QUEEN ELIZABETH DRIVEWAY CLOSURE (2022) - DATA COLLECTION REPORT

Prepared by the Special Events Section – Traffic Management
City of Ottawa
April 6th, 2023

A0040152_1-00011

Disclaimer

This document is a summary of numerous data sets analyzed by the City of Ottawa's Traffic Management Unit. The content represents a small segment of study associated with the potential impacts of the closure of Queen Elizabeth Driveway. It is not intended to represent the entirety of the closure period, but rather to provide general insight on relevant trends & patterns drawn from the data & user experiences.

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1 Introduction

1.1 Background & Scope

Over the course of the COVID-19 pandemic, the City of Ottawa and the NCC each developed various initiatives aiming to provide increased access to roads and parkways for walking and cycling. COVID-19 was an unprecedented event that had cumulative detrimental effects to the community, including the limitations on traveling and gatherings. As strict lockdown measures limited the movement of people and goods, the City & NCC reacted quickly in developing mitigation measures. With the decrease of vehicular traffic and transit ridership, creating additional space for active transportation became a national capital region priority. These measures were ultimately deemed successful in providing residents with a haven from the strain of pandemic-living.

As the province of Ontario began to lift many lockdown measures in early 2022, the City of Ottawa saw a slow return to regular traffic volumes and mobility patterns, including a measured restoration of confidence towards transit ridership. As such, the feasibility of implementing previous active-transportation initiatives decreased in favor of reestablishing a holistic balance to all modes that contribute to the transportation network.

Despite the removal of COVID-related lockdown measures, the NCC announced on May 4th, 2022 that it would continue to close Queen Elizabeth Driveway to regular traffic during the summer in favor of active-transportation. The closure schedule was presented as follows:

- Driveway to be closed on weekends from May 14th to June 25th
- Driveway to be closed 24 hours a day, 7 days a week from July 1st to Labour Day (September 5th)
- Driveway to be closed on weekends from September 10th to October 10th

As a result of the above, and associated concerns with forecasted downstream effects to the Golden Triangle, Glebe communities, and to Lansdowne Park, the City collected vehicular and pedestrian data to assess the impacts of the closure.

1.2 Review Area & Data Points

Queen Elizabeth Driveway is a critical link within the City's transportation network, spanning from Laurier Avenue to Preston Street. The Driveway connects Ottawa's downtown core with nearby residential neighborhood, and it is also host to morning and afternoon commuters, due to the connection to Prince of Wales Drive and communities to the south of the city.

Historically, there are approximately 10,000 vehicles that travel along Queen Elizabeth Driveway near Fifth Avenue on normal days.

As such, the City's expectation with the closure of Queen Elizabeth Driveway was for several negative impacts to materialize, creating compounding negative effects to residents, businesses, and motorists traveling in the area.

Multiple data sources were leveraged to analyze these impacts:

- Six (6) Miovision camera locations, to compile traffic volumes at various intersections surrounding the closure.
- One (1) 360º Eco-Counter (NCC) on Queen Elizabeth Driveway between First Avenue & Second Avenue to measure the volume of cycling/pedestrian traffic within the closure aera.
- One (1) Eco-Counter (City) on the Western Canal Pathway (easternly adjacent to the Queen Elizabeth Driveway)
- Transit travel times during the summer of 2022

When any segment of roadway is closed, particularly one that connects many communities in the downtown core, it ultimately transfers that traffic to nearby parallel roadways. In providing a preliminary analysis of the data acquired from sources listed above, Traffic Services looked to gain a better understanding of the impact of the closure on surrounding streets and the general trends related to the displacement of pre-existing traffic volume on Queen Elizabeth Driveway.

1.3 Roadway Classification

Certain roadways were identified as most likely to be negatively impacted by the closure of Queen Elizabeth Driveway. These roads are either directly connected to Queen Elizabeth Driveway or provide a parallel travel alternative to those displaced.

Roadway	Classification	AADT Vehicles/day (TAC Geometric Design Guidelines)	
		Residential	Commercial
Bank St	Arterial	5000 – 20000	10000 - 30000
Fifth Ave	Collector	<8000	<12000
O'Connor St	Local	<1000	<3000
Hawthorne Ave	Arterial	5000 – 20000	10000 - 30000
Isabella St	Arterial	5000 – 20000	10000 - 30000
Princess Patricia Way	Local/private	<500	<1000

Table 1 - Roadway Classification

2 Volumes & Traffic Data

2.1 Traffic Volumes

Traffic Management ordered turning movement traffic counts on multiple days from 4pm to 12 midnight. Counts were taken at six (6) critical intersections near Queen Elizabeth Driveway that were most likely to see changes in traffic patterns as a result of the closure.

Pre-closure volumes were taken mid-week on Wednesday, 22 June 2022 and post-closure analysis was performed on two different weekdays, Friday, 15 July 2022 and Wednesday, 27 July 2022, for comparison purposes. Counts have also been scheduled for April 2023, to confirm the accuracy of pre-closure data and report on new 2023 trends, including the forecasted increase in traffic volumes.

The 8-hour study period was performed in the afternoon/evening, to capture a balance between high volume periods (4pm to 8pm) and low volume periods (8pm to 12 midnight).

Note that data collection was originally intended to capture the effects of the closure on evening events at Lansdowne Park, and thus collection hours are focused on the afternoon/evening periods.

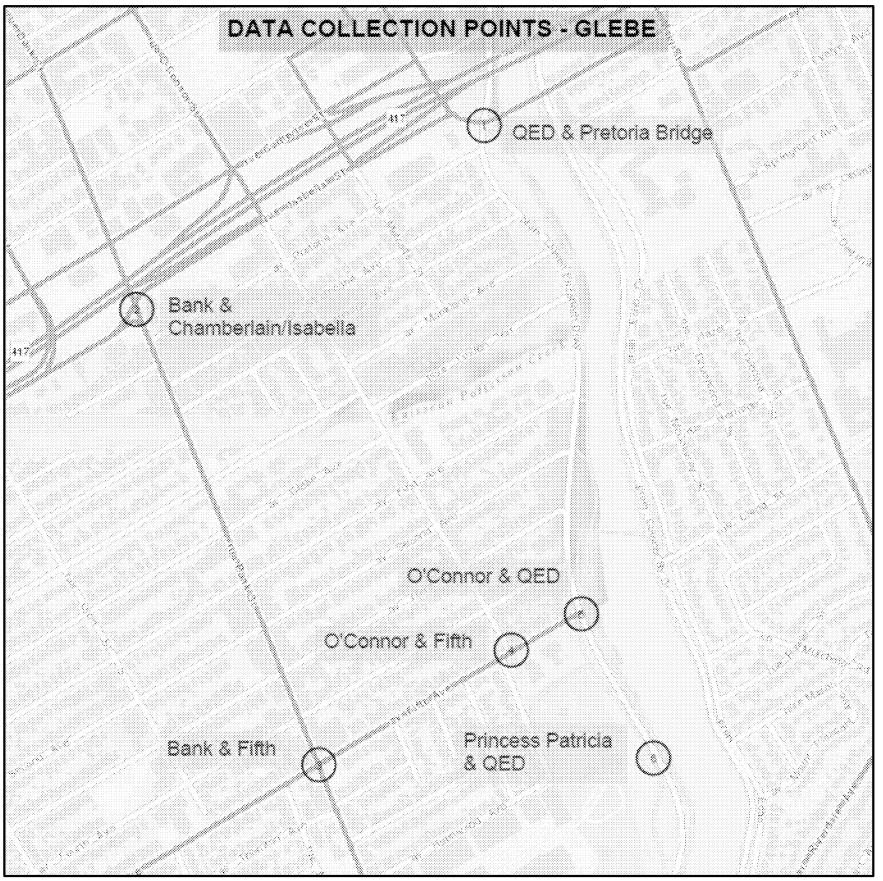


Figure 1 - Miovision Camera Locations

To provide an initial assessment of the impact of the COVID-19 on traffic volumes, Traffic Services compared baseline counts from summers of 2019, 2021 and 2022.

2019-06-12 (WED)			2021-07-21 (WED)			2022-07-28 (FRI)		
Time	**SB Lanes**	**NB Lanes**	**Time**	**SB Lanes**	**NB Lanes**	**Time**	**SB Lanes**	**NB Lanes**
7AM	405	867	7AM	266	339	7AM		
8AM	515	912	8AM	407	463	8AM	558	518
9AM	506	602	9AM	478	470	9AM	624	500
10AM	325	255	10AM	569fi	518	10AM	696	544
12PM	590	545	12PM	558	502	12PM	748	579
1PM	270	278	1PM	534	577	1PM	696	660
3PM	776	568	3PM	583	612	3PM	715	604
4PM	982	610	4PM	627	605	4PM		
5PM	982	576	5PM	663	579	5PM		
Total	2982	3160	Total	3129	3142	Total	4037	3405
Total (both directions)		**6142**	**Total (both directions)**		**6271**	**Total (both directions)**		**7442**

Table 2 - Traffic Volumes 2019 vs. 2021 vs. 2022

Notes:

- Although these counts provide a general assessment of traffic volumes along the Bank Street corridor, limitations exist due to multiple factors:
  - Pre-pandemic counts in June 2019 are not considered “summer volumes” and still include peak AM & PM school volumes, which will inflate the morning and afternoon numbers in comparison to 2021 & 2022.
  - Post-pandemic counts in both 2021 (considered a pandemic transition year) and 2022 (considered “end of pandemic”) were taken during the closure of Queen Elizabeth Driveway. As such, numbers could also be inflated due to the diversion of traffic.
  - 7AM, 4PM & 5PM counts were omitted for comparison purposes between years, as these times were not recorded in 2022 due to hardware error.
- As an overall trend, traffic volumes seem to be increasing from year to year and will likely increase again in 2023.
- Scheduled counts for April 2023 will confirm annual growth and post-pandemic traffic volumes during normal times (school in session and no adjacent closures).

2.1.1 Bank Street and Fifth Avenue

Anecdotal observations seemed to indicate that intersection volumes would increase in this area during the closure of Queen Elizabeth Driveway. Vehicles would naturally gravitate to Bank Street, as a north-south detour from the use of QED. Vehicles approaching QED from the south, would be forced onto Fifth Avenue and then continue north by using either O’Connor Street or Bank Street. Vehicles approaching QED from the north, would be forced onto Somerset Street and then continue south by using either Elgin, O’Connor, or Bank Streets.

As such, the analysis of traffic volume counts depicts that in comparison to pre-closure traffic volumes (notably taken after the commencement of the Bank Street Bridge construction project & associated lane reductions), post-closure data shows an approximate 20% increase in vehicular volume, resulting in an additional 1350 – 1550 vehicles operating through the intersection over an 8-hour period.

Although volume analysis for a 24-hour period can only be estimated based on primary data results, it is possible that the closure could contribute to an increase of up to **4650 vehicles per day** in this specific area.

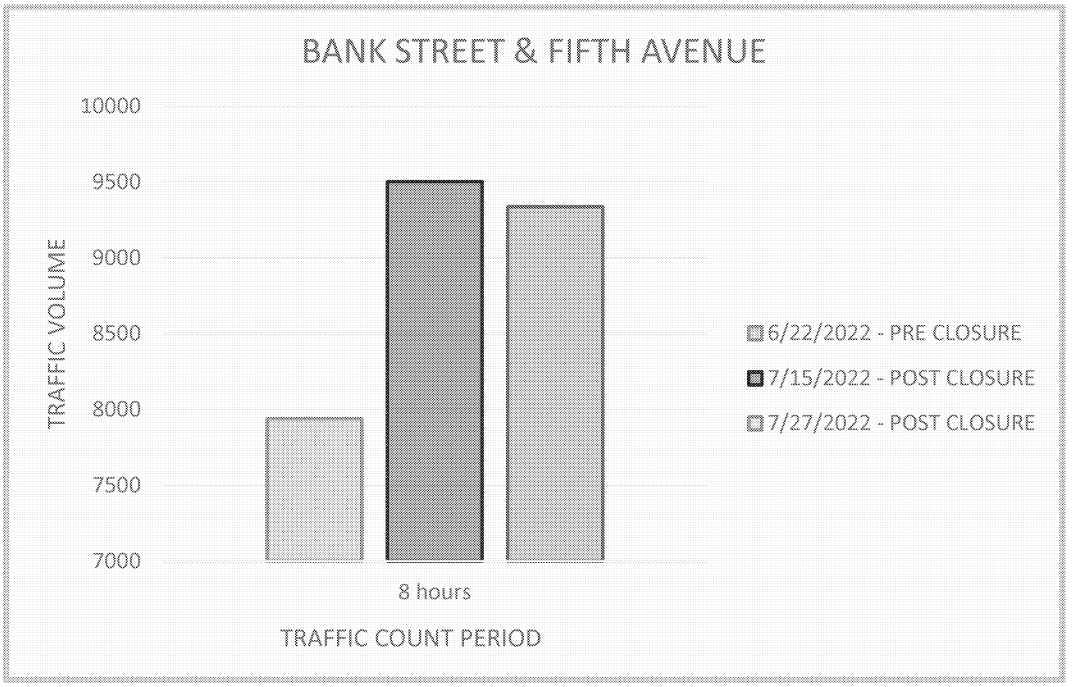


Figure 2 - Total Traffic Volume (8hr) at the intersection of Bank Street & Fifth Avenue

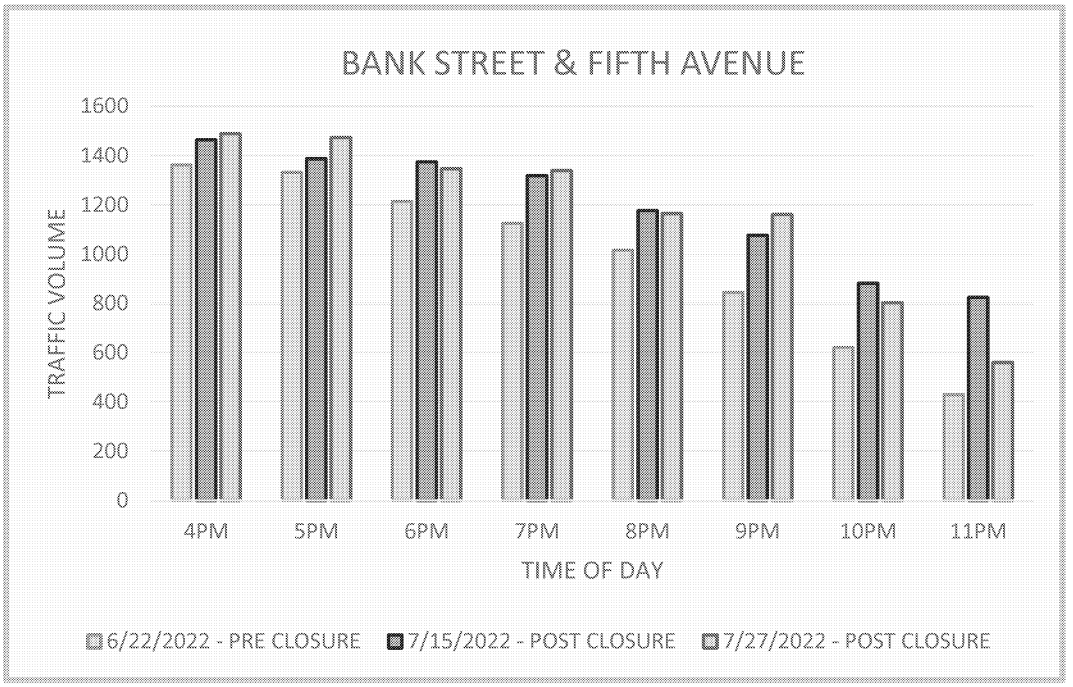


Figure 3 - Hourly traffic volume at the intersection of Bank Street & Fifth Avenue

2.1.2 Bank Street and Isabella Street (Chamberlain Avenue)

The analysis of traffic volume counts depicts that in comparison to pre-closure traffic volumes (notably taken after the commencement of the Bank Street Bridge construction project & associated lane reductions), post-closure data shows an approximate 8-11% increase in vehicular volume, resulting in an additional 930 - 1240 vehicles operating through the intersection over an 8-hour period.

Although volume analysis for a 24-hour period can only be estimated based on primary data results, it is possible that the closure could contribute to an increase of up to **3720 vehicles per day** in this specific area.

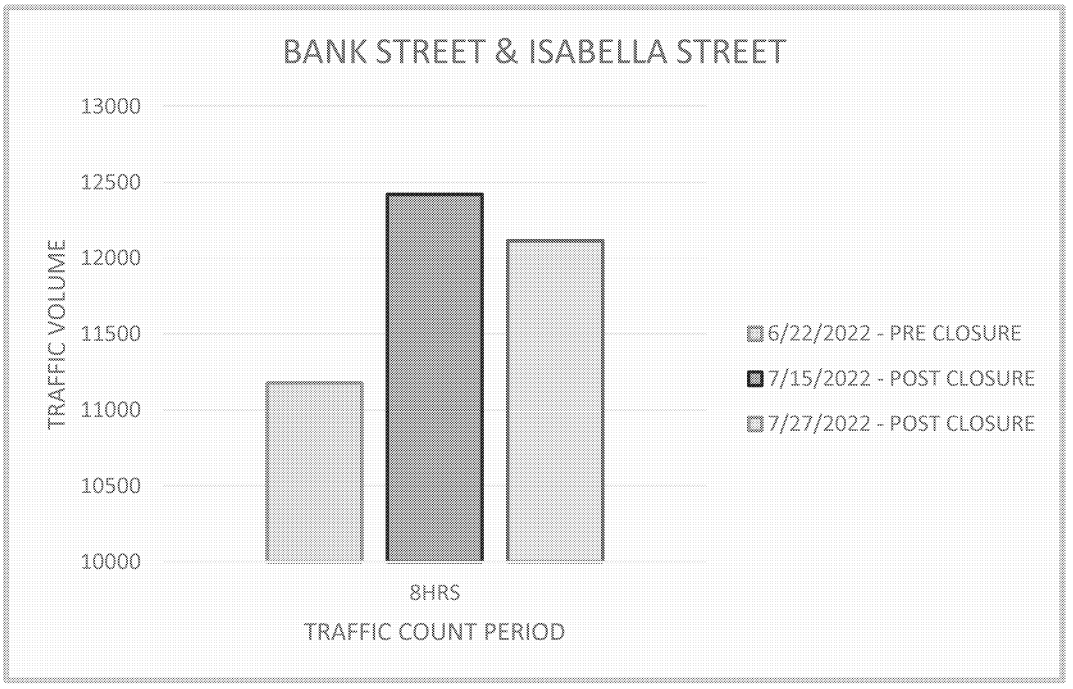


Figure 4 - Total Traffic Volume (8hr) at the intersection of Bank Street & Isabella Street

A specific observation: daytime traffic volumes are quite similar in this area, and the percent change increases when approaching the evening/overnight period. These changes are depicted in Figure 4 and tend to describe that the closure is particularly impactful to vehicular volume in the later day.

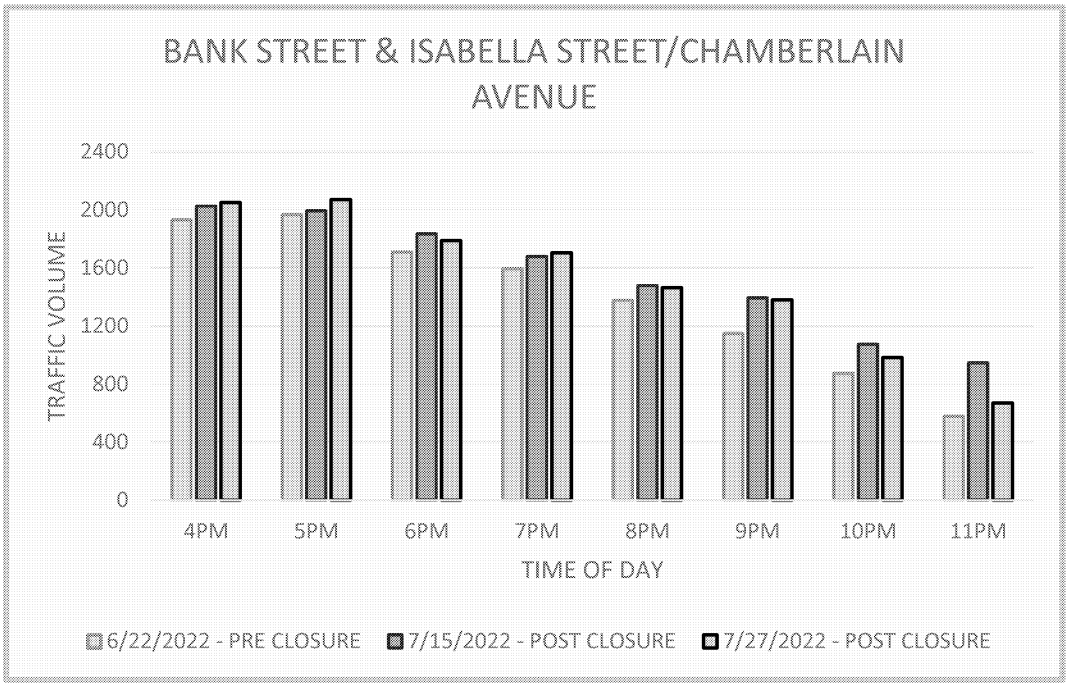


Figure 5 - Total Traffic Volume (8hr) at the intersection of Bank Street & Isabella Street

2.1.3 O'Connor Street and Fifth Avenue

The analysis of traffic volume counts depicts that in comparison to pre-closure traffic volumes (notably taken after the commencement of the Bank Street Bridge construction project & associated lane reductions), post-closure data results show an approximate 54-57% increase in vehicular volume, resulting in an additional 1050 - 1150 vehicles operating through the intersection over an 8-hour period.

Although volume analysis for a 24-hour period can only be estimated based on primary data results, it is possible that the closure could contribute to an increase of up to **3450 vehicles per day** in this specific area.

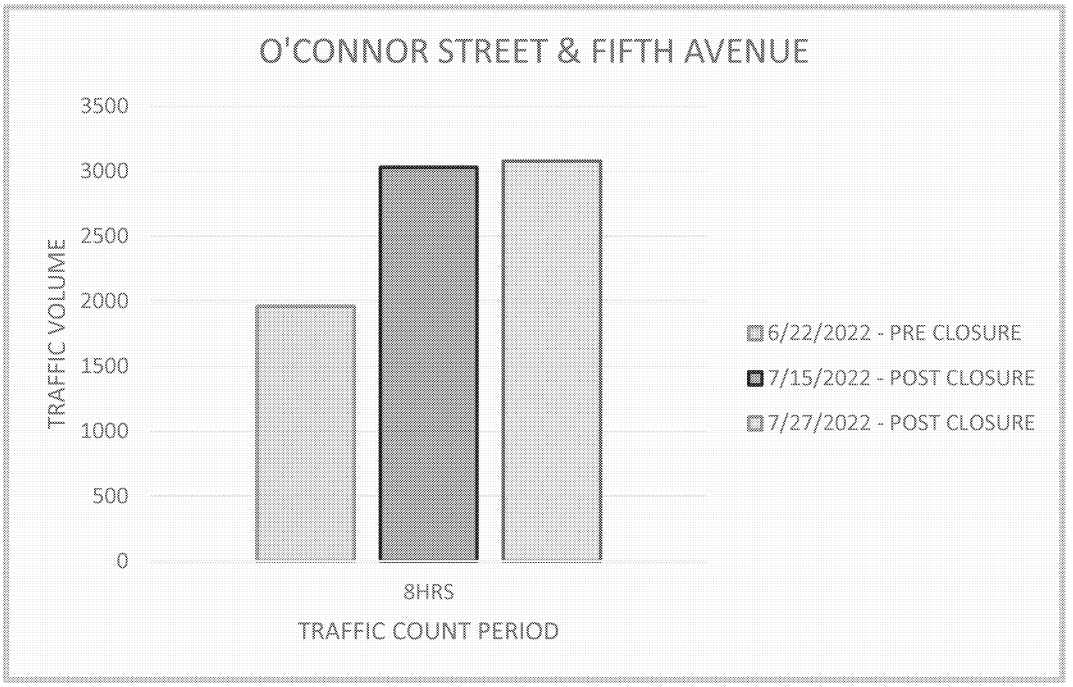


Figure 6 - Total Traffic Volume (8hr) at the intersection of O'Connor Street & Fifth Avenue

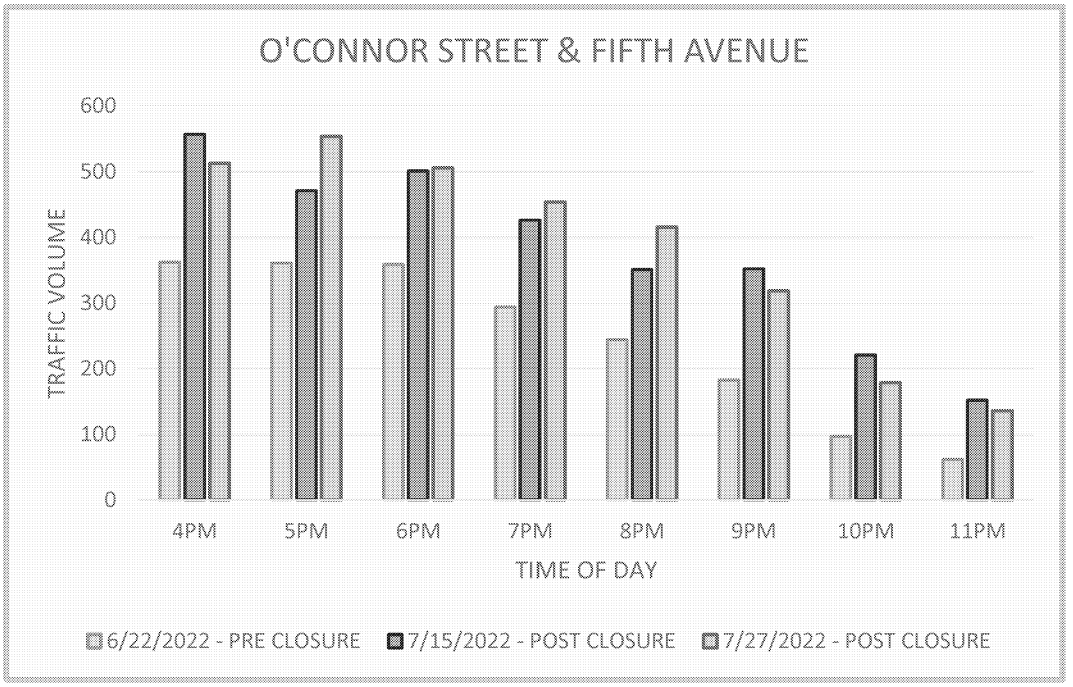


Figure 7 - Hourly traffic volume at the intersection of O'Connor Street & Fifth Avenue

From the analysis of both post-closure dates, O'Connor Street saw an increase of 67 percent in vehicular volume and to gain further insight into operations on this segment, Traffic Services extracted the north-south vehicular movements at the intersection of Fifth Avenue.

North-south movements: O'Connor Street at Fifth Avenue			
	Pre-Closure – No Event	Post-Closure – No Event	% Change
	22-Jun-22	15-Jul-22	
4pm	185	304	61%
5pm	173	237	73%
6pm	186	256	73%
7pm	166	219	76%
8pm	136	197	69%
9pm	103	167	62%
10pm	53	92	58%
11pm	34	72	47%
8HR TOTAL	1036	1544	67%
Approximate AADT	**3108**	**4632**	**67%**

Table 3 - North-South Traffic Volume on O'Connor Street at Fifth Avenue

Of note, O'Connor is classified as a Local Residential roadway, and as such should only be supporting 1000 vehicles per day, with the caveat that the segment feeds directly into Lansdowne Park, and thus is likely experiencing volumes more comparable to a Local Commercial roadway (< 3000 AADT). As such, the infrastructure likely cannot support this increase and could result in numerous issues pertaining to an increase in travel speeds, dangerous movement patterns, pedestrian/vehicular conflicts, and parking congestion.

2.1.4 Pretoria Bridge

Due to the closure of Queen Elizabeth Driveway, total intersection volume decreased by approximately 30%. This is not entirely surprising considering the north & south movement have been removed from the analysis due to downstream closure points on the Driveway. The east & west volumes on Pretoria Bridge remained steady, only increasing by approximately 1% over the study period. This likely indicates that those detoured by the closure itself are navigating past Elgin, and rather using Bank Street or O'Connor Street as logical detour routes when attempting to travel southwards.

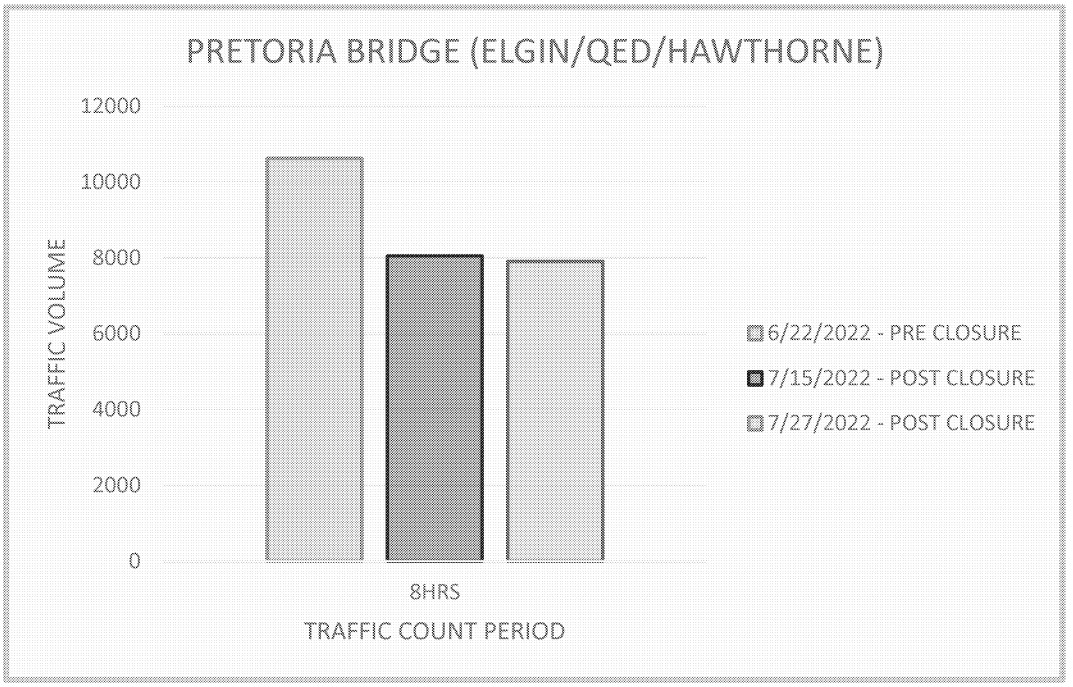


Figure 8 - Total Traffic Volume (8hr) at the Pretoria Bridge

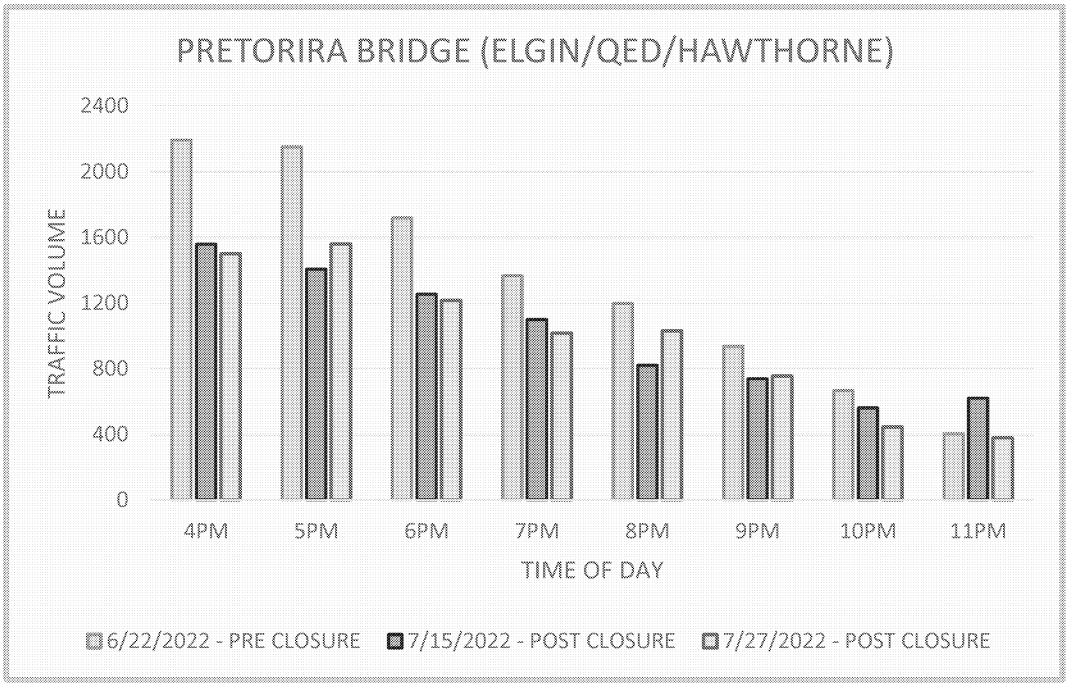


Figure 9 - Hourly Traffic Volumes on Pretoria Bridge

2.1.5 Fifth Avenue and Queen Elizabeth Driveway

Intersection volumes in this area also decreased as a direct result of the Driveway closure. This intersection no longer accommodated southbound vehicular traffic, and likely experienced a large decrease in volume on Fifth Avenue eastbound, that would normally have traveled north when Queen Elizabeth Driveway is open to vehicular use.

The analysis of traffic volume counts depicts that in comparison to pre-closure traffic volumes, post-closure data shows approximately a 68% decrease in vehicular volume, resulting in 3500 less vehicles entering the intersection.

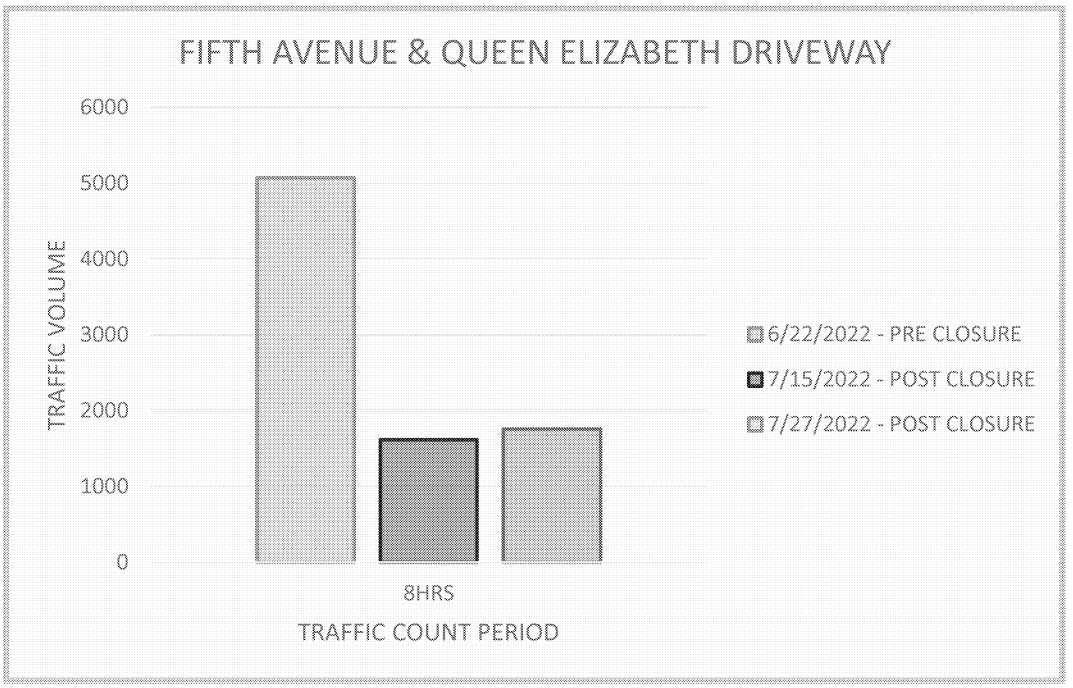


Figure 10 - Total Traffic Volume (8hr) at the intersection of Fifth Avenue & Queen Elizabeth Driveway

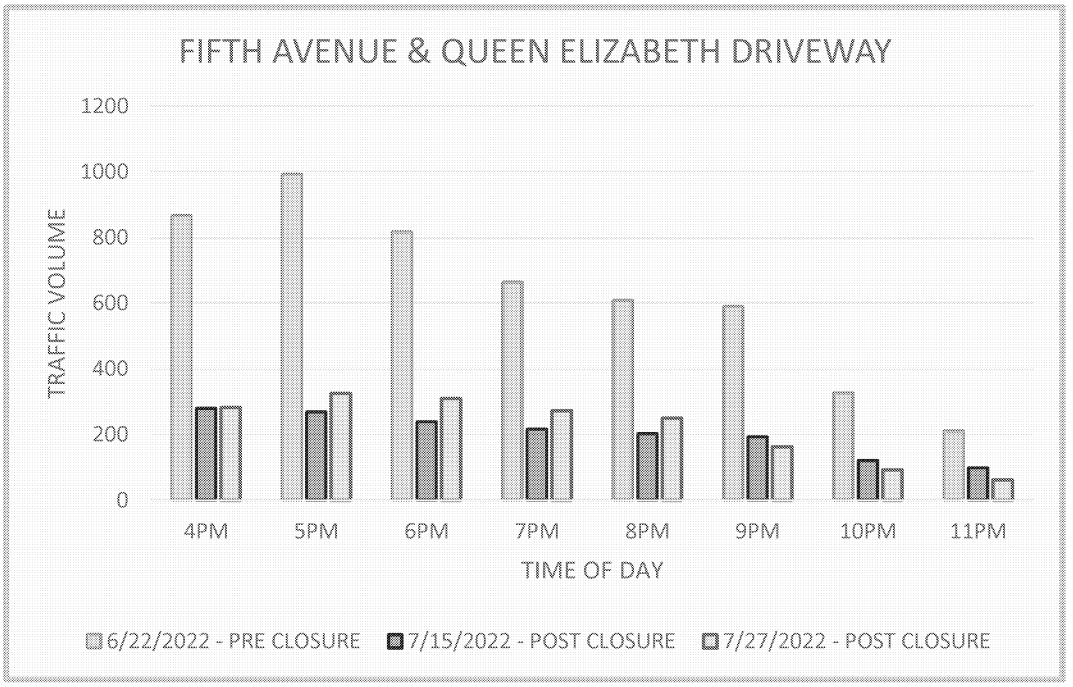


Figure 11 - Hourly traffic volume at the intersection of Fifth Avenue & Queen Elizabeth Driveway

Table 4 represents a specific analysis of the closure impact to the left-turning movements at this intersection. Although the overall volume decreased, the northbound left-turn onto City streets saw a significant rise in numbers. The arterial traffic flow that previously used Queen Elizabeth Driveway to travel north, now proceeds west and enters the community & adjacent neighborhood streets.

Left-turn movement from Queen Elizabeth Driveway NB to Fifth WB			
	Pre-Closure – No Event June 22, 2022	**Post-Closure – No Event July 15, 2022**	**% Change**
4pm	51	148	290%
5pm	56	169	302%
6pm	40	147	368%
7pm	25	124	496%
8pm	38	115	303%
9pm	32	121	378%
10pm	16	93	581%
11pm	9	69	767%

Table 4 - Left-Turn Volume from Queen Elizabeth DRWY NB to Fifth WB

The percent change shown in Table 4 indicates that the closure of Queen Elizabeth driveway is a large contributing factor to the exponential increases in traffic volumes experienced by the adjacent community.

2.1.6 Princess Patricia and Queen Elizabeth Driveway

Intersection volumes decreased at this intersection as a direct result of the Driveway closure. With Queen Elizabeth Driveway southbound no longer directly connected to the site, the intersection experienced approximately 50% less volume, which likely indicates that motorists wishing to access Lansdowne Park are entering via Bank Street.

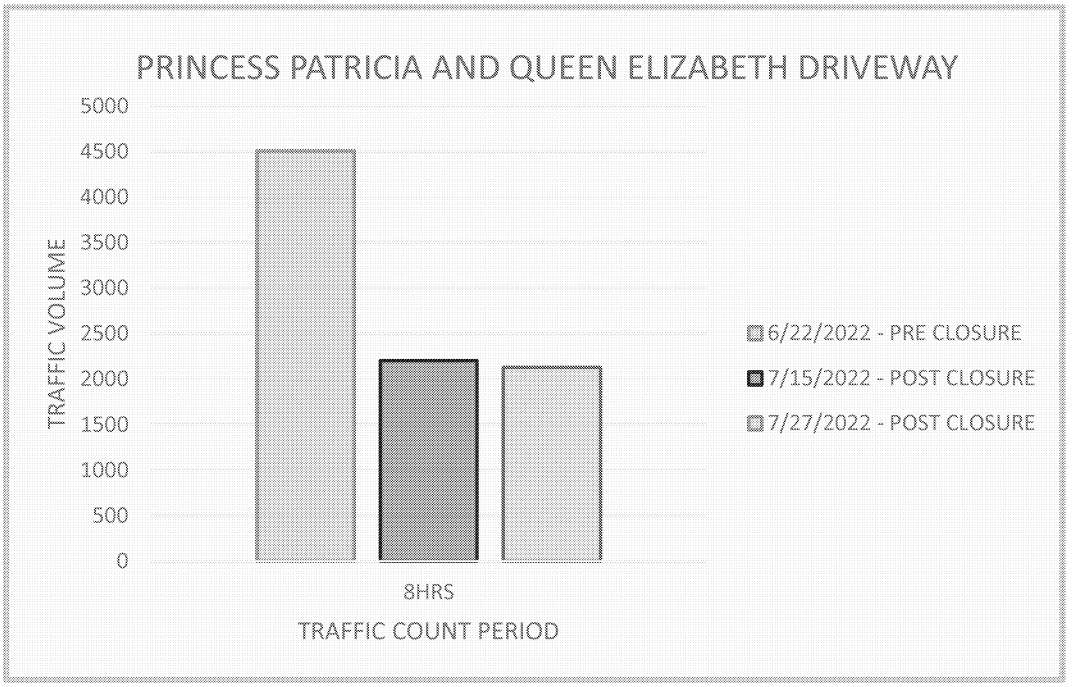


Figure 12 - Total Traffic Volume (8hr) at the intersection of Princess Patricia and Queen Elizabeth Driveway

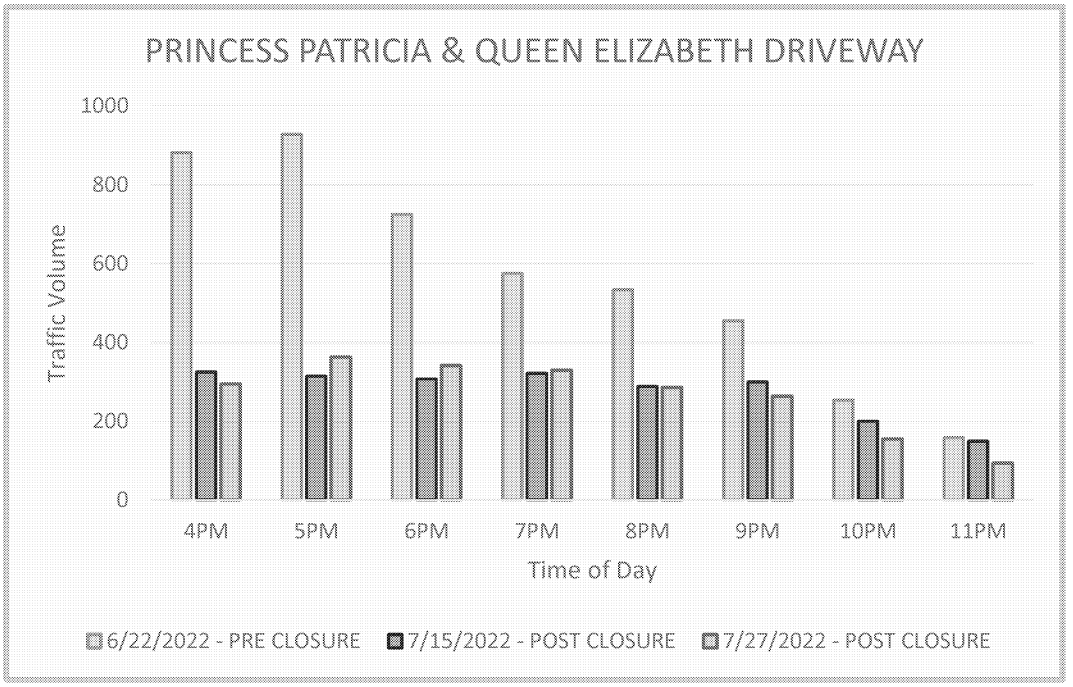


Figure 13 - Hourly traffic volume at the intersection of Princess Patricia & Queen Elizabeth Driveway

2.2 Pedestrian & Cycling Volumes

Data produced by the NCC 360-degree Eco-Counter placed on Queen Elizabeth Driveway between First Avenue & Second Avenue captured the volume daily users (pedestrians and cyclist) travelling on Queen Elizabeth Driveway between Monday, August 15th and Monday, September 5th. According to the numbers, the closure of Queen Elizabeth Driveway introduced approximately 10 – 40 users per hour (the Redblacks game on August 19th is an outlier, as the event itself draws 25,000 people using various modes of transportation)

DATE	TOTAL DAILY VOLUME	TOTAL HOURLY VOLUME
Monday, 15-08-2022	899	**37**
Tuesday, 16-08-2022	860	**36**
Wednesday, 17-08-2022	691 ***ATLETICO GAME DAY***	**29**
Thursday, 18-08-2022	719	**30**
Friday, 19-08-2022	NO DATA AVAILABLE (REDBLACKS) – QED open to general traffic	
Saturday, 20-08-2022	1271 ***M3 MOVEMENT & MUSIC EVENT***	**53**
Sunday, 21-08-2022	543	**23**
Monday, 22-08-2022	388	**16**
Tuesday, 23-08-2022	*655*	**27**
Wednesday, 24-08-2022	721 ***KPMG MOVIE NIGHT EVENT***	**30**
Thursday, 25-08-2022	804 ***OTTO'S MOVIE NIGHT EVENT***	**34**
Friday, 26-08-2022	511	**21**
Saturday, 27-08-2022	1010 ***ATLETICO GAME DAY***	**42**
Sunday, 28-08-2022	1391	**58**
Monday, 29-08-2022	371	**15**
Tuesday, 30-08-2022	315	**13**
Wednesday, 31-08-2022	655	**27**
Thursday, 01-09-2022	949	**40**
Friday, 02-09-2022	845 ***ATLETICO GAME DAY***	**35**
Saturday, 03-09-2022	675	**28**
Sunday, 04-09-2022	1172	**49**
Monday, 05-09-2022	1550	**65**
TOTAL	**16995**	**708**

Table 5 – User Volume (cyclists and pedestrians) on Queen Elizabeth Driveway between First & Second Avenue

Traffic Services also compiled pathway user volumes from August 15 to August 31, for comparison purposes to users traveling along the closed roadway. Results show that most pedestrians & cyclists remain comfortable using the multi-use pathway.

August	Pathway User Volume (cyclists & pedestrians)	Roadway User Volume (cyclists & pedestrians)
15	1371	**899**
16	1555	**860**
17	1246	**691** *ATLETICO GAME DAY*
18	1552	**719**
19	1991	NO DATA AVAILABLE (REDBLACKS) – QED open to general traffic
20	1444	**1271** *M3 MOVEMENT & MUSIC EVENT*
21	1206	**543**
22	905	**388**
23	1156	***655***
24	1527	**721** *KPMG MOVIE NIGHT EVENT*
25	1513	**804** *OTTO'S MOVIE NIGHT EVENT*
26	899	**511**
27	2102	**1010** *ATLETICO GAME DAY*
28	2111	**1391**
29	1240	**371**
30	891	**315**
31	1247	**655**

Table 6 - QED Pathway User Volume vs. Roadway User Volume (cyclists & pedestrians)

In comparing the above to the Eco-Counter pathway data, it seems road users prefer traveling on the Multi-use Pathway on the east side of the roadway. It would be of benefit to perform a modal split analysis, as anecdotal observations indicate that cyclists enjoy the closure space while pedestrians remain on the MUP.

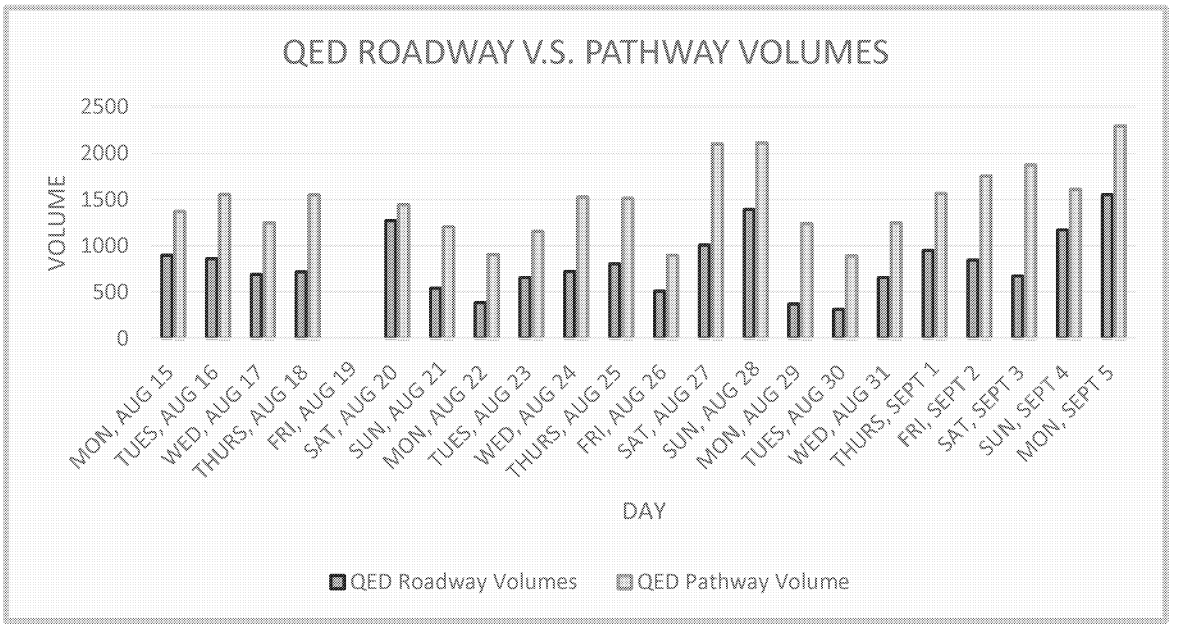


Figure 14 - QED Roadway vs. QED Pathway Volumes

To perform further analysis into preferable user times, we split the data into weekly averages per 4-hour windows.

DATE	TIME	WEEKDAY VOLUME AVERAGES	WEEKEND VOLUME AVERAGES
Mon - Fri (Aug 15 - 19)	12am to 6am	13	
	6am to 10am	258	
	10am to 2pm	243	
	2pm to 6pm	82	
	6pm to 10pm	172	
	10pm to 12am	25	
Sat - Sun (Aug 20 - 21)	12am to 6am		158
	6am to 10am		185
	10am to 2pm		374
	2pm to 6pm		89
	6pm to 10pm		86
	10pm to 12am		17
Mon - Fri (Aug 22 - 26)	12am to 6am	14	
	6am to 10am	155	
	10am to 2pm	172	
	2pm to 6pm	114	
	6pm to 10pm	142	
	10pm to 12am	18	
Sat - Sun (Aug 27 - 28)	12am to 6am		17
	6am to 10am		191
	10am to 2pm		588
	2pm to 6pm		174
	6pm to 10pm		208
	10pm to 12am		23
Mon - Fri (Aug 29 - Sept 02)	12am to 6am	14	
	6am to 10am	197	
	10am to 2pm	137	
	2pm to 6pm	115	
	6pm to 10pm	145	
	10pm to 12am	18	
Sat - Sun (Sept 3 - 4)	12am to 6am		15
	6am to 10am		152
	10am to 2pm		331
	2pm to 6pm		263
	6pm to 10pm		144
	10pm to 12am		20

Table 7 - 4-hour User Volumes (cyclists & pedestrians) on Queen Elizabeth Driveway

3 Transit Impacts

OC Transpo experienced moderate delays over the course of the closure period in comparison to travel times presented from 2019.

Transit delays seemed to occur mostly in the afternoon and evenings on the weekends. This likely coincides with a higher volume of road users, with concurrent activities at Lansdowne Park and frequenting of businesses. In particular, the August transit numbers show increased delays in the evening, averaging approximately one minute. Although these numbers are currently considered moderate, with the general trend of traffic increasing year-over-year as travel patterns recover from the pandemic, and the *return to the office* for many, particularly the federal government, it is likely that greater increases in delays are observed this year.

Although we cannot ignore the impact of the Bank Street Bridge construction project, travel times on Bank Street from Somerset Street to Catherine Street is likely too far downstream to experience significant impacts from this particular project.

Segment/ Direction	Time Period	WEEKEND AVERAGE TRAVEL TIMES (2019 vs. 2022 during closure)					
		Jul-19	Jul-22	*July Comp.*	Aug-19	Aug-22	*Aug Comp.*
Somerset to TD (Southbound)	AM	0:05:52	0:06:19	*0:00:27*	0:06:01	0:05:52	*-0:00:08*
	MD	0:08:06	0:09:00	*0:00:54*	0:08:43	0:08:29	*-0:00:14*
	PM	0:08:15	0:08:11	*-0:00:04*	0:08:36	0:08:37	*0:00:01*
	EV	0:07:47	0:07:21	*-0:00:26*	0:07:49	0:09:58	*0:02:08*
TD to Somerset (Northbound)	AM	0:06:41	0:06:14	*-0:00:27*	0:06:06	0:06:52	*0:00:46*
	MD	0:08:30	0:08:57	*0:00:27*	0:09:31	0:09:27	*-0:00:04*
	PM	0:08:24	0:09:11	*0:00:47*	0:09:36	0:09:25	*-0:00:11*
	EV	0:08:21	0:08:36	*0:00:15*	0:08:45	0:09:40	*0:00:55*

Table 8 – Weekend Average Travel Times (2019 vs. 2022 during closure)

4 Construction Forecast

There are several upcoming construction projects in the vicinity of the closure area which will have impacts to the surrounding transportation network. While most of these works are one-season projects such as road resurfacing, there are several multi-year projects either underway or scheduled to begin in the 2023.

Notably, the City of Ottawa is undertaking a large sewer, water, and roadway reconstruction in the Greenfield, Main, Hawthorne, and Colonel By Drive area which involves significant underground works to install new infrastructure. Traffic impacts are expected to be moderate to high (fluctuating based on various stages of work) with limited access requirements, forcing other users to alternate routes.

Additional traffic pushed downstream due to the above will likely disperse onto adjacent roadways, including Queen Elizabeth Driveway. Simultaneous closures could cause even further influx into residential areas.

The Ministry of Transportation of Ontario (MTO) is currently undertaking several rapid bridge replacements with impacts to the surface-level transportation network, under the "Midtown Bridge Replacement" banner. Multiple ramp closures on Highway 417 are currently in place, with three (3) more planned rapid bridge replacements in the project scope. Bronson Avenue and Percy Street overpasses are scheduled to be completed in 2023, with Preston Street planned for 2024. Queen Elizabeth Driveway is frequently used a travel alternative during highway closures and could be an especially popular option for those travelling north south when Bronson Avenue and Preston Street are impacted in 2023 and 2024, respectively.

The table in Appendix 1 provides a summary of high impact projects, with the complete list provided in Appendix 2.

5 Emergency Services Impact

As a result of the closure, Emergency Services reported experiencing delays in attending incidents in the district. Specifically, on July 14th, 2023, Fire Services stated that 30% of calls were experiencing delays and vehicle rerouting, mostly due to an inability to move barricades overnight.

As a result of inconsistencies in barrier placement, and the requirement for OFS to move their own barricades when attempting to enter adjacent streets from Queen Elizabeth Driveway, Ottawa Fire Service was frequently delayed in responding to overnight incidents. Fire recommended in July 2022 that the road be reopened for overnight periods, due to increase in emergencies and negligeable active-use activities.

The City has significant concerns relating to the initial data provided by the Emergency & Protective Services department. Delays in response time of this magnitude are considered a significant public safety issue and should involve further consultation with impacted City stakeholders,

6 Community Impacts

Over the duration of the closure period, Traffic Services received an influx of inquiries from the surrounding community. The notes below encompass the most recurrent issues, with the most frequent inquiry pertaining to emergency service impact:

- Residents are concerned about delays to emergency services. Although none of the data presented by Emergency & Protective Service partners has been publicized, residents in nearby areas are making anecdotal observations that services have lost an integral component of the network.
- The volume of vehicles turning onto O'Connor Street has greatly increased, and the associated congestion is causing driver frustration.
    - Residents report instances of disobeying regulatory signage (stop signs), performing illegal U-turns & left turns along O'Connor Street near Fifth Avenue.
- Unsafe interactions between the increased vehicular volume on O'Connor Street and the designated cycling lanes.
- Residents have inquired regarding NCC success metrics for the closure itself.
- As a result of the closure, the intersection of O'Connor Street and Fifth Avenue is no longer functional.
- Tour buses have rerouted down residential roadways. Residents were asking has the closure been discussed with tour bus companies?
- Lack of communication from the NCC regarding the permanency of the initiative. Many residents referred to previous communications, where the closure was described as a pandemic-related project, and not a pilot for permanency.
- Noise pollution from the rerouting of 4000 – 5000 vehicles down O'Connor Street.
- Delays entering Lansdowne Park due to increased congestion on Bank Street

7 Summary of Findings

Below provides brief overview of general findings from the data provided in this report.

- Bank Street and Fifth Avenue intersection had an approximate 20% increase in vehicular volume.
- Bank Street and Isabella Street (Chamberlain Avenue) intersection post-closure data shows an approximate 8-11% increase in vehicular volume.
- O'Connor Street and Fifth Avenue intersection results showed an approximate 54-57% increase in vehicular volume. The post closure traffic volume was significantly higher the design capacity and exceeded the maximum volume for this roadway classification.
- Although Fifth Avenue and Queen Elizabeth Driveway intersection post-closure data shows approximately a 68% decrease in vehicular volume due to the

closure, data showed that northbound traffic diverted directly into the community, specifically on Fifth Avenue & O'Connor Street.

- Based on the Eco-Counter pathway data, the corridor of choice for both the pedestrian and cyclist is the Multi-use Pathway on the east side of the roadway.
- EPS (Fire Services) are experiencing delays in responding to emergency calls, and the adjacent community is also expressing concerns regarding impacts to EPS
- The community is experiencing negative down-stream effects such as increases in driver speed, unsafe driving maneuvers, and the disobeying of regulatory signage.
- Transit Services are experiencing delays to afternoon & evening routes on weekends.

8 Appendices

Appendix 1 - Construction Forecast (High Impact 2023)

Roadway	From	To	Scope	Start (Estimated)	Completion (Estimated)	Anticipated Impact
2023						
Echo Drive	Graham Avenue	178m S of Graham	Road, Sewer, Water	2022	2025	High – CP000136 involves significant traffic impacts in the Greenfield-Hawthorne-Main area as substantial underground works occur. Disruptions will push traffic to alternate routes
Hawthorne Avenue	Colonel By Drive	Main Street	Road, Sewer, Water	2022	2025	High – CP000136 involves significant traffic impacts in the Greenfield-Hawthorne-Main area as substantial underground works occur. Disruptions will push traffic to alternate routes
Main Street	Harvey Street	Colonel By Drive	Road, Sewer, Water	2022	2025	High – CP000136 involves significant traffic impacts in the Greenfield-Hawthorne-Main area as substantial underground works occur. Disruptions will push traffic to alternate routes
Harvey Street	Echo Drive	Main Street	Road, Sewer, Water	2022	2025	High – CP000136 involves significant traffic impacts in the Greenfield-Hawthorne-Main area as substantial underground works occur. Disruptions will push traffic to alternate routes
Greenfield Avenue	Main Street	Mann Avenue	Road, Sewer, Water	2022	2025	High – CP000136 involves significant traffic impacts in the Greenfield-Hawthorne-Main area as substantial underground works occur. Disruptions will

						push traffic to alternate routes
Lees Avenue	Greenfield Avenue	160m E of Greenfield	Road, Sewer, Water	2022	2025	High – CP000136 involves significant traffic impacts in the Greenfield-Hawthorne-Main area as substantial underground works occur. Disruptions will push traffic to alternate routes
Bronson Avenue	ON-417	ON-417	Work by Others – MTO (Bridge Work)	2023	2025	High – Lane reductions and full road closures on Bronson planned for 2023 construction season. Traffic diverted to other N-S routes
ON-417 O/P Bronson Avenue	N/A	N/A	Work by Others – MTO (Bridge Work)	2023	2023	High – Four-day full highway closure for rapid bridge replacement
ON-417 O/P Percy Street	N/A	N/A	Work by Others – MTO (Bridge Work)	2023	2023	High – Four-day full highway closure for rapid bridge replacement

Appendix 2 - Construction Forecast (Low & Moderate Impact, High Impact 2024)

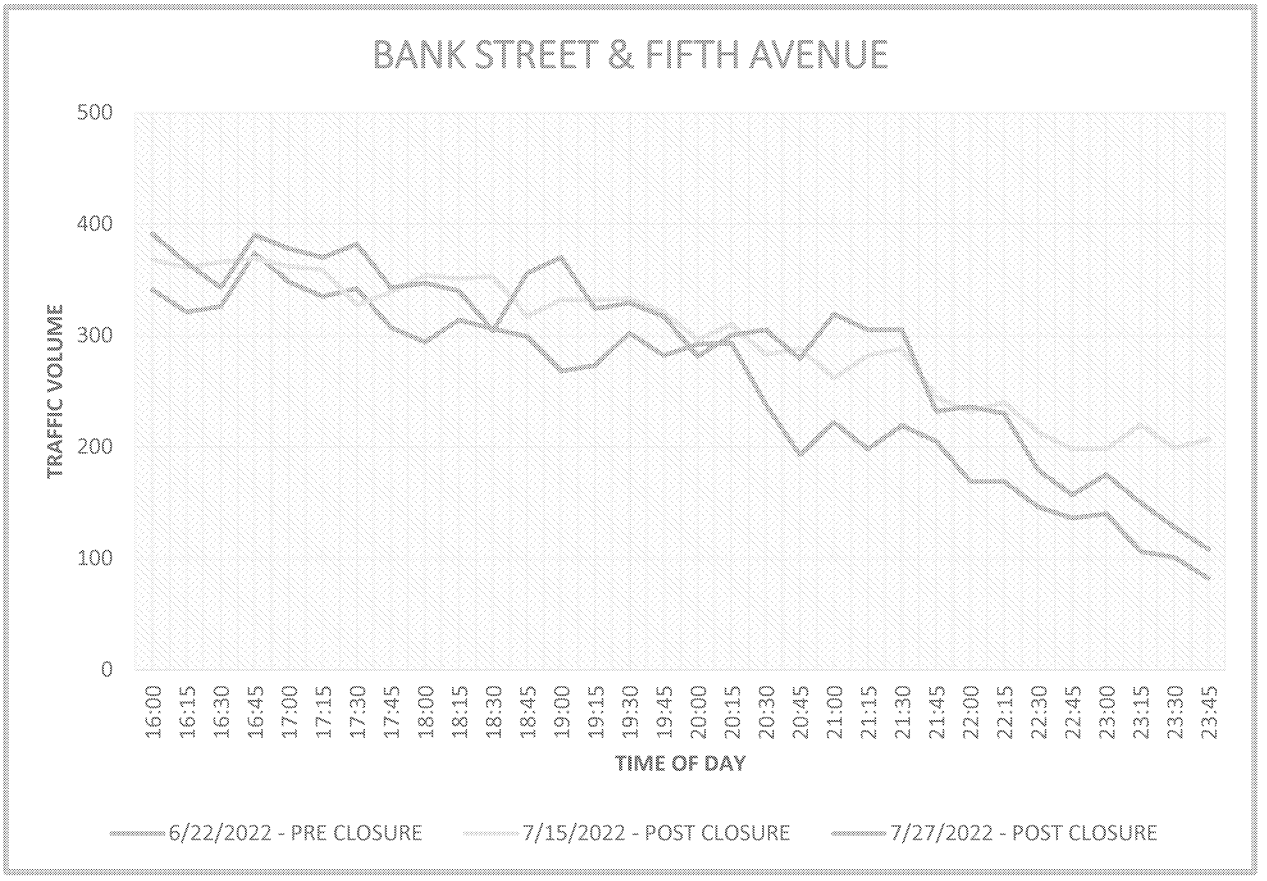
2023						
Colonel By Drive	Bank Street	Clegg Street	Retaining Wall Rehabilitation	Ongoing	2023	Moderate – May push traffic to QED as alternate scenic route. Simultaneous closure of QED will push traffic into the residential areas
Colonel By Drive	Hog's Back Road	Bank Street Bridge	Road Resurfacing	2023	2023	Moderate – May push traffic to QED as alternate scenic route. Simultaneous closure of QED will push traffic into the residential areas
Canal Woods Terrace	Colonel By Drive	Aylmer Avenue	Sewer Lining	2023	2023	Low – Unlikely to substantially increase traffic elsewhere on network

Queen Elizabeth Driveway – Data Summary

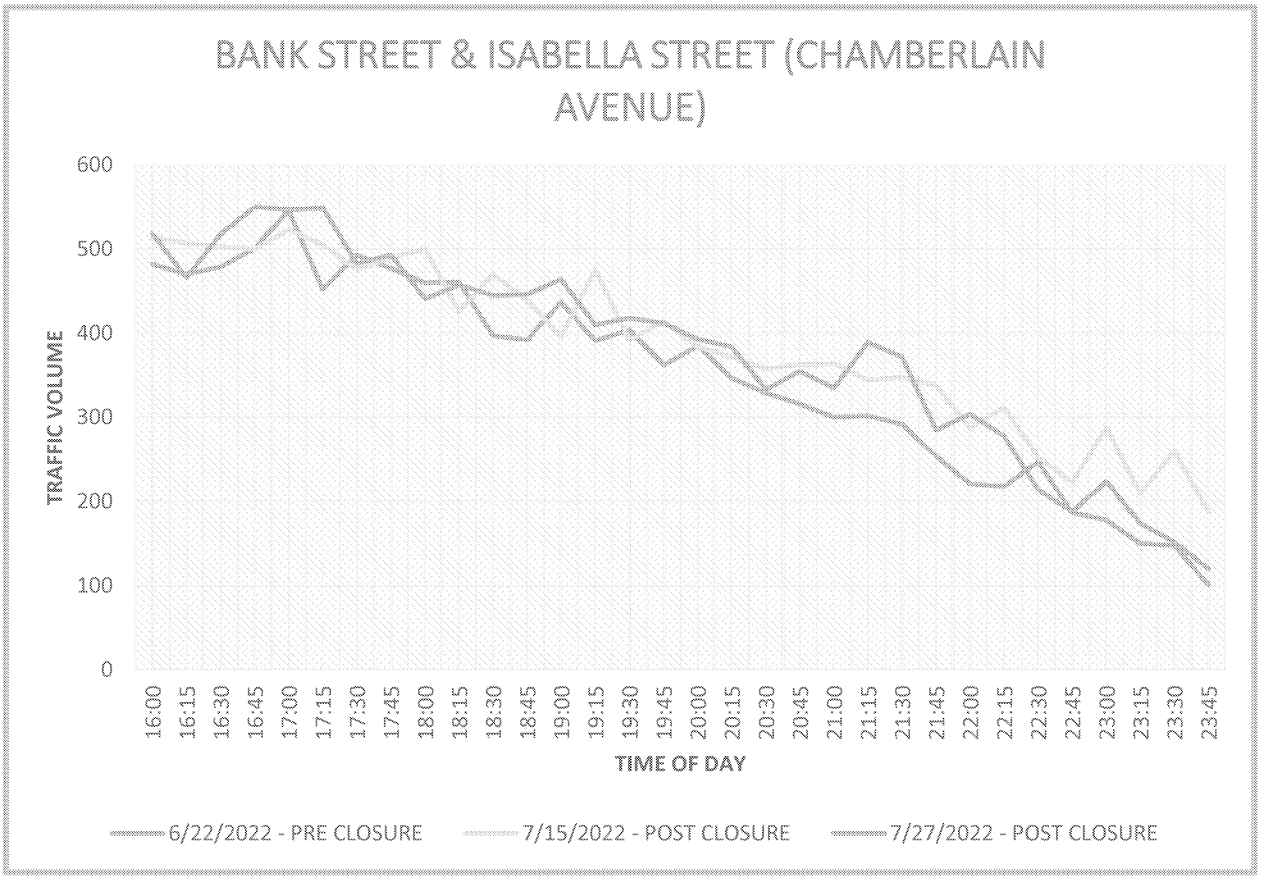
Bank Street	Rideau Canal	Highway 417	Streetscaping	2023	2023	Moderate – Lane reductions may push traffic to QED as an alternate route north
Wilton Crescent	Oakland Avenue	Bank Street	Road, Sewer, Water	2023	2024	Low – Local traffic may detour via QED as an alternate route
Pretoria Avenue	Metcalfe Street	Bank Street	Road, Sewer, Water	2023	2023	Moderate – Possible increase in southbound traffic on QED to avoid associated impacts
McLeod Street	Elgin Street	Metcalfe Street (west)	Sewer Renewal, Road Resurfacing	2023	2023	Low – Local traffic may detour via QED as an alternate route
Preston Street	ON-417	ON-417	Work by Others – MTO (Bridge Work)	2022	2024	Moderate – Enabling works requiring lane reductions/shifts in preparation for 2024 rapid bridge replacement
Lees Avenue	Chestnut Street	30m E of O-Train O/P	Road Resurfacing	2023	2023	Moderate – Delays could push motorists to QED or CBD as alternate routes north
2024 & Beyond						
Prince of Wales	Baseline Road	Preston Street	Road Resurfacing	2024 (Targeted)	TBD	Low – Queuing could lead to motorists to detour to QED to find alternate routes
Queen Elizabeth Driveway U/P Bank Street Bridge	N/A	N/A	Bridge Renewal	2024 (Targeted)	TBD	Low – Work may involve lane reductions on QED as required
Glebe Avenue	Bank Street	O'Connor Street	Road, Sewer, Water	2024	2024	Low – Higher traffic volumes on Bank & O'Connor as alternate routes
Lees Avenue	Mann Avenue	ON-417 O/P	Road Resurfacing	2025	TBD	Moderate – Higher traffic volumes on roads west of Lees are possible
ON-417 O/P Main Street	N/A	N/A	Work by Others – MTO (Bridge Work)	2027	2028	High – Significant impacts to area roads during enabling works, construction, and de-staging
ON-417 O/P Rideau Canal, QED, CBD	N/A	N/A	Work by Others – MTO (Bridge Work)	2025	2028	High – Significant impacts to area roads during enabling works, construction, and de-staging

ON-417 O/P Elgin Street	N/A	N/A	Work by Others – MTO (Bridge Work)	2027	2028	High – Significant impacts to area roads during enabling works, construction, and de-staging
ON-417 O/P Metcalfe Street	N/A	N/A	Work by Others – MTO (Bridge Work)	2027	2028	High – Significant impacts to area roads during enabling works, construction, and de-staging

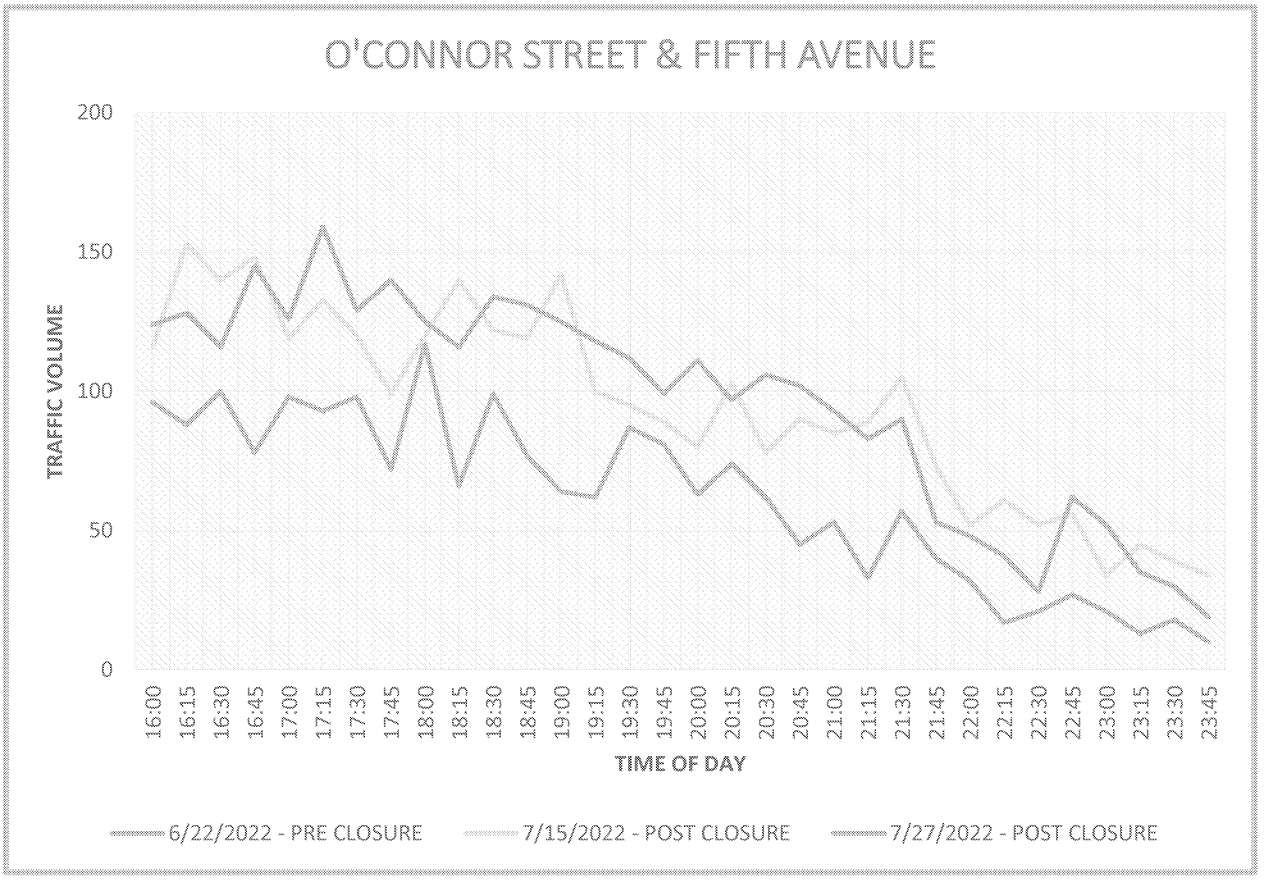
Appendix 3 - Traffic Volume (15min) Analysis



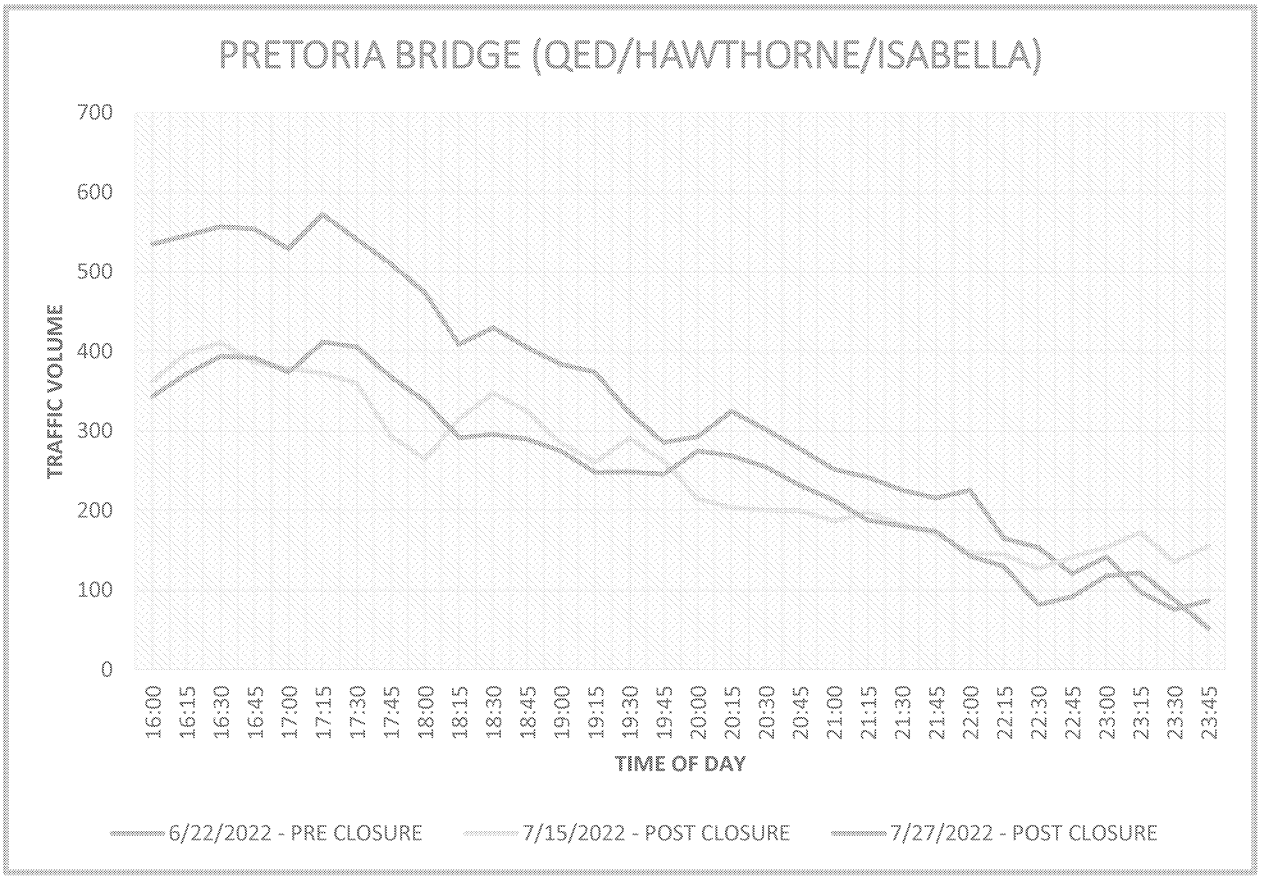
Queen Elizabeth Driveway – Data Summary



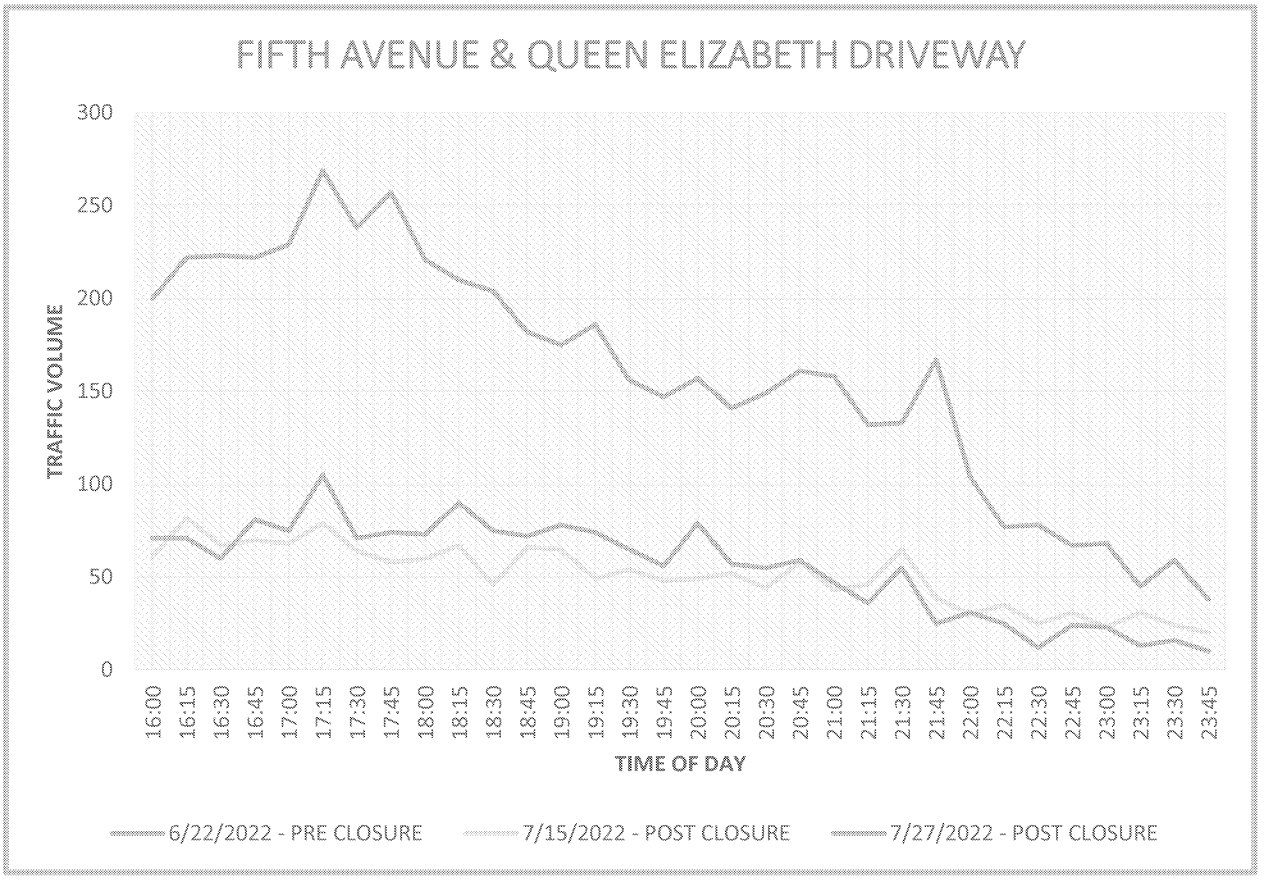
Queen Elizabeth Driveway – Data Summary



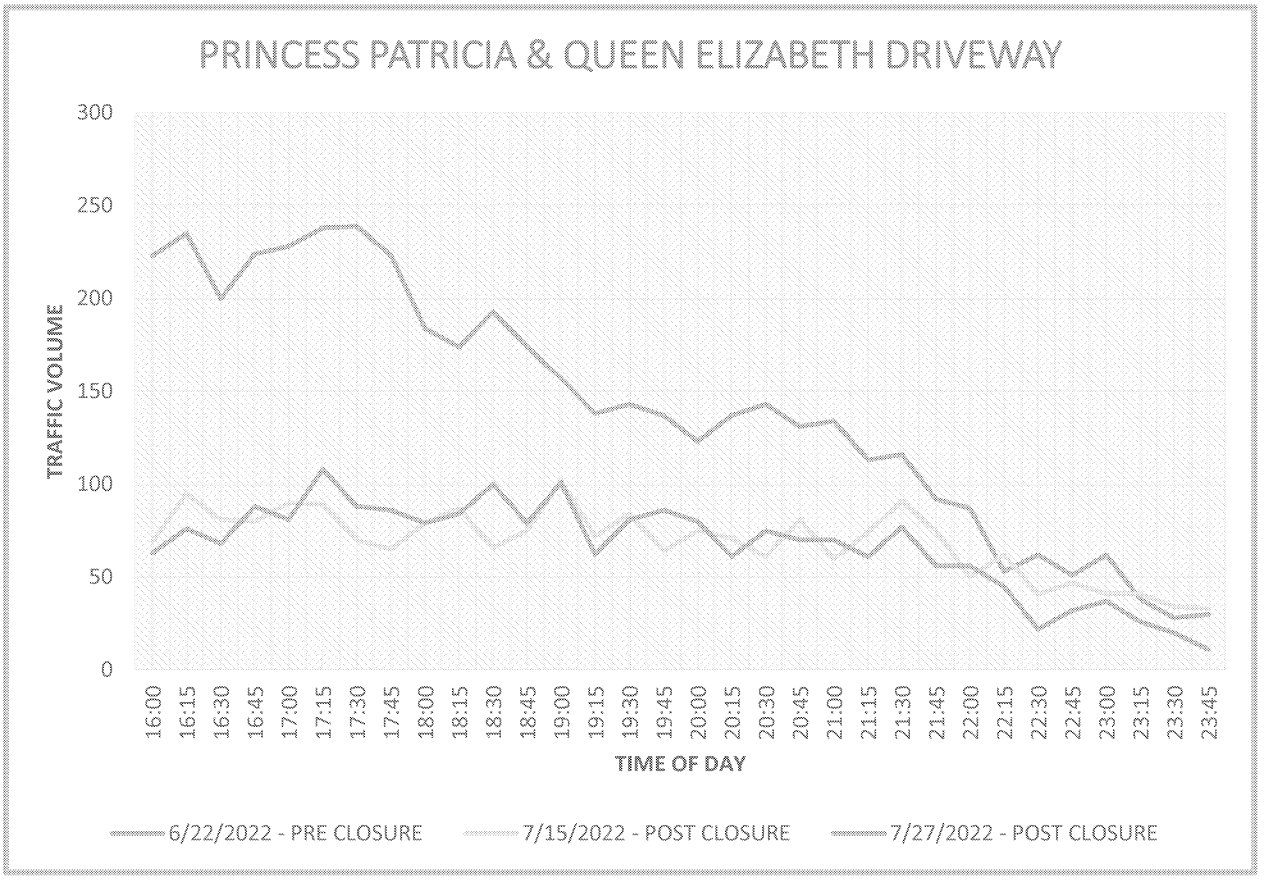
Queen Elizabeth Driveway – Data Summary



Queen Elizabeth Driveway – Data Summary



Queen Elizabeth Driveway – Data Summary



Appendix 4 – Pedestrian and Cyclist User Volume on Queen Elizabeth Driveway

See below visual representation of pedestrian and cyclist user volume per 4-hour intervals on Queen Elizabeth Driveway, highlighting the increase in user volume on weekends vs. weekdays.