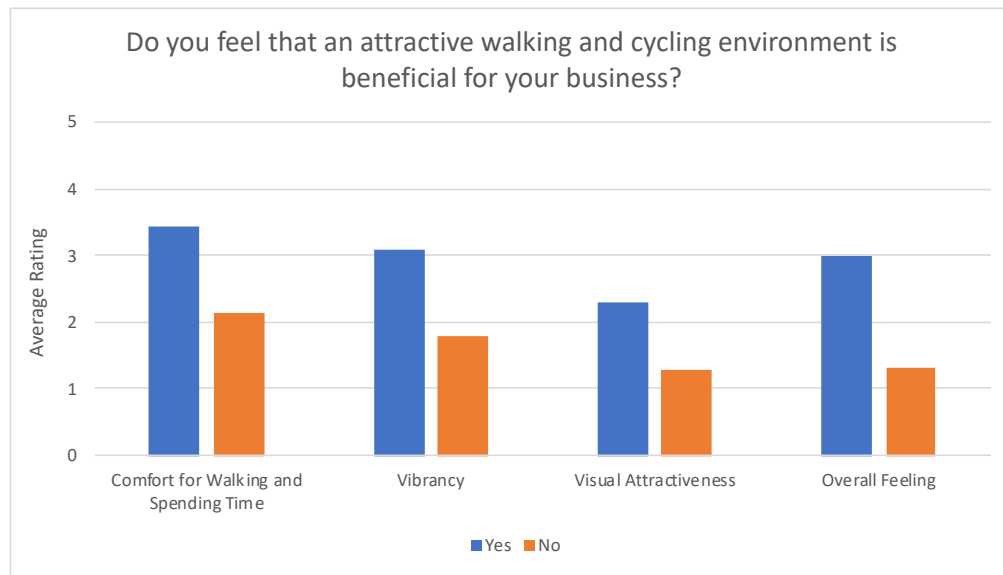


Figure 16. Average ratings of the downtown by whether or not the respondent feels an attractive walking and cycling environment is beneficial for their business.

When respondents were asked how they would respond if similar measures were proposed in the future 62% indicated some level of support. The responses were chosen in the following order:

- Absolutely not (38%)
- It was good but needs tweaking to work well (33%)
- More and better this time (13%)
- Bring it all back (11%)
- I'm fine with everything as long as it's not on my block (4%)

Similar to what was seen with average ratings, restaurant owners were much more likely to support the return of similar measures. All restaurant owners who responded indicated they would like to see a return of the measures with 83% of them choosing "bring it all back" or "more and better this time". The remaining 17% said they would welcome it back if tweaks were made. Owners of other businesses had mixed responses and no trends emerged specific to those businesses. People who felt an attractive walking and cycling environment was beneficial for their business were much more likely to be in favour of similar measures in the future as were those who expanded their business onto the sidewalk.

The following key themes emerged when analyzing the open-ended question regarding aspects people liked about the measures.

- They allowed businesses to expand and survive the pandemic (most common remark)
- Patios contributed to the creation of an environment that was vibrant, relaxed, and beautiful. One respondent wrote "I loved that people were out on patios! It felt like the city was alive and well."
- Created a better walking/pedestrian environment. Having more room to walk was more enjoyable and there was more foot traffic which further enhanced the pedestrian experience.



Key themes were also identified for reasons why people disliked the measures, though there was a wider range of responses.

- Measures created a confusing environment, particularly for drivers (most common remark)
- Poor signage distinguishing driving lanes and parking lanes which resulted in some driving and parking in the wrong places
- Unattractive environment which seems to be partially influenced by the fact that some found the measures excessive
- Extra space was underutilized in many locations and could otherwise be used for parking, greenspace, or at the discretion of the shopkeepers to decide how they wished to use the space

A variety of responses were received when respondents were asked what one aspect of the measures they would change to make the downtown more inviting and attractive.

- Give extra space only to businesses that want it
- Use more attractive barriers and materials to delineate space and build patios
- Provide more parking
- Provide more planters and greenspace

Respondents' final thoughts were mixed with several saying they appreciated the effort of the DBIA and City to support businesses through a difficult time. While some mentioned the measures should not be implemented again, others said they would welcome it with improvements being made and more consultation with business-owners.

3.2.6 Key Takeaways

The following are some of the key takeaways from the responses provided by business-owners in downtown Peterborough.

- Overall, business-owners value an environment that is vibrant and inviting for all users and believe that attracting more people to walk and cycle downtown is beneficial for their business.
- While the measures were in place, the large majority of respondents, their staff, and their customers did not alter their travel patterns. In addition, the majority of respondents and their staff did not change their parking location suggesting the measures did not significantly restrict respondents' access to downtown if they chose to drive.
- Expanding businesses outdoors allowed several respondents to serve more customers and hire or re-hire staff, helping their business survive.
- Ratings of the downtown are higher among businesses that expanded outdoors as well as those who feel an attractive walking and cycling environment is beneficial for their business.
- People enjoyed the presence of outdoor patios and expanded pedestrian space and felt these aspects created a more enjoyable downtown experience.
- Business-owners and their customers found the downtown confusing to navigate by car and felt the measures created an unattractive environment.
- Nearly two-thirds of respondents support the implementation of similar measures in some capacity in the future.



4. REVIEW OF IMPLEMENTED MEASURES

The third component of the evaluation process was a review of the implemented measures. This review focused on the physical design of the measures and took into consideration aspects such as function, attractiveness, and overall design. In order to properly assess the situation in Peterborough, background research was required examining the measures implemented in other communities as well as professional guidebooks to identify best practices. This peer review allows us to learn about what was implemented in other communities and inspire changes to improve the design in Peterborough. Three communities were reviewed including Guelph, ON; Kingston, ON; and North Vancouver, BC. Two guidebooks were reviewed including the National Association of City Transportation Officials' (NACTO) *Streets for Pandemic Response and Recovery* and the Federation of Canadian Municipalities' (FCM) *COVID-19 Street Rebalancing Guide*. Both guidebooks will be provided in the reference list for review in greater detail.

4.1 Best Practices and Peer Jurisdiction Review

4.1.1 Guelph, ON

The changes made in downtown Guelph (population 132,000) are an example of successful modifications in response to the COVID-19 pandemic. On July 10, 2020, the City of Guelph, in collaboration with the Downtown Guelph Business Association (DGBA), fully closed parts of Wyndham Street and MacDonnell Street, two of the main streets in downtown. Centred around a major intersection, the streets were closed to all vehicle traffic, opening the streets for people and allowing businesses to expand their operations.

Appropriately named the "Dining District", 17 restaurants expanded their patios into the public space using semi-permanent materials to construct and delineate their patio space. Wood fencing secured in concrete blocks as well as metal fencing were common methods of creating extra dining space. The City of Guelph provided 70 picnic tables and business-owners invested in furniture, umbrellas, tents, patio heaters, and lighting to create a welcoming pedestrian environment. In addition to patios extending onto the roadway, many patios included the outer portion of sidewalk space. However, as per guidance from NACTO and FCM, all sidewalks remained open and accessible for pedestrians to pass between the patios and the restaurant entrances.



Figure 17. Entrance to the Dining District in Guelph, ON.



Figure 18. Street patio in Guelph, ON.



With the streets being completely closed to vehicles, deliveries and parking were a concern for some business-owners and residents. According to the DGBA, deliveries had to take place outside the barriers of the closed streets, but the business association worked directly with business-owners to determine the best options for deliveries. For parking, multiple city-owned parking lots and parkades are in close proximity to the dining district and free 2-hour on-street parking on adjacent downtown streets is offered year-round.

On September 21, a special council meeting was held to determine the future of the Dining District. Having previously been extended from September 7 to September 21, the initiative was extended yet again to November 30 as a result of its success. In addition, council directed staff to create a committee of stakeholders that will develop a longer-term plan to support outdoor dining in downtown Guelph.

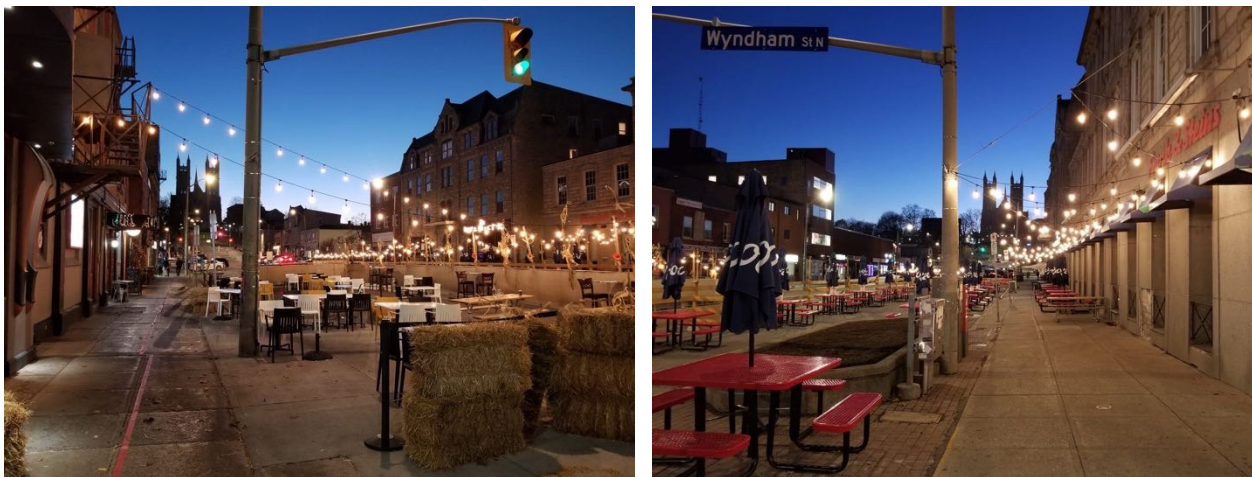


Figure 19. Street patios in Guelph, ON.

4.1.2 Kingston, ON

Downtown Kingston (population 124,000) underwent a transformation in June 2020 that took on a different form than what was seen in Guelph. Instead of completely closing streets to vehicles, the City, collaborating with community partners and individual businesses, initially closed one of the two lanes travelling down Princess Street, the one-way main street through downtown. In addition, all street parking was removed with the exception of one designated pick-up/delivery space on each block in the downtown. Dubbed “Love Kingston Marketplace”, the measures spanned eight blocks along Princess Street as well as two blocks of the parallel Brock Street. About a week after implementation, on June 30, the City announced they would be modifying the measures after significant criticism.



Figure 20. Map of parking and pickup/delivery spaces in Kingston, ON.



On July 3, the City began adjusting the barriers to re-open the second lane of traffic as well as a few parking spaces on each block along Princess Street and Brock Street. The designated pick-up/delivery spaces remained but the focus of the measures shifted to repurposing parking spaces in front of the businesses that expressed an interest in the additional space. This approach is recommended by NACTO and FCM for increasing dining space and creating queuing zones in coordination with the businesses that wish to participate. Before the measures were in place, 70 businesses had requested the extra space. In addition to these changes, Market Street, a short street adjacent to the city’s popular Market Square, was fully closed to vehicles.



Figure 21. Concrete jersey barriers delineating patio space in Kingston, ON.

On-street parking spaces were blocked off using concrete or plastic jersey barriers and metal fencing. Businesses were able to expand their operations onto sidewalks and parking spaces with patios and product displays. Semi-permanent patios were built with wood or metal fencing with most being located in the repurposed parking spaces. Patios or product displays on the sidewalk still allowed room for pedestrians to pass by without leaving the sidewalk, as per best practices from NACTO and FCM.

Prior to implementing the measures, the City asked residents and business-owners to complete a survey to share their thoughts on the idea of making modifications to the downtown. A second set of surveys was released in the summer and accepting responses into the fall to learn how the public have engaged with and perceive the implemented measures. While there is no specific end-date for the measures, they were still in place as of November 4, 2020.

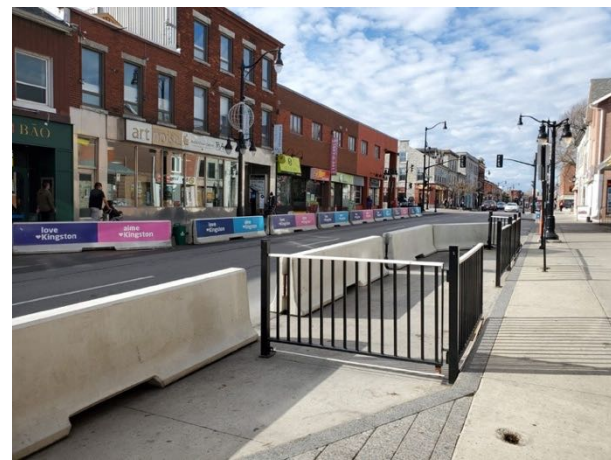


Figure 22. Expanded pedestrian and patio space in Kingston, ON.





4.1.3 North Vancouver, BC

In early June 2020, the City of North Vancouver (population 53,000) began transforming their streets as part of their “Open Streets Action Plan”. The City planned to make modifications to 12 km of streets across their jurisdiction including both destination streets and neighbourhood streets. The most successful transformation occurred on Lonsdale Avenue, the heart of commercial activity in the city. From 13th Street to 18th Street, a five-block-long stretch, parking lanes were closed for vehicles, providing pedestrians with additional space to walk and businesses room to expand. While normally a four-lane street with two lanes of traffic in each direction, parking was moved to the outer traffic lane reducing vehicle travel lanes to one in each direction. This “floating” parking lane acted as an addition barrier for pedestrians and is recommended in NACTO’s guidebook.



Figure 23. Expanded space for pedestrians in North Vancouver, BC.

The reclaimed pedestrian space was created by blocking off the parking lanes with orange plastic jersey barriers and bright orange flex posts. A variety of uses appeared in the former parking spaces including pop-up patios, art installations with built-in seating, and parklets for people to linger. The materials used to create these spaces ranged from light materials like movable chairs and tables, Adirondack chairs, and turf grass to heavier-duty installations like wood platforms with metal rails and even a modified shipping container. All features added to the street took place in the reclaimed parking spaces allowing sidewalks to remain open and accessible for pedestrians passing through, a best practice identified by NACTO and FCM.



Figure 24. Expanded space for pedestrians to linger in North Vancouver, BC.

The Open Streets Action Plan was a major success for the City of North Vancouver and its business-owners. In total, over the three destination streets that saw modifications, 36 temporary patios had been established between May and September. On September 14, the City of North Vancouver passed a motion to extend the measures into the fall and winter. The motion was passed with an amendment that launched the creation of designated pick-up zones to ease curbside pick-up for local businesses which was a challenge with the original design of the space. While there has been no end date specified, the City and its businesses have been preparing for winter weather, indicating the measures will not be removed anytime soon.



Figure 25. Outdoor patio in North Vancouver, BC.



4.1.4 Summary of Industry Guidelines

Theme	National Association of City Transportation Officials (NACTO)	Federation of Canadian Municipalities (FCM)
Materials	<p>Light separation: Can be used for projects limited to specific days or times. Materials include traffic cones, free-standing delineator posts, traffic barrels, parade barricades, and small planters.</p> <p>Heavy separation: For sensitive locations like beginning of street/lane closure. Good for longer-term installments. Include filled barrels, concrete barriers, large planters, flexible posts, and armadillo barriers.</p>	<p>Light separation: Non-continuous barriers include traffic cones, construction markers, free-standing delineator posts, and flexible drums. Continuous barriers include barricades, fences, and jersey barriers.</p> <p>Heavy separation: Installed delineator posts, landscaped planters, or concrete barriers. Can be used to continuously delineate a space without gaps.</p>
Expanded Pedestrian Space	<p>Applicable along main streets with essential business/services and/or crowded sidewalks.</p> <p>Convert curbside parking or travel lane to pedestrian space. Delineate with light separation along walking space and heavy separation at endcap locations. Parking can be moved to a travel lane creating a “floating” parking lane to further protect pedestrians.</p>	<p>Applicable in urban areas with sidewalks that are narrow and/or crowded and areas where queuing is a concern.</p> <p>Convert curbside parking or travel lane to pedestrian space. Delineate with light separation along walking space and heavy separation if vehicle speeds/volumes are high. Curbside queuing space should be on the roadbed directly outside of the site it is intended to serve.</p>
Pick-up and Delivery Zones	<p>Most relevant at restaurants, pharmacies, and other essential services.</p> <p>Light separation, spray-chalk, paint, or traffic tape can delineate space. Set time limits (ex. 10 mins) to enable quick turnover. De-activate or cover parking meters and signs.</p>	<p>Applicable at businesses and restaurants with a high concentration of pick-up and drop-offs.</p> <p>Can be paired with curbside queuing lanes to provide multi-modal curbside access. Replace one or more on-street parking spaces, as needed. Clear, temporary signage may be attached to parking signs and meters.</p>
Outdoor Dining and Parklets	<p>Identify restaurant clusters and designate dining zones. Can close entire streets, vehicle lanes, or convert parking spaces for street dining.</p> <p>Maintain sidewalks clear of tables and chairs to allow ample, physically distant pedestrian movement. Light separation is sufficient but</p>	<p>Suitable in areas where public seating/gathering space is limited. Can be installed on a main street (converting parking spaces or vehicle lanes) or nearby side street with full closure.</p> <p>Light separation should create a continuous barrier to delineate the space. Heavy separation may be required on roadways with</p>



	use heavy separation at endcap locations (if closing street or vehicle lane).	high motor vehicle speeds/volumes to create a more comfortable space.
Full Street Closure	Applicable for commercial streets with local restaurant/retail clusters. Partial closures can preserve some access (ex. deliveries, emergency services) but prevent most through-movements.	Applicable for short segments (one or two blocks) on major streets. Limited motor vehicle access can be maintained for emergency vehicles and deliveries.
Signage	Temporary signage should clearly communicate shifted uses at the location the changes occur (ex. at the beginning of street or lane closures, at pick-up and delivery zones, etc.).	Good signage is necessary to indicate changes. Detour and wayfinding signage may be necessary for street closures and should be simple and consistent. Informational signage can also be provided.
Accessibility	Temporary curb ramps should be provided using modular ramps or asphalt. Sidewalks should remain clear to reduce the need to leave the sidewalk.	Temporary curb ramps should be provided mid-block where pedestrian space has been expanded and within dining areas. Barriers should be spaced to allow access for people using mobility aids at key locations.

4.2 Evaluation of Design Measures

The measures undertaken in downtown Peterborough represent a bold reallocation of space in a limited timeframe on a limited budget. As such, the evaluation of these measures will be undertaken with this in mind. Though many of the comments and recommendations provided may be applicable to more permanent reallocations of road space, they are provided in the context of relatively low cost, rapid implementation, adjustable measures.

4.2.1 Accessibility

The chosen layout of placing patios on the sidewalk and rerouting pedestrians to the additional space created on the roadway has significant accessibility implications. Specifically, users with either mobility or sight impairments may struggle to use the space safely and comfortably.

For those with mobility impairments, the ramps put in place were not at consistent intervals along the corridors and as such would lead to significant detours for accessing some businesses. During the sight visit it was noted that some businesses that fell between two patio spaces lacked an accessible ramp access at all.





Figure 26. Patios blocking sidewalks created an accessibility issue if ramps were not provided regularly.

For those with visual impairments use of the additional space created on the roadway could prove quite challenging and potentially dangerous. The space is not well demarcated by means of a linear physical element (e.g. a curb) which may lead to considerable ambiguity as to where the pedestrian space ends and the roadway begins. While it is understood that these measures were temporary, an arrangement where the pedestrian clearway was maintained on the sidewalk would have improved the level of access and consistency for these users.

4.2.2 Clear Operating Space

In any roadway design it is important that all users can readily and easily identify their intended operating space. While the reallocation of road space undertaken in this project was significant, it was accomplished in a manner that left considerable ambiguity for all users. The following challenges were found in how the space was reallocated.

Flexposts (lightweight bollards)

- The consistent application of round white flexposts presents challenges in discerning directionality and depth of field. In some locations in the study area, especially where the alignment of the roadway shifts, the consistent use of flexposts with no linear elements may appear to approaching drivers as a sea of flexposts. Though this ambiguity may have a positive impact on speed control, it may also result in unexpected behaviours and a general sentiment of anxiety for those operating in the space.



Figure 27. In some locations flexposts presented challenges in discerning directionality and depth of field.



Pavement markings

- The lack of linear pavement markings to demarcate changes in direction or use of space provided considerable ambiguity.
- Figure 28 presents a location where a parked vehicle obscures the flexposts that demarcate the end of the parking lane. To an approaching driver, this appears to be a vehicle waiting at the intersection as the lane marking indicates this is a travel lane. During the site visit a series of vehicles were observed pulling up behind this car, then honking repeatedly when it did not advance at the green light. This could be avoided through simple adjustments to the pavement markings.



Figure 28. A parked vehicle obscures flexposts creating confusion about parking and travel lanes.

Colour

- The consistent colour of the roadway, even in the reallocated space, reduces the ability of users to easily distinguish within which space they are intended to operate.

4.2.3 Pedestrian Comfort

The additional space created, while intended for pedestrian use, lacked many of the elements required for pedestrian comfort and therefore the likelihood of being used. The following elements were noted as challenges to pedestrian comfort.

Separation from traffic

- Though the additional space was separated from traffic by flexposts, this limited level of separation does not sufficiently demarcate the space as “pedestrian space” in the eyes of users.
- This lack of separation is also interpreted in the visual difference of the space. Without sufficient visual cues to differentiate the space from the roadway, pedestrians will not feel as though the space is intended for them.



Figure 29. Expanded pedestrian space lacked visual cues indicating the space was for people.





Attraction to edges

- It is well understood that pedestrians (people) are attracted to edges. This is to say that generally pedestrians will walk closer to the building façade when given the choice. Placing the additional walking space away from the building frontages goes against their natural behaviour to walk close to the building fronts.



Figure 30. Expanded pedestrian space on Hunter Street.

4.2.4 Speed

As part of the reallocation of space, the speed limit within the study area was reduced to 30 km/h. This is in line with best practices that seek to improve the safety of all road users. These measures are of particular importance in a downtown environment where a higher number of vulnerable road users (e.g., pedestrians and cyclists) are present. The following features are considered valuable elements in seeking to achieve a 30 km/h operating speed:

- Gateway signage indicating when you are entering a 30 km/h zone
- Narrowed roadway and single travel lanes
- Visual friction adjacent to travel lanes
 - In downtown Peterborough this is accomplished with curbside parking and flexposts.
- Horizontal deflections in roadway alignment
 - This was most successfully applied on Hunter St.



Figure 31. Gateway signage and a reduced number of travel lanes are valuable elements for reducing vehicle speed.

4.2.5 Intersections

Most of the corridors in the study area experienced significant reallocation of road space in the midblock segments. One feature of this was a reduction in the number of travel lanes for traffic. However, the intersections (beyond the crosswalks) were not changed in any way. This results in intersections with an abundance of unused, ambiguous space which can lead to unexpected behaviours and potential safety concerns.



Figure 32. Intersections had unused, ambiguous space which can lead to potential safety concerns.





4.2.6 Bike Lanes

The reallocation of space in the corridor provided opportunity to adjust how the bike lanes interact with traffic. In most locations along the corridor, bike lanes remained on the roadway side of the flexposts that were installed. However, there were select locations where the bike lane was placed within the additional pedestrian space. The preferred approach for cyclist safety would be to physically separate the bike lane from vehicle traffic whenever possible. In some instances where the parking lane was pushed away from the curb to create pedestrian space, this may have been better utilized by shifting the bike lane to this space.

In future, flexposts or some other barrier should be placed between the bike lane and traffic where possible. This will help maintain increased space between cyclists and motor traffic and provide additional comfort for cyclists.



Figure 33. In many cases bike lanes were left on the roadway side of flexposts, unprotected from moving vehicle traffic.

4.2.7 Key Design Recommendations

The following recommendations should be considered if similar measures are considered in future:

- Maintain pedestrian clearway on the sidewalk by placing patios inside the curblines. Use appropriate physical barriers to separate the patio space from the roadway.
- Where there is a change in function of space (e.g., parking, pedestrian space, bike lane) use consistent linear elements (physical or visual) to highlight these changes to all users.
- When road space is being reallocated for pedestrian use, use colour, texture, and other physical elements (e.g., pin curbs, planter boxes, street furniture, etc.) to sufficiently change the feel of the space from the roadway such that it is inviting to pedestrians.
- Continue any spatial reallocations in midblock sections through the intersections to maintain a level of consistency for all users.
- Where possible use physical elements (e.g., flexposts, parking lane, pin curbs) to provide separation between the bike lane and adjacent vehicular travel lanes.



4.2.8 SWOT Analysis

The following SWOT (strengths, weaknesses, opportunities and threats) analysis is presented to summarize the key finding from our evaluation of measures implemented in Peterborough.

Table 3. SWOT analysis.

Strengths	Weaknesses
<ul style="list-style-type: none"> - Ambitious amount of street space reclaimed for pedestrian and business use. - Allowed for the survival and expansion of several local businesses. - Speed limit reduced to 30 km/h across the downtown which improves safety and comfort for all users. - Reduction to single vehicle lanes contributed to reduced speeds and created a safer, more comfortable pedestrian environment and crossing opportunities. - Visual friction adjacent to travel lanes (e.g., flexposts, curbside parking) contributed to reduced speeds. - Horizontal deflections in roadway alignment contributed to reduced speeds. 	<ul style="list-style-type: none"> - Speed of implementation resulted in confusion and frustration from users - Additional space created for pedestrians did not feel welcoming or visually appealing and was underutilized. This also created some perception that the space has no purpose and was wasteful. - Placing patios on sidewalks and rerouting pedestrians onto the roadway negatively impacted accessibility. - Placement of accessibility ramps was inconsistent and, in some instances, required significant detours. - Demarcation of the spatial changes using only flexposts resulted in many spaces feeling ambiguous to users. - Lack of designated pick-up/drop-off zones. - Bike lanes left unprotected on the roadway side of barriers in many locations.
Opportunities	Threats
<ul style="list-style-type: none"> - Strong support from business-owners for the implementation of similar public space changes in the future. - Business-owners value a vibrant and inviting environment and believe that attracting more people to walk and cycle downtown is beneficial for their business. - Implemented measures did not significantly impact travel modes and parking patterns of survey respondents. - Continuing need for physical distancing requiring additional space for pedestrians and businesses. - Increased availability of infrastructure funding from various levels of government may permit a more vibrant installation in future. 	<ul style="list-style-type: none"> - Reluctance to implement similar measures in the future due to criticism of the tested measures. - Potential reduced need for physical distancing may mitigate the perceived requirement for additional space for pedestrians and businesses. - Uneven distribution of restaurants and shops can make the planning and design of measures challenging. - Seasonality of measures can be challenging to implement and remove repeatedly.



5. KEY FINDINGS AND RECOMMENDATIONS

Over the course of 2020 the COVID-19 pandemic had devastating impacts on cities around the world and their local businesses. To adapt to this new reality, public space changes were made to downtown Peterborough, as in many other cities, giving pedestrians more space to maintain physical distance and businesses more space to accommodate customers. This report presented the findings from several steps taken to evaluate the measures implemented in Peterborough. The following key findings have been identified following a field study, survey of local stakeholders, and review of implemented measures.

- There is strong support for the implementation of similar public space changes to downtown in the future. In the survey of local stakeholders, 62% of respondents indicated some level of support.
- Expanded business space is crucial for businesses to survive when indoor dining is limited. Half of restaurant business-owners who responded to the survey indicated they would have had to close the business if they could not expand outdoors.
- Case studies of measures implemented in other cities and research into best practices show expanded patios and business space should be placed in the roadway (repurposed parking spaces or vehicle travel lanes) to keep sidewalks clear of obstructions, improving accessibility and pedestrian comfort.
- Expanded pedestrian space can be utilized for a variety of purposes including patios, business space, queuing zones, parklets, and walking space. Having a clear purpose when expanding pedestrian space and making it attractive to users is key to creating a vibrant space and building support for the measures.
- The measures implemented in Peterborough did not significantly impact travel and parking patterns as 89% of survey respondents did not change their main mode of travel and 87% did not change their parking location.
- A clear, consistent design is crucial to mitigate confusion and frustration among road users. Linear elements such as pavement markings or consistent barriers define space and clearly articulate to users where they should be.

We encourage the City of Peterborough and DBIA to implement similar measures in the future and have provided specific recommendations for consideration below to further improve the function, appearance, and implementation of public space changes. The following are our recommendations for Peterborough moving forward in 2021 and beyond.

Consultation & Outreach

- It is strongly recommended to consult with business-owners on a block-by-block basis to determine their desires for use of the space outside their business. Doing so can build consensus and buy-in for changes.
- Consultation with the public is strongly recommended to inform future changes. Our survey of stakeholders only collected feedback from business-owners whose opinions are much more likely to be influenced by business-related factors (e.g., whether or not they could expand their business, changes in revenue, etc.) as opposed to a more holistic view of the changes from their experience moving about the downtown. By consulting with the general public, one can gain a better understanding of a broader set of opinions and values of those who shop, visit, and live in the downtown and see it from a different perspective.



- Conducting a study on customer travel patterns would enhance understanding of the local context and provide insight into how customers travel to and around the downtown. Business-owners are limited in their capacity to estimate travel behaviours of their customers and a direct study may reveal different results, as seen in studies previously mentioned in this report.
 - This knowledge may also help to inform a variety of other transportation and land use discussions in terms of the allocation of space throughout downtown Peterborough.

Expanded Business Space – Patios and Product Displays

- Expanded businesses should occupy repurposed parking spaces and/or the sidewalk edge, leaving a clear path for passersby on the sidewalk.
- Heavy separation like concrete barriers (see Kingston), wood fencing (see Guelph), or modular platforms (see North Vancouver) should be used to delineate space, creating a more sheltered and comfortable environment for customers near moving traffic.
- Closing an entire block for pedestrians and business expansion (see Guelph) could be considered if there is a block or intersection that has a high concentration of restaurants, cafes, and interested retail shops. It is important to undertake such closures in close consultation with local businesses to ensure that necessary deliveries and pick-ups can be properly coordinated.
 - In Peterborough, Hunter Street is one example of a block that could be considered for this treatment. However, given the distribution of restaurants across the downtown, it is recommended to first focus on changes that will benefit all businesses.
- Amending City policies and by-laws to allow patios/business space in the roadway is recommended if such measures wish to be taken in the future. In 2020, many cities passed temporary use bylaws and fast-tracked the permit application process but amending City documents ahead of time will contribute to a smoother transition process.
- Review the insurance and permitting required for businesses to take advantage of such spaces to ensure the requirements are not overly burdensome. These measures benefit the vibrancy of the downtown and its tenants and therefore should be made as accessible as possible to business-owners.

Parking and Loading Zones

- Parking/loading spaces should be maintained where possible along stretches of roadway where no significant improvements to pedestrian space are to be achieved (e.g., queuing space, parklets, patios, etc.). These areas should be unambiguous by ensuring any adjacent repurposed spaces are clearly defined. Signage and pavement markings should be clear and simple.
 - In Peterborough, space where parking was removed without a clear benefit to pedestrians appeared “empty” and was a key contributor to frustration about the project.
- More curbside pick-up/drop-off or “loading zones” should be provided, preferably a few per block (see Kingston). They should be well-delineated with light separation, pavement marking, and clear signage. Parking meters can be covered, and signage can indicate a time limit (e.g., 10 minutes) to encourage quick turnover.



Pedestrian Comfort

- It is recommended that sidewalks be expanded only in strategic locations where physical distancing may be difficult or for specific purposes such as queuing zones. Where pedestrian space is expanded, be sure to create a space that is sufficiently different in look and feel from the roadway to encourage pedestrian use.
 - Sidewalks in the downtown are quite wide and there did not seem to be a great need for expanded pedestrian space for people moving (though it is understandable that during COVID-19 an increased focus on physical distancing is a priority).
- To further enhance the pedestrian environment and provide more space for pedestrians to linger, repurpose select on-street parking spaces as parklets that offer seating and greenery such as turf grass or planter boxes (see North Vancouver).
- Heavy separation materials such as concrete or plastic jersey barriers and large planters can make pedestrians feel safer from moving traffic and should be used to delineate repurposed parking spaces in locations where pedestrians may linger, such as parklets.

Accessibility

- All sidewalks should remain clear for pedestrians and should not be blocked by patios, product displays, or queues to enter businesses. Ensure that pedestrian clearways are maintained along the entirety of the sidewalks to maintain a level of consistency for users with visual or mobility impairments. Accessibility should continue to be a key consideration even during the application of temporary measures.
- Ramps must be provided to access patios, parklets, and expanded pedestrian space in the roadway. Depending on the scale of the patio/expanded space, multiple ramps may be beneficial to enhance accessibility.
- Asphalt ramps may be installed though modular ramps provide greater flexibility and may be easier for those with mobility impairments to use.

Vehicle Traffic

- Changes to the roadway should be achieved in a manner that is clear and unambiguous. Consistent, linear materials such as jersey barriers can more clearly define intended operating space for drivers. Spatial delineators such as flexposts should be accompanied with linear pavement markings and appropriate signage to clearly demarcate the new allocation of traffic space. The use of colour is also recommended to help differentiate space between users.
- It is recommended to reduce vehicle traffic to one travel lane along George Street. In doing so, the pedestrian environment is improved through reduced vehicle speeds and noise, and improved safety and ease of mid-block crossings by pedestrians.
- If a full block is closed to vehicles, some access at designated times may be permitted for deliveries and other necessary business operations, but careful consideration would be needed to ensure no general traffic can access. In this situation, provide clear, simple signage for traffic detours.
- It's recommended that future studies be considered examining options to reduce automobile volumes and speeds through the downtown to create a safer, more pleasant environment for people walking, cycling, and staying in the downtown. Permanently lowering the speed limit throughout the downtown and implementing traffic calming measures can reduce speeds and discourage through traffic while maintaining a high level of access for destination traffic.



- The horizontal deflections applied to the vehicle travel lanes along George Street and Hunter Street were effective at reducing vehicle speeds and are an example of a traffic calming element that can be maintained if similar measures are implemented in the future.





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