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Item No. Info Item 3
Transportation Standing Committee
March 24, 2022

TO: Chair and Members of Transportation Standing Committee

SUBMITTED BY: Original Signed

Jacques Dubé, Chief Administrative Officer

DATE: January 27, 2022

SUBJECT: **Gottingen Street Peak Period Northbound Bus Lane Evaluation**

INFORMATION REPORT

ORIGIN

At the August 14, 2018 meeting of Regional Council, the following motion was put and passed:

"That Halifax Regional Council:

4. *Approve the evaluation methodology as per Attachment E of the staff report dated June 21, 2018 through which the Gottingen Street peak period northbound bus lane will be measured and evaluated one year after implementation"*

At the September 1, 2020 meeting of Regional Council, the following motion was put and passed:

"That Halifax Regional Council:

3. *Direct the CAO to continue to monitor the metrics included in the Gottingen Street Monitoring and Evaluation Plan and present the results to the Transportation Standing Committee one year after implementation of the proposed changes as per recommendation number 2."*

LEGISLATIVE AUTHORITY

Transportation Standing Committee Terms of Reference, section 4 (a) which states: "The Transportation Standing Committee shall oversee and review the Municipality's Regional Transportation Plans and initiatives, as follows: overseeing HRM's Regional Transportation Objectives and Transportation outcome Areas".

Halifax Regional Municipality Charter, section 318 (2) In so far as is consistent with their use by the public, the Council has full control over the streets in the Municipality.

Halifax Regional Municipality Charter, section 322 (1) The Council may design, lay out, open, expand, construct, maintain, improve, alter, repair, light, water, clean, and clear streets in the Municipality.

BACKGROUND

The Halifax Transit *Moving Forward Together Plan* (MFTP), approved by Regional Council in April 2016, identified Gottingen Street as a critical choke point for transit service that requires transit priority. Based on the results of a January 2018 functional design study (completed by WSP Canada Inc.), which considered multiple design options for the Gottingen Street corridor, staff recommended a dedicated, continuous northbound bus lane on Gottingen Street (between Cogswell Street and North Street).

At its March 6, 2018 meeting, Regional Council directed staff to proceed with detailed design of a time-restricted northbound bus lane on Gottingen Street that is operational during weekday peak periods (7am-9am and 3pm-6pm), and which accommodates time-regulated parking and loading outside of peak periods. 'Complete streets' improvements, including the addition of streetscaping elements, such as street trees, benches, and curb extensions were also identified for inclusion in the detailed design.

In April 2018, WSP Canada Inc. was retained to complete detailed design for transit priority and complete streets upgrades on Gottingen Street as described above. The detailed design process was completed collaboratively by staff and the consultant team, and included engagement with stakeholders and the public, along with the development of a parking loss mitigation plan and a plan to monitor and evaluate operation of the corridor over a one-year period. On August 14, 2018, Regional Council approved the detailed design, parking loss mitigation plan, and evaluation / monitoring plan for the peak period (7am-9am and 3pm-6pm, Monday to Friday) northbound bus lane on Gottingen Street, and directed staff to implement the project.

In October 2018, construction tender 18-245 was awarded to Dexter Construction Company Limited for the construction of the Gottingen Street northbound transit priority lane and complete streets upgrades. Construction of the transit priority lane commenced in October 2018 and was substantially completed in December 2018.

Following construction, staff continued the monitoring process throughout 2019 by collecting data at regular intervals as per the Monitoring and Evaluation Plan referenced above. Due to the COVID-19 pandemic and the major impacts on mobility that have resulted since the Provincial state of emergency declaration on March 22, 2020, some of the metrics and data collection schedule intervals were modified throughout 2020 and 2021. Some metrics were discontinued in 2021 as they required in-person engagement, which was not achievable due to safety concerns and restrictions on in-person gatherings.

On September 1, 2020, the results of the 2020 Monitoring and Evaluation were presented to Regional Council, along with a staff recommendation to remove weekday mornings (7am-9am) as an operational period for the bus lane. This change was recommended as buses were not realizing appreciable benefits during the morning peak period. Removing the weekday morning peak has reduced the impact to on-street parking, simplified parking restrictions, and reduced the enforcement burden for the bus lane. These changes were implemented in December 2020.

DISCUSSION

The 2021 Monitoring and Evaluation Program analyzed conditions between January 2020 and June 2021. The results of the data collection efforts are included in Attachment A. The evaluation metrics focused on key areas including transit service, mode share, road safety, on-street parking, the street environment, and the impact on businesses.

Due to the COVID-19 pandemic and the major impacts on mobility that have resulted since the Provincial state of emergency declaration on March 22, 2020, there were some changes made to the scheduled data collection intervals established in the original Monitoring and Evaluation Plan. Staff also discontinued the collection of three of the twelve evaluation metrics as they required in-person engagement, which was not possible to conduct due to COVID gathering restrictions.

While each of the evaluation metrics that were observed provide valuable insight, it is important to consider some key limitations of their monitoring and evaluation over the short-term. Due to the inherent variability in some of the metrics, year over year observations are not generally a reliable performance indicator. Observation of trends over multiple years is required to develop meaningful conclusions. Also, each metric is influenced by other external factors (e.g. the COVID-19 pandemic) unrelated to the changes introduced by the bus lane. For example, a recent decrease in transit ridership on Gottingen Street is most likely more attributable to the region-wide impacts of the COVID-19 pandemic on mobility patterns and travel behaviour than to changes specific to Gottingen Street. These limitations were considered when evaluating the project.

Key results from the 2021 Monitoring and Evaluation Plan include the following:

- Transit Travel Time: On weekdays between 3pm-6pm, average travel time for northbound buses on Gottingen Street (Cogswell Street to Uniacke Street) decreased by an average of 23% relative to the same time period before bus lane implementation in 2018. During the busiest period (4-5pm), average transit travel time decreased by 35%.

- Transit Ridership: The number of people traveling by transit on Gottingen Street has decreased by 8% during the AM peak period and by 49% during the PM peak period.

- On-Street Parking Compliance: The number of tickets and towed vehicles has decreased significantly since implementation. The effectiveness of bus priority lanes, particularly those that are only operational during certain time periods, is highly dependent on the compliance with on-street parking restrictions. Parking enforcement mechanisms currently used on Gottingen Street – including ticketing and towing of illegally parked vehicles – require considerable resources. The recent downward trend could be attributed to several factors, including increased knowledge and behavioral changes since the implementation of the bus lane and the impact of the COVID-19 pandemic on traffic volumes and travel demand across the Municipality.
    - The average number of parking tickets issued on Gottingen Street per month was 104 (2019), 15 (2020) and 25 (2021). Monthly totals have decreased significantly since implementation of the bus lane.
    - The average number of vehicles towed on Gottingen Street per month was 34 (2019), 3 (2020) and 6 (2021). There has been a general trend downward since the implementation of the bus lane.

- On-Street Parking Utilization / Turnover: The average weekday on-street parking utilization on Gottingen Street during permitted parking hours has been relatively consistent before and after implementation of the bus lane. Parking turnover has increased, as the average parking duration per vehicle has slightly decreased from 90 minutes (April 2018) to 84 minutes (June 2021).

Period	On-Street Parking Utilization (% of available spaces in use)	Parking Turnover (Average parking duration)
June 2021[1]	54%	84 minutes
December 2021[2]	34%	49 minutes
December 2019[2,3]	52%	64 minutes
May 2019[2,3]	60%	58 minutes
April 2018[2,3]	55%	90 minutes

Notes:
1. During Phase 2 of Nova Scotia's COVID-19 reopening plan.
2. During the 3rd wave of the COVID-19 pandemic.
3. After the operational hours of bus lane were modified to 3-6pm only.

- Mode Share: Transit mode share (the percentage of people traveling by bus on Gottingen Street) during peak periods decreased from 48% (2018) and 55% (2019) to 47% (2020).

- Motor Vehicle Collisions: The number of motor vehicle collisions on Gottingen Street has decreased since the implementation of the bus lane, and collision severity did not worsen. The number of transit-related collisions that resulted in vehicle damage decreased from 8 (2018) to 2 (2019).
- Traffic Speed: Speed data collected at two locations on Gottingen Street before and after implementation of the northbound bus lane indicate no change in observed traffic speeds.

General Observations

Further general observations related to the evaluation and monitoring data follow:

- Restricting the operational hours of the bus lane to weekday afternoons between 3pm-6pm has not negatively impacted transit travel time during weekday mornings (7am-9am). However, the operational hours were modified in December 2020, during the third wave of the COVID-19 pandemic, when traffic volumes were low and on-street parking compliance levels were high. The removal of the weekday morning peak period has reduced the impact to on-street parking, simplified parking restrictions, and reduced the enforcement burden for the bus lane.
- With construction work on the Cogswell Redevelopment anticipated to occur over multiple years, providing the ability for buses to bypass traffic congestion on Gottingen Street in the afternoon peak is expected to become increasingly important to maintaining transit reliability and mitigating construction-related mobility impacts.
- The results of the Monitoring and Evaluation Program indicate that the bus lane is providing appreciable improvements to transit with minimal negative impacts to other road users. Staff do not anticipate these results to change in the foreseeable future, and therefore do not expect a need to continue the monitoring and evaluation program further.

FINANCIAL IMPLICATIONS

There are no financial implications associated with this report.

COMMUNITY ENGAGEMENT

A stakeholder / public consultation process was completed as part of the functional and detailed design stages, which included stakeholder consultation sessions with several groups, a public open house, and online consultation. Results of this consultation process were presented in the March 6, 2018 Regional Council report.

ATTACHMENTS

Attachment A: *Gottingen Street: Monitoring & Evaluation Results (August 2021*)
Attachment B: *Gottingen Street: Monitoring & Evaluation Results (March 2020*)
Attachment C: *Monitoring & Evaluation Plan: Gottingen Street Transit Priority Corridor (June 2018)*

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

Report Prepared by: Leen Romaneh, Transportation Planner, 902.430.8348

Attachment A

HALIFAX

GOTTINGEN STREET: MONITORING & EVALUATION RESULTS

PREPARED BY:

Transportation Planning

August 2021

Transit Priority Corridor

In December 2018, the Halifax Regional Municipality implemented a time-restricted northbound bus lane on Gottingen Street, aiming to provide priority to the movement of buses over general traffic. Initially, the bus lane was operational during weekday peak periods (7am-9am and 3pm-6pm) and accommodated time-regulated parking and loading outside of peak periods. However, following the results of the 2019-2020 Monitoring and Evaluation Program, the operational period of the bus lane was modified to weekday afternoons between 3pm-6pm only, when it provided the most travel time savings for transit vehicles.

In September 2020, Halifax Regional Council directed staff to continue to measure and evaluate the impact of the project for one year. This report summarizes the results of the 2021 Evaluation and Monitoring Program.

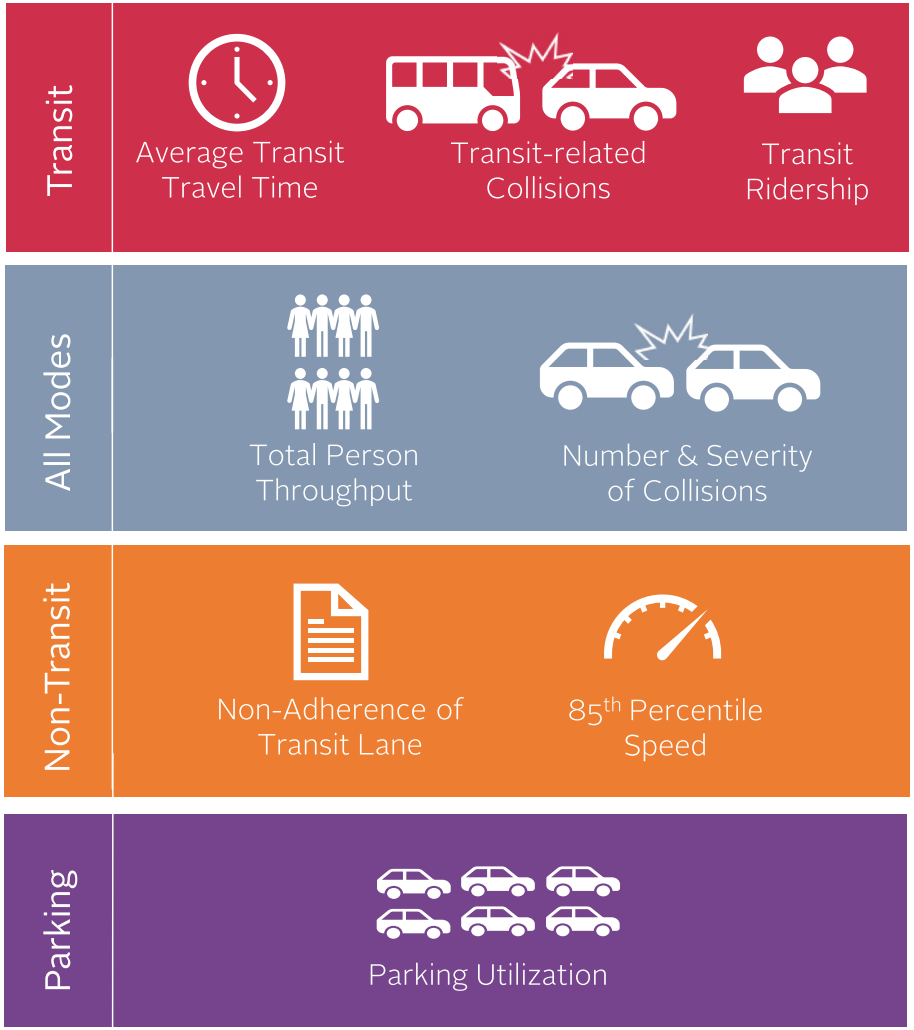
Monitoring Plan

The primary objective of the Monitoring and Evaluation Plan is to determine the extent to which the Gottingen Street peak period northbound bus lane project achieves the desired outcomes, particularly regarding transit service improvements, while understanding the implications for other potential related impacts.

Staff have identified fifteen metrics to monitor the post-implementation of the time-restricted northbound bus lane based on project objectives, public feedback, as well as staff and data resources. However, because of the COVID-19 pandemic, the data collection for several metrics was discontinued in 2020 and 2021, as they required in-person engagement. The figure to the right shows each metric and categorizes it by impact area (i.e., transit, all travel modes, non-transit, and parking).

While each of the evaluation metrics that were observed provide valuable insight, it is important to consider some key limitations of their monitoring and evaluation over the short-term. Due to the inherent variability in some of the metrics, year over year observations are not generally a reliable performance indicator. Observation of trends over multiple years is required to develop meaningful conclusions. Also, each metric is influenced by other external factors (e.g. the COVID-19 pandemic) unrelated to the changes introduced by the bus lane. For example, a decrease in transit ridership on Gottingen Street is most likely more attributable to the region-wide impacts of the COVID-19 pandemic on mobility patterns and travel behaviour that to changes specific to Gottingen Street. These limitations should be considered when evaluating the project.

Evaluation Metrics

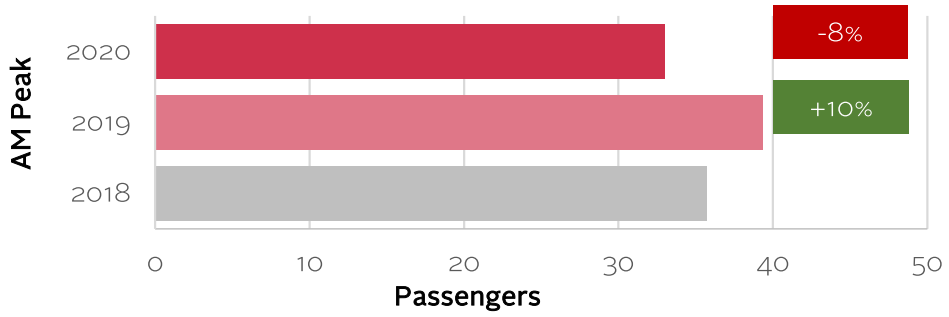


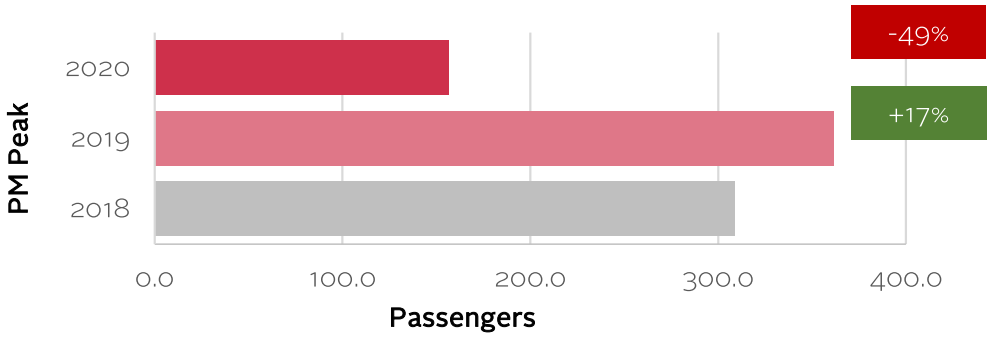
Summary

- Due to the COVID-19 pandemic, the number of people travelling by transit on Gottingen Street has decreased by 8% and 49% during the AM peak and PM peak, respectively.
- During weekday afternoon peak period, average transit travel time for northbound buses improved by 23%.

Transit Ridership

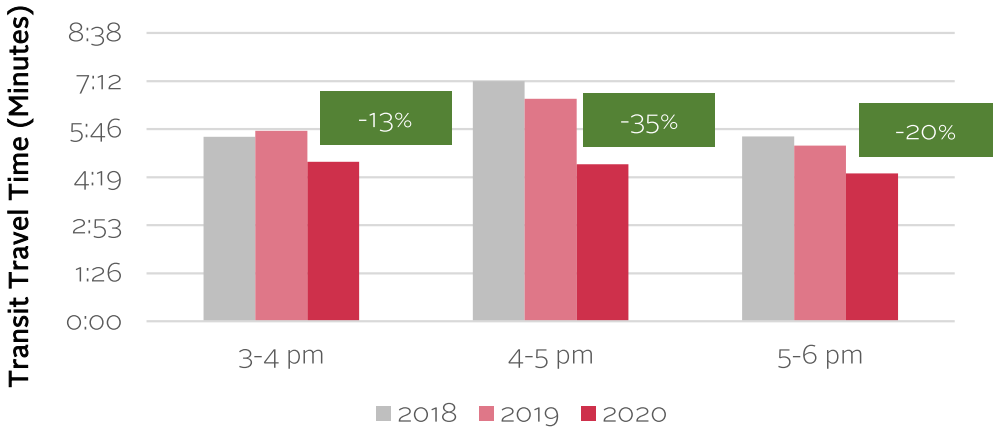
The average number of passengers on board the bus for any trip during the AM and PM peaks has decreased by 8% and 49%, respectively, compared to 2018 conditions. The decrease in ridership is due to the impacts of the COVID-19 pandemic on travel patterns and overall transit ridership.





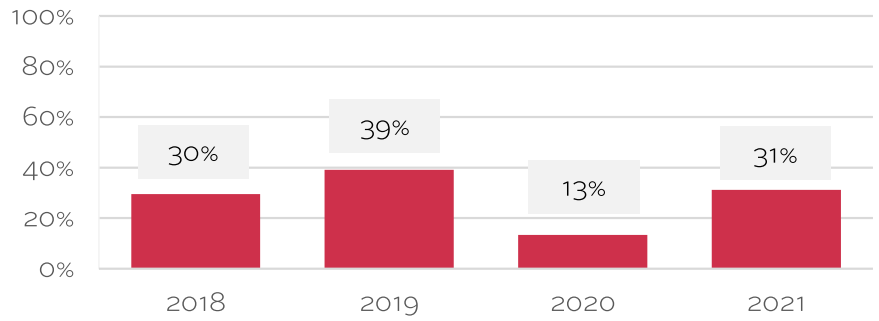
Average Transit Travel Time

On average, when the bus lane is operational, the majority of trips have seen a reduction in travel time. Between Cogswell Street and Uniacke Street, there was an average transit travel time savings of 23% during the PM peak period. The figure below, illustrates the average travel time between 3-6pm in 2018, 2019 and 2020.



Transit Collisions

The proportion of transit-related collisions occurring during the operation of the bus lane, has remained relatively unchanged since its implementation (**30%** in 2018 and **31%** in 2021).



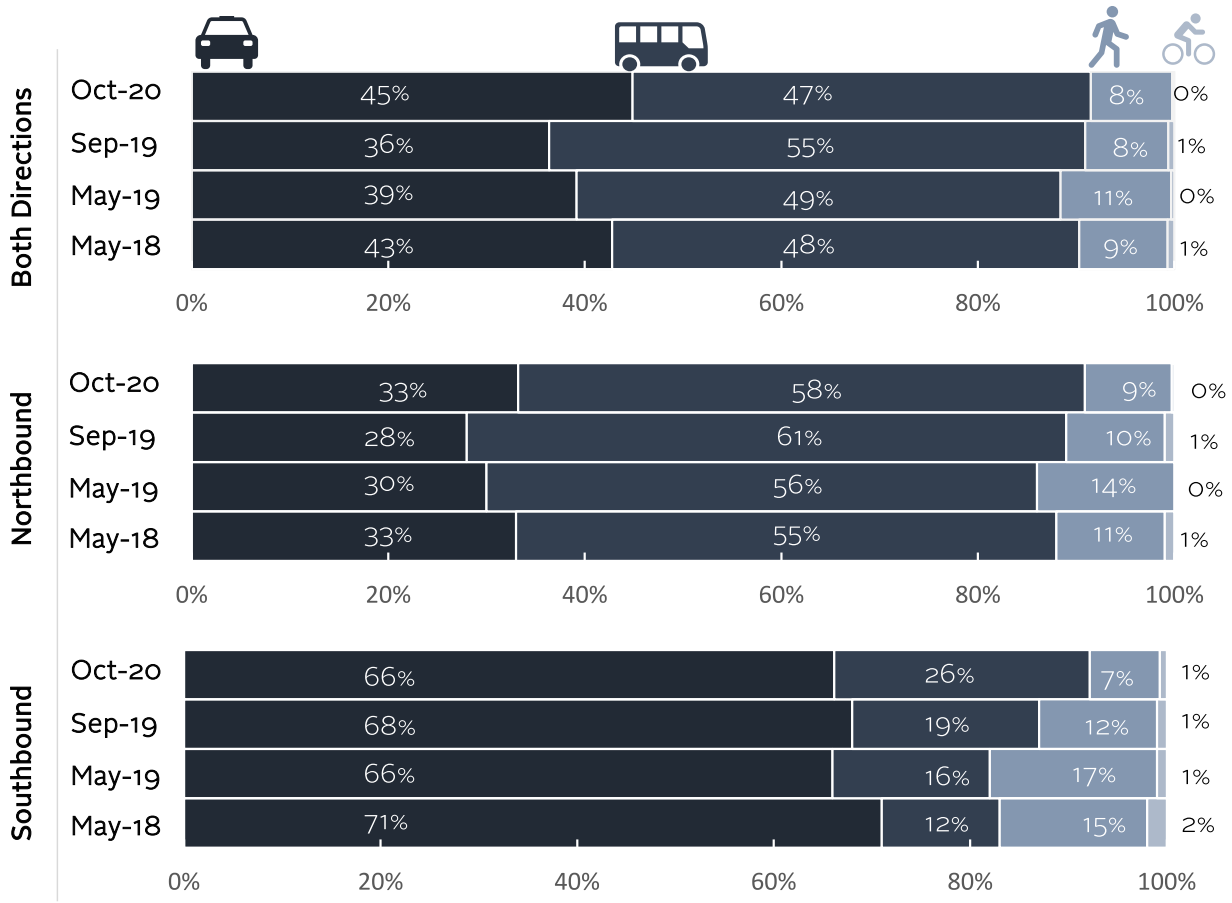
Summary

- The transit mode share along the corridor has decreased from 48% (2018) and 55% (2019) to 47% (2020). This is likely attributed to the transit-wide COVID-19 impacts.
- The number of collisions along the corridor has not increased since the implementation of the project.

Total Person Throughput

This indicator was obtained by conducting manual screenline counts of people and their respective travel modes pre- and post- bus lane implementation.

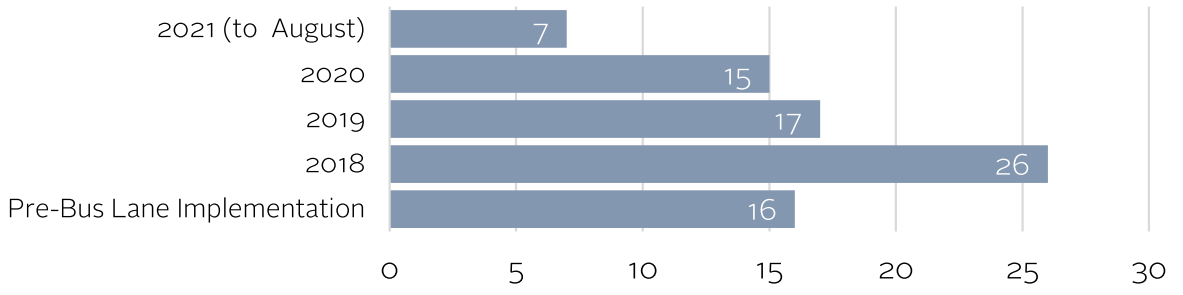
The number of people travelling northbound and southbound by transit during the PM peak, has remained relatively similar to May 2018 conditions (pre-bus lane implementation levels): 47% in October 2020 and 48% in May 2018. Transit mode share has decreased by 8% between September 2019 and October 2020. This is likely attributed to the COVID-19 impacts on transit ridership across the region. The number of people travelling using a car has increased by 2% since 2018, and by 9% since 2019. The number of cyclists and pedestrians travelling through the corridor has remained relatively similar.



Number and Severity of Collisions

This measure was obtained from the collision reports prepared by the Halifax Regional Police.

The data suggests that the number of collisions along the corridor has decreased slightly when compared to previous years. The data also indicates that overall collision severity has not worsened.



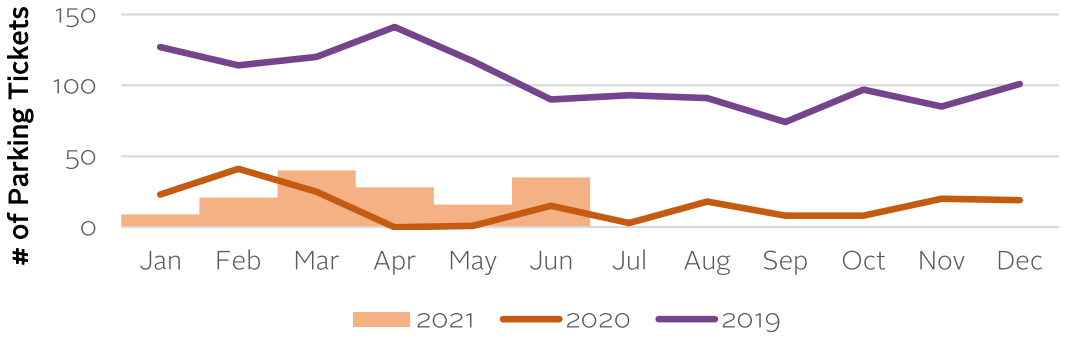
Summary

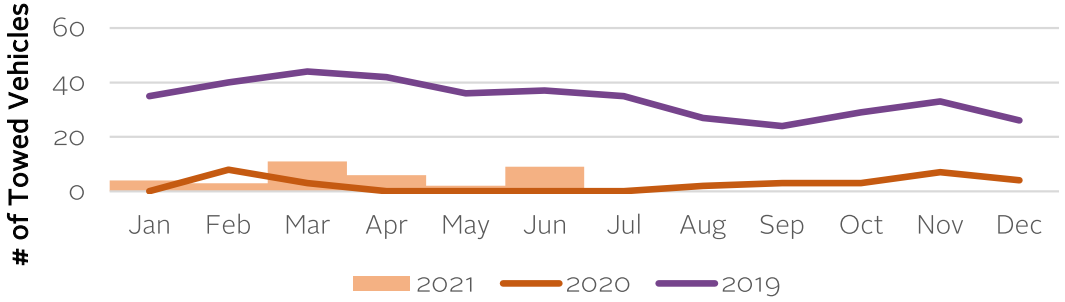
- The average monthly number of parking tickets issued since January 2019 is **54**.
- The average number of towed vehicles since January 2019 is **18**.
- The number of illegal parking / stopping has significantly decreased since 2019.
- The 85th percentile speed has remained relatively unchanged in both directions

Non-Adherence of Transit Lane

This indicator was assessed by obtaining information on the number of parking tickets and tows during peak periods.

Illegal parking and stopping during the operational hours of the bus lane negatively impacts transit's operation and reduces its reliability. The number of parking tickets and towed vehicles has significantly decreased since 2019. The average number of parking tickets was 34 in 2019, 3 in 2020, and 6 in 2021. The average number of vehicles that have been towed was 104 in 2019, 15 in 2020 and 25 in 2021.



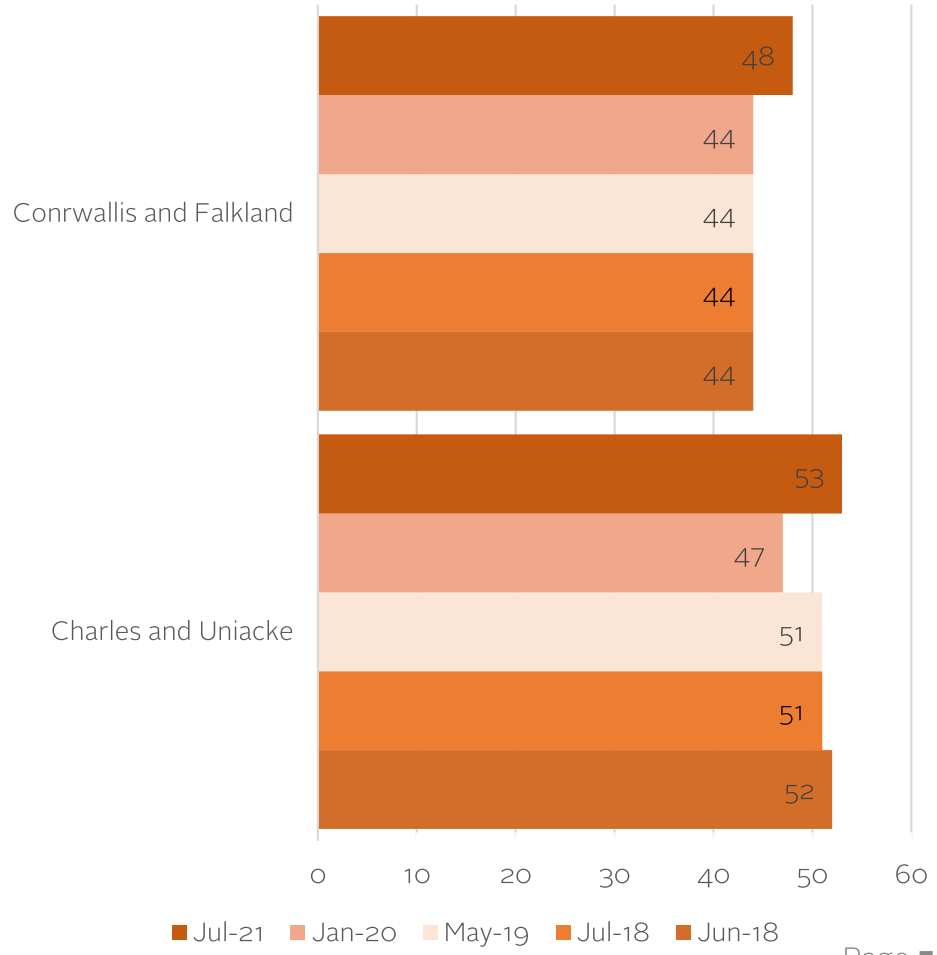


85th Percentile Speed

The 85th percentile speed was obtained by conducting speed volume surveys before and after implementation of the bus lane at two locations: Cornwallis Street & Falkland Street and Charles Street & Uniacke Street.

Speed data collected at the two locations before and after implementation of the northbound bus lane indicate no change in 85th percentile traffic speeds.

Both Directions



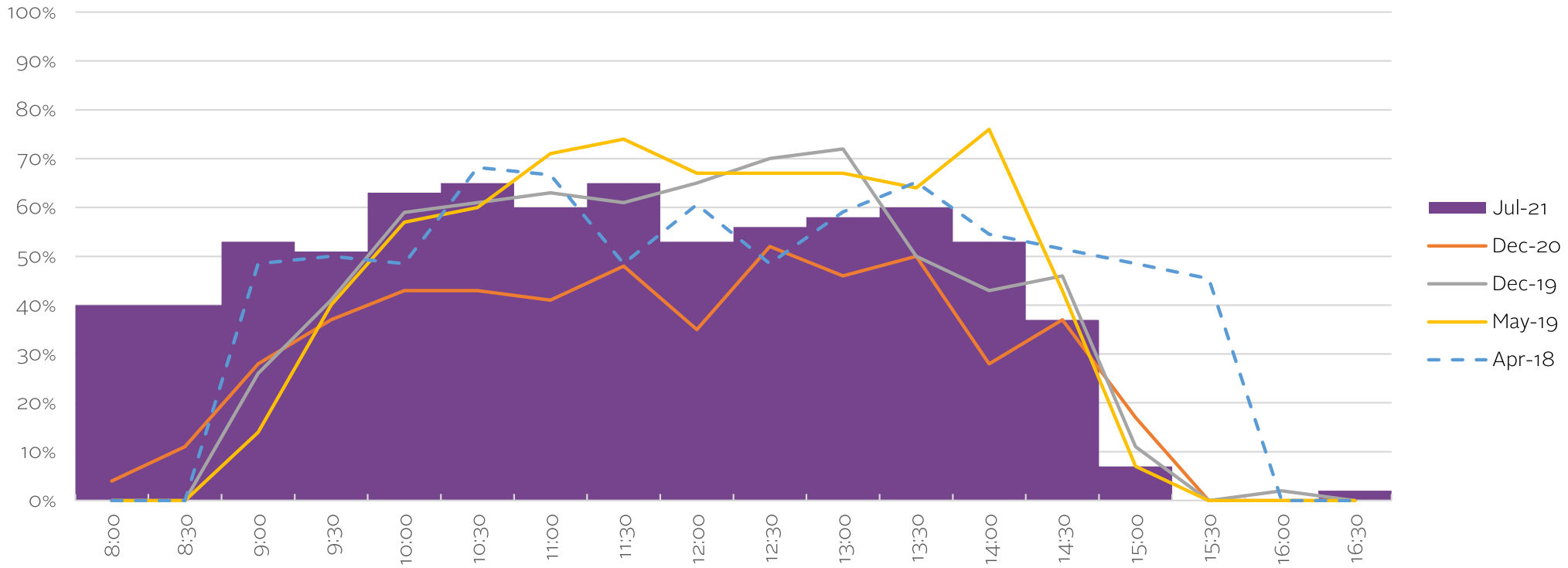
On-Street Parking

Prior to the implementation of the transit lane, parking data was collected in February 2018 and April 2018 to develop an understanding of the parking utilization and turnover on Gottingen Street. This exercise was repeated in June 2019, December 2019, December 2020 and July 2021.

The average parking utilization along Gottingen Street has remained relatively steady since the bus lane was implemented. During permitted parking hours, the average parking utilization along Gottingen Street was approximately 54% in June 2021, compared to 60% in May 2019 and 55% in April 2018.

Parking turnover increased, as the average parking duration per vehicle has slightly decreased from 90 minutes (April 2018) to 84 minutes (June 2021):

- June 2021: 84 minutes
- December 2020: 49 minutes
- December 2019: 64 minutes
- May 2019: 58 minutes
- April 2018: 90 minutes



Attachment B

HALIFAX

GOTTINGEN STREET: MONITORING & EVALUATION RESULTS

PREPARED BY:

Strategic Transportation Planning

March 2020

Transit Priority Corridor

In March 2018, Regional Council directed staff to proceed with detailed design of a time-restricted northbound bus lane on Gottingen Street that is operational during weekday peak periods (7am-9am and 3pm-6pm), and accommodates time-regulated parking and loading outside of peak periods. Staff were also directed to develop a plan to measure and evaluate the impact of the project and recommend changes, if any, within one year of implementation.

In December 2018, the Halifax Regional Municipality implemented the Gottingen Street Transit Priority Project, aiming to provide priority to the movement of buses over general traffic. The project also identified 'complete streets' improvements, including the addition of streetscaping elements street trees, benches, and curb extensions.

Monitoring Plan

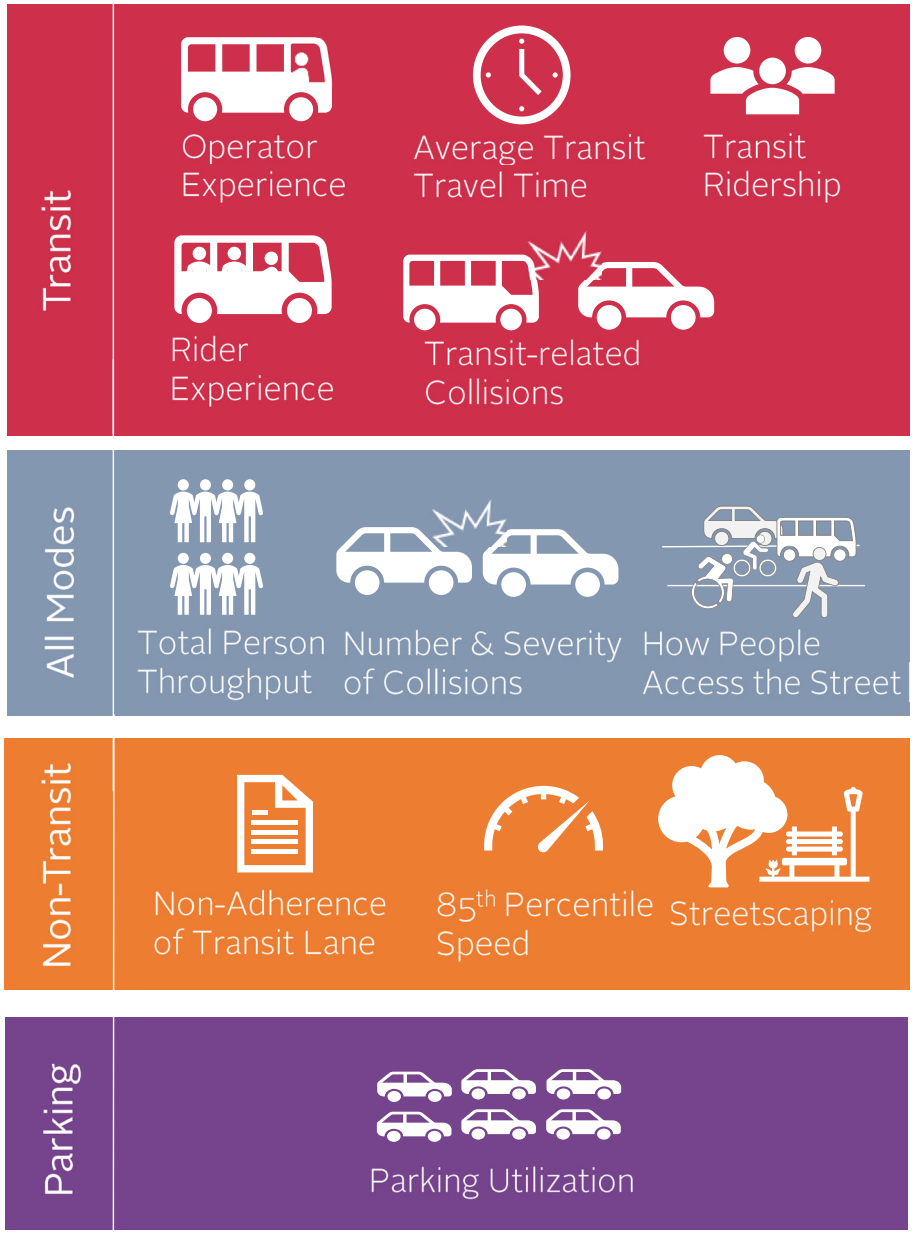
The primary objective of the Monitoring and Evaluation Plan is to determine the extent to which the Gottingen Street peak period northbound bus lane project achieves the desired outcomes, particularly regarding transit service improvements, while understanding the implications for other potential related impacts.

Staff have identified fifteen metrics to monitor the post-implementation of the time-restricted northbound bus lane based on project objectives, public feedback, as well as staff and data resources.

The figure to the right shows each metric and categorizes it by impact area (i.e. transit, all transportation modes, non-transit, and parking). A few metrics, such as rider & public experience, and cross-section allocation & total person throughput, were combined for ease of presentation in this report.

While each of the identified metrics provide valuable insight, it is important to consider some key limitations of their monitoring and evaluation over the short-term. Due to the inherent variability in some of the metrics, year over year observations are not generally a reliable performance indicator. Observation of trends over multiple years is required to develop meaningful conclusions. Also, each metric is influenced by other external factors unrelated to the changes introduced by the proposed bus lane. These limitations should be considered when evaluating the project after implementation.

Evaluation Metrics

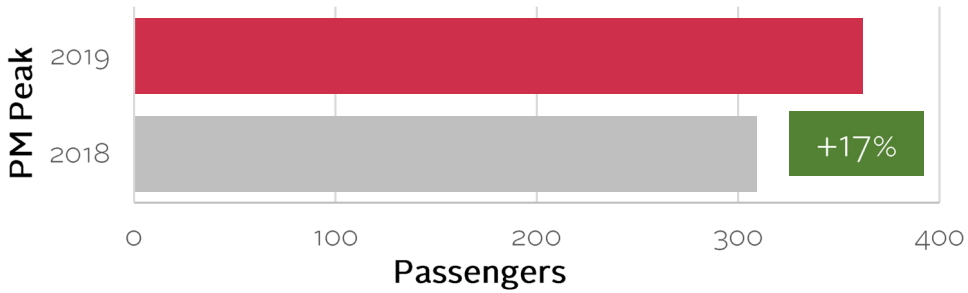


Summary

- During weekday afternoon peak period, average transit travel time for northbound buses improved by 7%.
- The number of people travelling by transit along the corridor increased by 10% during the AM Peak and 17% during the PM Peak.
- Survey results suggest that most people are supportive of the bus lane.

Transit Ridership

The average number of passengers on board the bus for any trip during the AM and PM peaks has increased by 10% and 17% respectively.

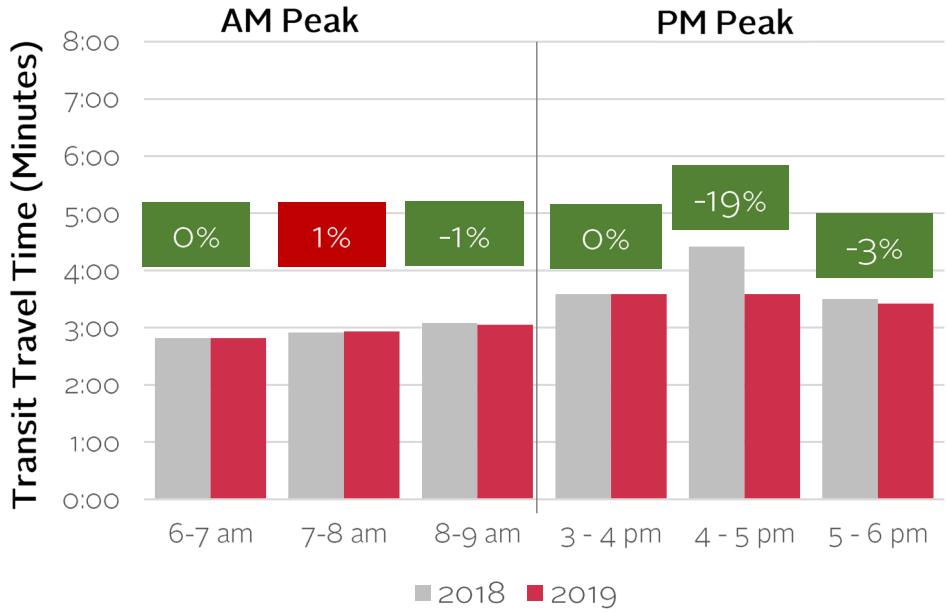


Operator Experience

Through a Talk Transit survey, transit operators were asked to describe any benefits, issues, or challenges they've experienced while using the bus lane. Most of the operators commented that the bus lane works well when they're able to use it. They indicated that illegally parked vehicles pose a challenge for buses attempting to use the bus lane during the peak period.

Average Transit Travel Time

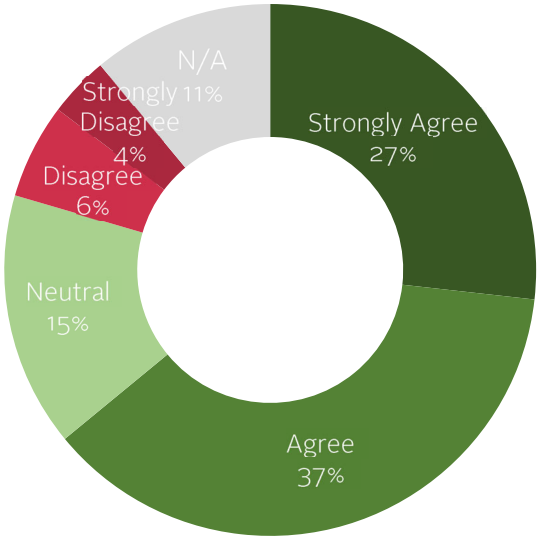
On average, when the bus lane is operational, 83% of trips have seen a reduction in travel time. Between Cogswell Street and Uniacke Street, there was an average transit travel time savings of 7% during the PM peak and no improvement during the AM Peak. The figure below, illustrates the average travel time between 6-9am and 3-6pm in 2018 and 2019.



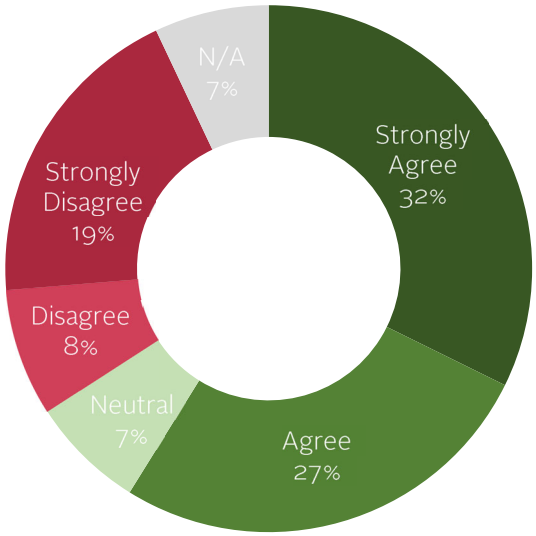
Rider / Public Experience

- Approximately 400 online and in person surveys were collected. Most of the survey responses were positive and in support of the project.
- Over **59%** of respondents thought the bus lane is a good addition to Gottingen Street and about **66%** thought the bus lane helped move people on transit more efficiently.
- About **44%** of respondents thought the bus lane made it easier and more convenient to visit Gottingen Street, while **29%** disagreed or strongly disagreed.
- Many respondents commented that they'd like to see more public amenities (e.g. trees, benches, etc.). About **64%** of respondents indicated that the added public amenities has improved public space along the corridor.

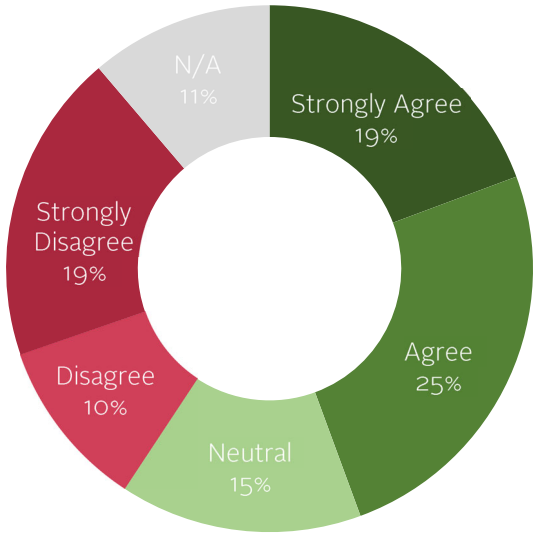
Added public amenities have improved public space along Gottingen Street



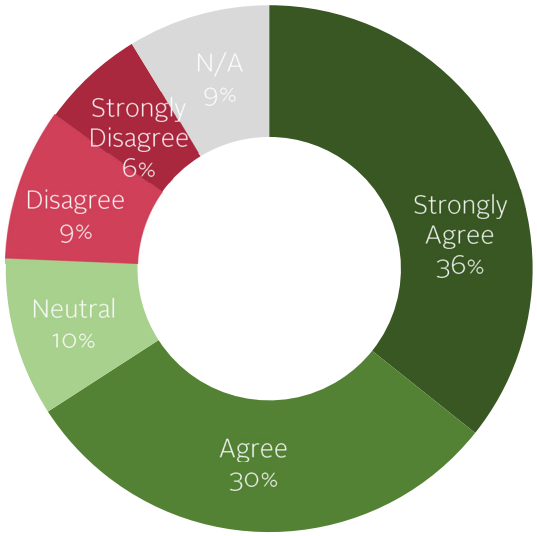
The bus lane is a good addition to Gottingen Street



The bus lane made it easier and more convenient to visit Gottingen Street



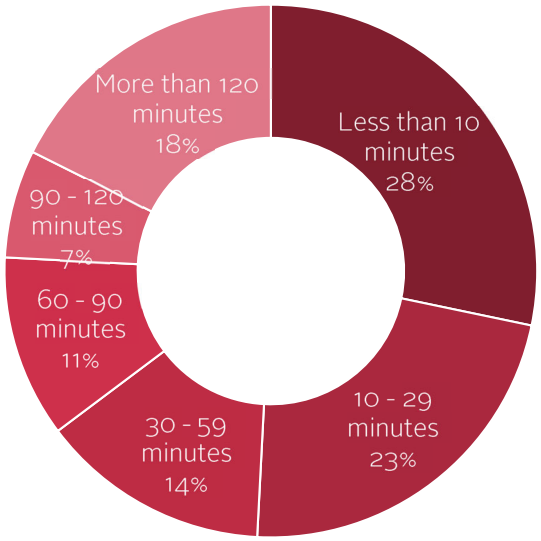
The bus lane helps move people on transit more efficiently



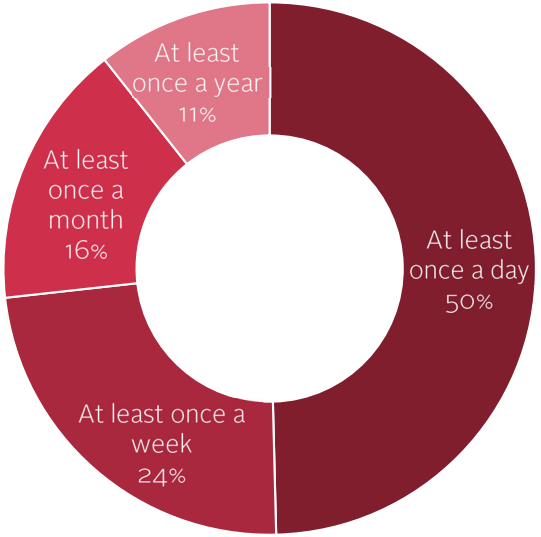
Rider / Public Experience (continued)

- The majority of respondents (65%) said they spend less than an hour on Gottingen Street and about half of the respondents indicated they visit the corridor at least once a day.
- When asked about the type of activities they engage in along the corridor, the majority of respondents (65%) said they travel through Gottingen Street, about half said they visit cafes/ dine at restaurants, and about 42% indicated that they shop at the stores along the corridor.

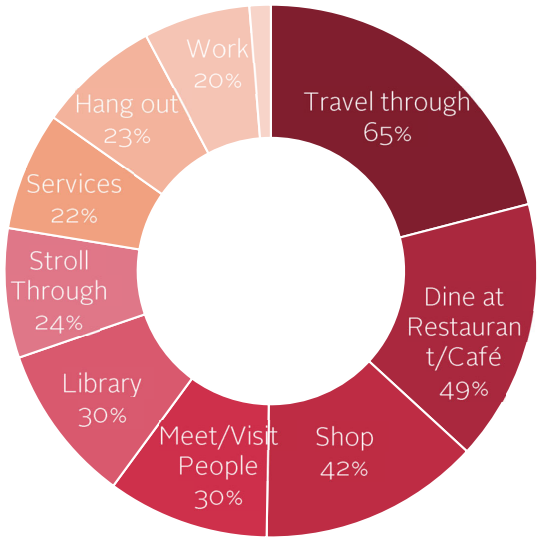
How much time do you normally spend on Gottingen Street?



How often do you visit Gottingen Street?



What do you typically do on Gottingen Street?



Transit Collisions

- The proportion of transit-related collisions occurring during the operation of the bus lane, has remained relatively unchanged since its implementation (**48%** in 2018 and **42%** in 2019).
- The number of transit-related collisions that resulted in vehicle damage has decreased from **eight** pre-implementation to **two** post-implementation.

Summary

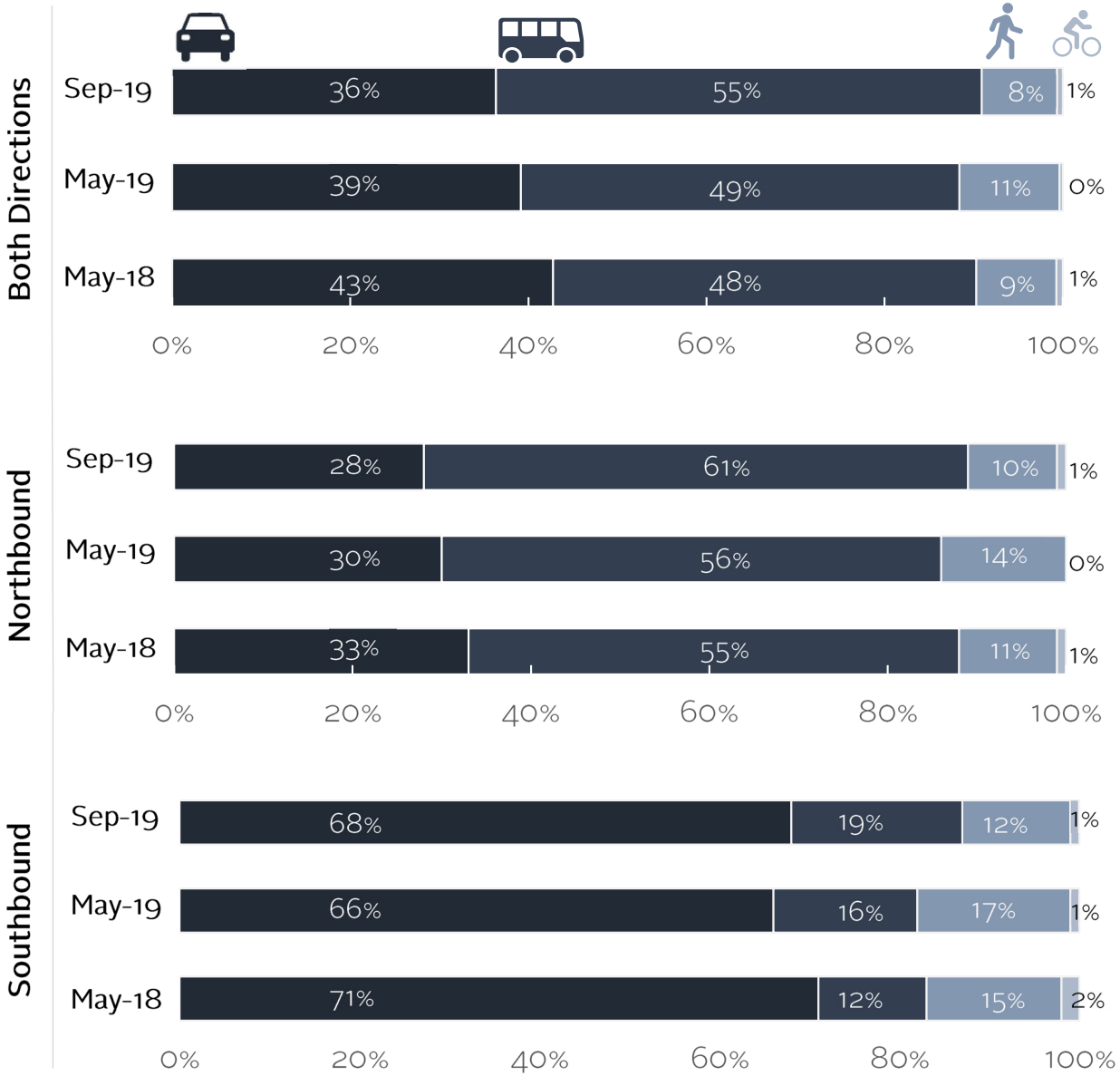
- The transit mode share along the corridor has increased from 48% to about 55%; a 7% increase.
- As supported by the increase in ridership, the number of people travelling along the corridor by transit has increased.
- The right-of-way assigned to each travel mode corresponds more closely to the mode split.
- The number of collisions along the corridor has not increased since the implementation of the project.

Total Person Throughput

This indicator was obtained by conducting manual screenline counts of people and their respective travel modes pre- and post- bus lane implementation.

The number of people travelling northbound and southbound by transit, during the PM peak, has increased by approximately 6% and 7%, respectively. By contrast, the number of people travelling using a car in both directions has decreased by about approximately 7%.

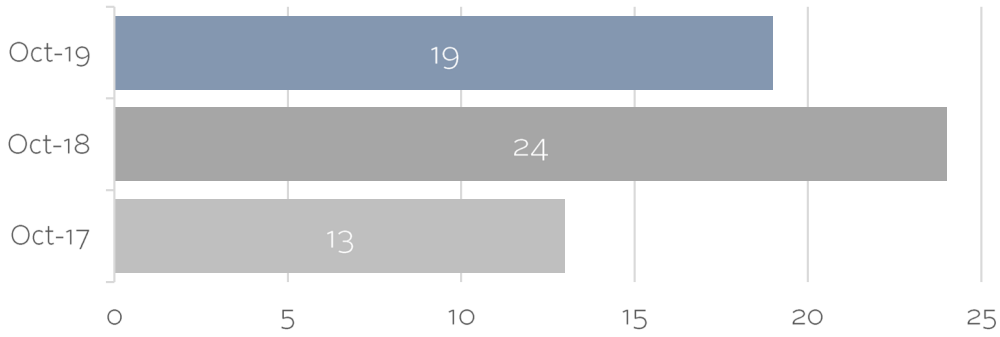
The number of cyclists and pedestrians travelling through the corridor has remained relatively similar.



Number and Severity of Collisions

This measure was obtained from the collision reports prepared by the Halifax Regional Police.

The data suggests that the number of collisions along the corridor has not increased when compared to previous years. The data also indicates that overall collision severity has not worsened.

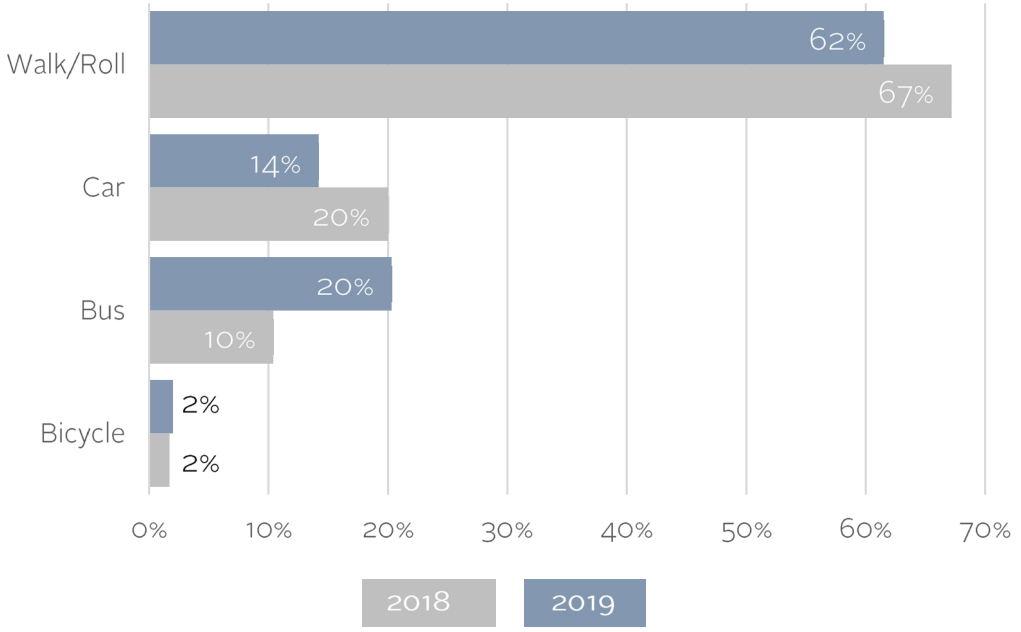


How People Access the Street

This measure was collected through an in-person survey before and after implementation of the project.

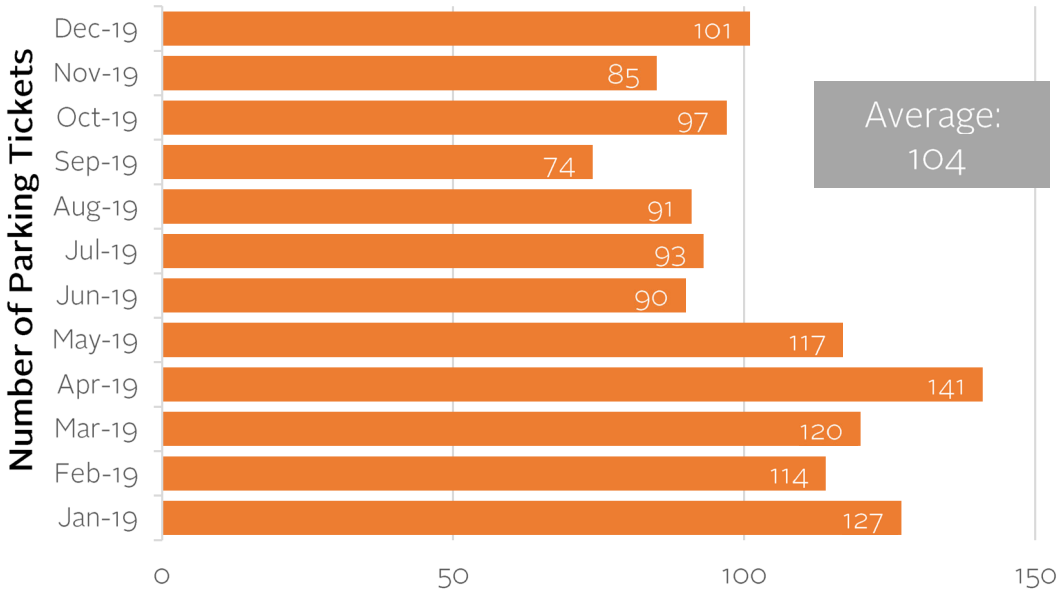
The survey indicated that the majority of people access the street through walking. The number of people accessing the street by transit has increased, while the number of people accessing the corridor by car has decreased.

Since the survey was done in-person, the number of people who reported cycling to Gottingen Street may be underrepresented and the number of people walking to Gottingen Street might be overrepresented.



Summary

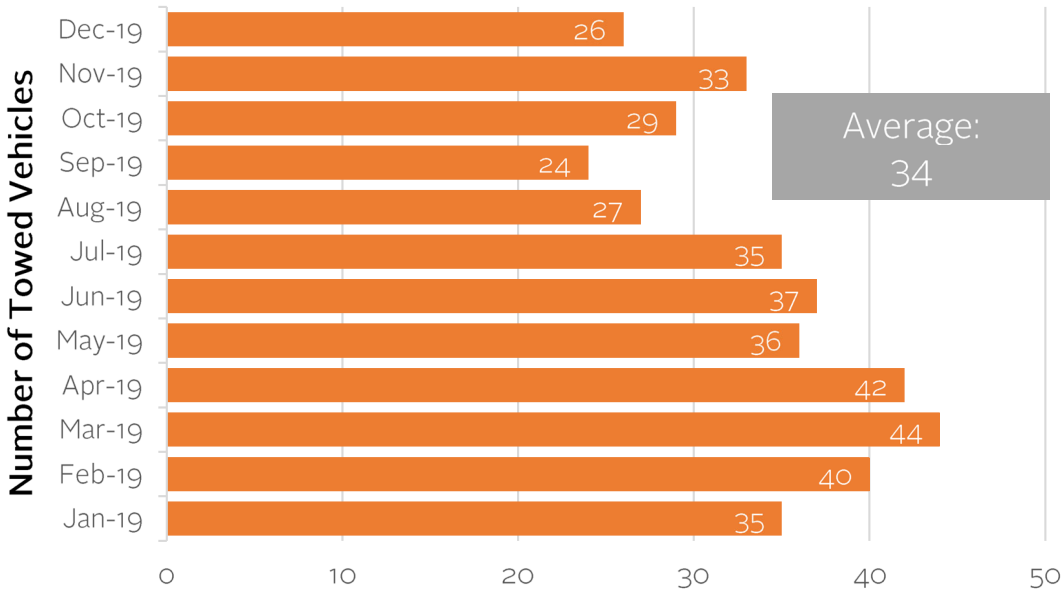
- The average monthly number of parking tickets issued since January 2019 is **104**.
- The average number of towed vehicles since January 2019 is **34**.
- The number of illegal parking / stopping has started to decrease but remains relatively high.
- The 85th percentile speed has remained relatively unchanged in both directions



Non-Adherence of Transit Lane

This indicator was assessed by obtaining information on the number of parking tickets and tows during peak periods.

There was a general downward trend in the number of parking tickets and towed vehicles; however, monthly totals have not decreased significantly. The average number of vehicles that have been towed since January 2019 is 34, and the average number of parking tickets issued since January 2019 is 104. Illegal parking and stopping during the operational hours of the bus lane negatively impacts transit's operation and reduces its reliability.

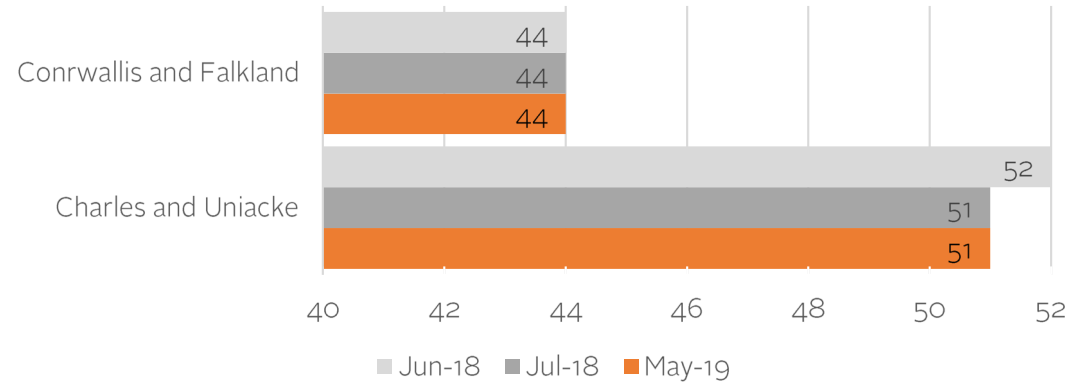


85th Percentile Speed

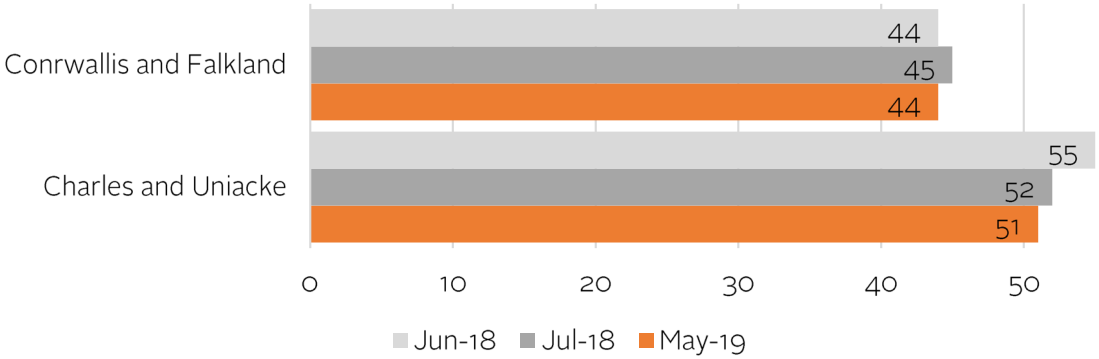
The 85th percentile speed was obtained by conducting speed volume surveys before and after implementation of the bus lane at two locations: Cornwallis Street & Falkland Street and Charles Street & Uniacke Street.

Speed data collected at the two locations before and after implementation of the northbound bus lane indicate no change in 85th percentile traffic speeds.

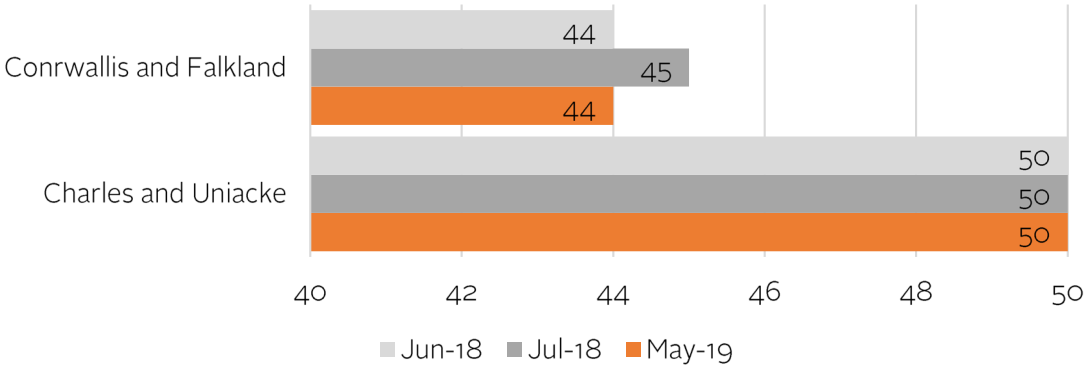
Both Directions



Northbound



Southbound



Streetscaping Elements

The pedestrian realm enhancements included four curb extensions to reduce pedestrian crossing distances on side streets (two at Portland Place, one at Cunard Street, one at Uniacke Street).

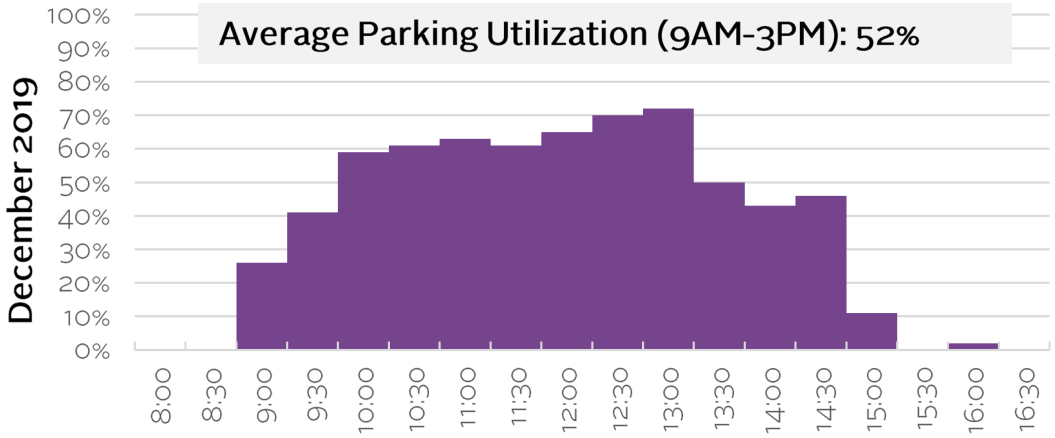
Each curb extension was surfaced with decorative brick pavers, reflecting the area's character, and included a bench and one or two bicycle racks.

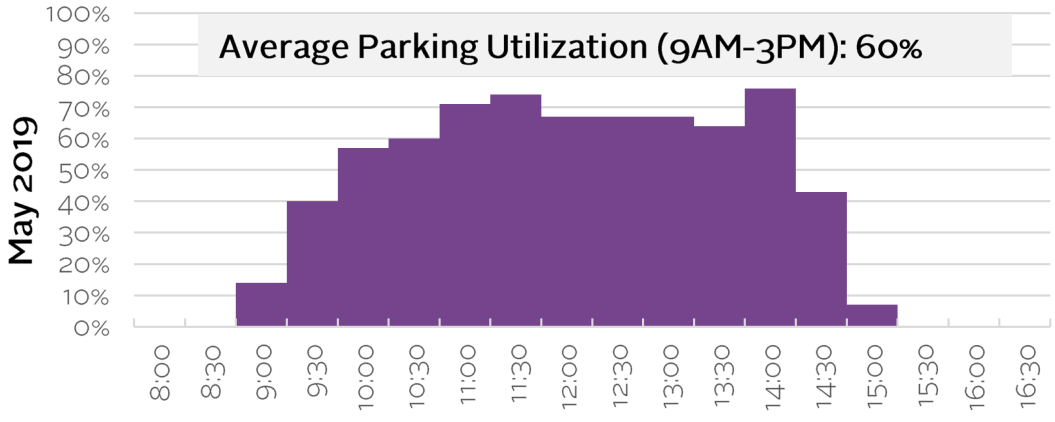
An urban soil trench for three trees was installed. It is designed to preserve structural integrity of the adjacent roadway and sidewalk while containing sufficient volumes of uncompacted soil to support tree health.

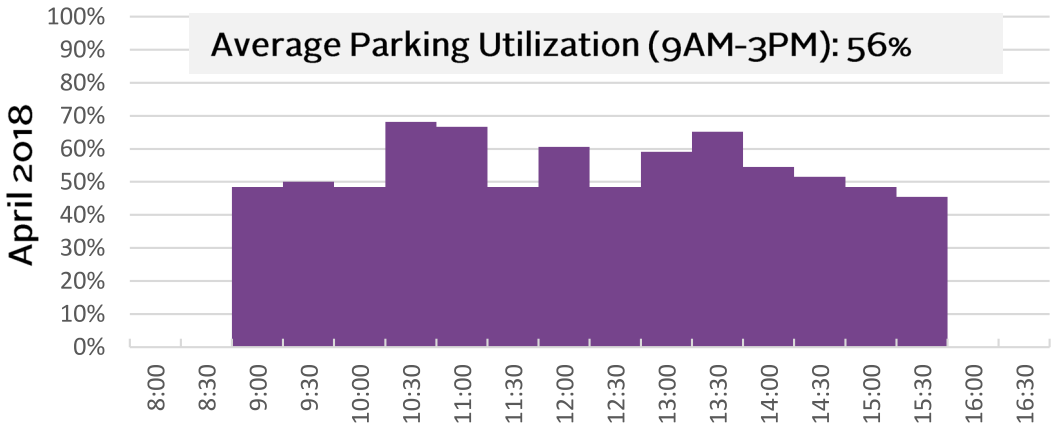
Parking

Prior to the implementation of the transit lane, parking data was collected in February 2018 and April 2018 to develop an understanding of the parking utilization and turnover on Gottingen Street. This exercise was repeated in June 2019 and December 2019.

- During permitted parking hours (9:00 AM to 3:00 PM), the average parking utilization along Gottingen Street was approximately 52%, compared to 60% in May 2019 and 56% in April 2018.
- Parking turnover increased, as the average parking duration per vehicle decreased from 90 minutes (April 2018) to 64 minutes (December 2019).







Attachment C

Monitoring & Evaluation Plan

Gottingen Street Transit Priority Corridor

Prepared by:

Halifax Transit
June 2018

HALIFAX

Table of Contents

List of Tables

Introduction

Background

In March 2018, Regional Council directed staff to proceed with detailed design of a time-restricted northbound bus lane on Gottingen Street that is operational during weekday peak periods (7am-9am and 3pm-6pm), and that accommodates time-regulated parking and loading outside of peak periods. Staff were further directed to develop a plan to measure and evaluate the impact of the project and recommend changes, if any, within one year of implementation.

The Monitoring and Evaluation Plan, presented in the sections below, identifies fourteen metrics which staff recommend to evaluate to better understand the impact of the project on transit service, mode share, road safety, parking, the street environment, and adjacent land uses.

Objectives

The primary objective of the Monitoring and Evaluation Plan is to determine the extent to which the Gottingen Street peak period northbound bus lane project achieves desired outcomes, particularly regarding transit service improvements, while understanding the implications for other potential related impacts.

Deliverables

The key deliverable of this plan is a staff report to Regional Council, one year after project implementation, that will present the monitoring and evaluation results, identify any areas for improvement and recommend suitable design refinements.

Metrics

Staff have identified metrics to monitor post-implementation of the time restricted northbound bus lane based on project objectives, public feedback, available staff and data collection resources. Table 1 introduces and categorizes each metric by impact area (transit, all transportation modes, non-transit motorists, street environment, land uses and parking), states how the data will be collected, and identifies the desired outcome.

While each of the identified metrics provide valuable insight, it is important to consider some key limitations of their monitoring and evaluation over the short-term. Due to the inherent variability in some of the metrics, year over year observations are not generally a reliable performance indicator. Observation of trends over multiple years is required to develop meaningful conclusions. Also, each metric is influenced by other external factors unrelated to the changes introduced by the proposed bus lane. These limitations should be considered when evaluating the project after implementation.

Table 1 Project Evaluation Metrics

#	CATEGORY	METRIC	DESCRIPTION
1	Transit	Change in average transit travel time and variability	Transit travel time will be obtained through Automatic Vehicle Locator (AVL) technology to calculate and compare the average travel time and variability of pre- and post-implementation project conditions. The desired outcome would be a decrease in the average travel time and variability for buses in both directions during the peak periods.
2	Transit	Rider experience	Rider experience will be assessed by obtaining feedback through surveys conducted on buses and/or online. The desired outcome would be that most of the survey responses are positive and support the project.
3	Transit	Transit operator experience	Transit operator experience will be assessed by obtaining feedback through surveys. The desired outcome would be that most of the survey responses are positive and support the project.
4	Transit	Change in ridership	Ridership will be assessed by comparing data on the number of onboard passengers, for each transit route using Gottingen Street, pre- and post-implementation of the project. The desired outcome would be an increase in the number of onboard passengers for each transit route during peak periods.

#	CATEGORY	METRIC	DESCRIPTION
5	Transit	Change in number of transit related collisions (vehicle damage only)	Transit related collisions will be obtained through transit collision reports pre- and post-implementation of the project for comparison. The desired outcome would be a decrease in the number of transit-related collisions.
6	All Modes	Change in total person throughput	Total person throughput will be obtained by conducting manual screenline counts of people and their respective travel mode pre- and post-implementation of the project for comparison. The desired outcome would be an increase in the number of people traveling by transit (for each transit route) and active transportation modes during the PM peak.
7	All Modes	Cross section allocation	Cross section allocation will be assessed by comparing mode splits to the right-of-way width assigned to each travel mode pre- and post-implementation of the project. The desired outcome would be that right-of-way width assigned to each travel mode corresponds more closely to the mode split.
8	All Modes	Public experience	Public experience of all people who use Gottingen Street will be assessed by obtaining feedback through surveys conducted on street and/or online. The desired outcome would be that most of the survey responses are positive and support the project.

#	CATEGORY		METRIC	DESCRIPTION
9	All Modes		Change in number and severity of collisions	The number and severity of collisions will be obtained from Halifax Regional Police collision reports pre- and post-implementation of the project for comparison. The desired outcome would be a decrease in the number and severity of collisions.
10	All Modes		Change in how people are accessing the street	Obtaining data on how people are accessing Gottingen Street will be through conducting on-street intercept surveys pre- and post-implementation of the project. The desired outcome would be an increase in the number of people accessing the street via transit and active transportation modes.
11	Non-Transit Motorists		Non-adherence of transit lane	Non-adherence of the transit lane will be assessed by obtaining information on the number of parking tickets and tows and/or through monitoring using time lapse/video cameras during peak periods. The desired outcome would be that few blockages to transit vehicles occur in the peak periods after a year from implementation.
12	Non-Transit Motorists		Change in 85th percentile speed	85th percentile speed will be obtained by conducting speed volume surveys pre- and post-implementation of the project for comparison. The desired outcome would be no significant increase in the 85th percentile speeds.

#	CATEGORY		METRIC	DESCRIPTION
13	Street Environment		Number of installed streetscape elements (ex. # of planted trees)	The number of installed streetscape elements will be recorded in a document as they are installed/constructed. The desired outcome would be an increase in the number of streetscaping elements.
14	Parking		Parking utilization	Parking utilization data will be obtained by conducting parking utilization surveys, of Gottingen Street and the surrounding neighbourhood, post-implementation of the project for evaluation. The desired outcome would be that the 85th percentile parking occupancy is at or less than 85%.

Data Collection Timeline

The proposed data collection timeline is presented in Table 2 using five time period columns. The baseline column represents data that are required to be collected before project implementation. These data already exist or are planned for collection in the coming months. The next four columns represent data collection throughout the year after project implementation divided into three-month increments, and the last column represents data that must be monitored on an ongoing basis after the initial data collection year. The proposed timeline may vary to accommodate staff resources and the reporting timeline requested by Regional Council (i.e. report back within one year of implementation).

Table 2 Data Collection Timeline

#	METRIC	DATA COLLECTION TIMELINE					
		Baseline	0-3 MO	3-6 MO	6-9 MO	9-12 MO	Ongoing
1	Change in average transit travel time	✓	✓	✓		✓	
2	Rider experience			✓			
3	Transit operator experience			✓			
4	Change in ridership	✓			✓		✓
5	Change in number of transit related collisions	✓				✓	
6	Change in total person throughput	✓	✓		✓	✓	✓
7	Cross section allocation	✓				✓	
8	Public experience			✓			
9	Change in number and severity of collisions	✓				✓	✓
10	Change in how people are accessing the street	✓			✓		
11	Non-adherence of transit lane			✓		✓	
12	Change in 85th percentile speed	✓			✓		
13	Number of installed streetscape elements					✓	
14	Parking utilization	✓		✓			