Transportation Impact Assessment Report, Revision 1

Proposed Development at 347 Franktown Road, Carleton Place, Ontario

Revised November 4, 2021

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1. INTRODUCTION

1.1. Background

BT Engineering (BTE) was retained to prepare a Transportation Impact Assessment (TIA) for a proposed development at 347 Franktown Road in the Town of Carleton Place, Ontario. The proposed development is located on the east side of Franktown Road, north of Highway 7, and is bounded by lands proposed for future residential/commercial development. In total, the size of the study area is approximately 3 ha. The general location of the proposed development is illustrated in **Figure 1**. MTO confirmed that the site is located beyond their permit control area. Scenario 1 and Scenario 3, as described in this report, would have access being located closer to Highway 7 (within MTO's permit control area) and would be subject to MTO approval. For the purposes of this report the orientation of Franktown Road is described as north-south.

Figure 1: Site Location

A Transportation Environmental Study Report (TESR) was completed for Highway 7 and Highway 15 intersection improvements in July 2020. This Study recommended: the addition of a southbound through lane on Franktown Road for approximately 430 m north of Highway 7 (to approximately Alexander Street); elimination of the channelized right-turn lane on Highway 7

westbound onto Franktown Road with a controlled right-turn lane; and the provision of sidewalks on the west side of Franktown Road from Highway 7 to Findlay Avenue.

Additionally, the intersection of Franktown Road and Coleman Street was recently reconstructed to accommodate development within the Town of Carleton Place. The reconstruction included an auxiliary northbound and southbound left-turn lane.

These improvements were recommended taking into consideration planned / future development within Carleton Place. As a result, based on discussions with Town of Carleton Place staff, the intersections of Franktown Road at Coleman Street and Highway 7 were not included as part of this analysis.

1.2. Proposed Development

The proposed development at 347 Franktown Road is planned to include a retirement care home, senior's apartment building, commercial plaza and townhouse development. Construction will occur in four phases as summarized in **Table 1.** This table also provides a breakdown of the development areas for all phases.

Table 1: Phase 1 - Building Supply Outlet

Phase	Description	Area
Phase 1	Retirement Home Building	126,153 ft^2
Phase 2	Senior's Apartment Building	83,743 ft^2
Phase 3	Medical Clinic Building	12,174 ft^2
Phase 4	Townhouse Development	0.3196 ha

The subdivision preliminary draft plan is provided in **Appendix A**. Three scenarios for principal site access were analyzed based on input from the Town and MTO. These included:

- **Scenario 1 (Phase 1 of Development):** For Phase 1 of the development with site access provided via right-in access at 347 Franktown Road, and temporary full-movement access south of the commercial plaza located at 355 Franktown Road. This Scenario only evaluated to buildout of Phase 1 of the development. Following Phase 1, it is assumed that the temporary access south of the commercial plaza would be closed to vehicular traffic and would be limited to an emergency/fire access route.
- **Scenario 2:** Full buildout of the development, with principal site access provided via full-movement access at 347 Franktown Road. A secondary access would connect to the proposed development on the east side via a planned north-south Municipal Street. (This access scenario was evaluated previously but the Town's initial reaction was not supportive due to the proximity of the access, offset from Alexander Street .)
- **Scenario 3:** Full buildout of the development, with principal site access provided on the east side of the site via a planned north-south Municipal Street connecting to Nelson Street. In addition, a secondary right-in access would be provided at 347 Franktown Road.

It is anticipated that Phase 1 of the development could be completed by 2023 and that the full buildout of the development would be complete by 2027.

A potential 4th access scenario was discussed but has not been evaluated as part of this study. This would involve extension of the planned north-south Municipal Street south to a proposed extension of Findlay Avenue as proposed in the Transportation Master Plan and approved as part of the Highway 7 Secondary Plan. It would be dependent on the Town of Carleton Place securing the required public right-of-way through private property and should be addressed as part of the Transportation Master Plan.

2. EXISTING CONDITIONS (2021)

2.1. Roadway Geometry

The characteristics of the various roadways in the study area are summarized in **Table 2**.

Table 2: Study Area Roadways

Road	Classification	Cross Section	Posted Speed	Comments
Franktown Road	Arterial	2-lane	50 km/h	• North-south arterial providing access to residential/ commercial developments. • Provides access to the wider transportation network to the south (becomes Highway 15) and via Highway 7. • Nelson Street, Findlay Avenue and Alexander Street are stop controlled at Franktown Road.
Coleman Street	Collector	2-lane	50 km/h	• East-west collector providing access to residential/commercial developments. • Park Avenue is stop controlled at Coleman Street.
Highway 7	Provincial Highway	4-lane with a continuous two-way left-tun lane	60 km/h	• Provincial highway providing access to the Greater Toronto Area and Ottawa.
Park Avenue	Local Road	2-lane	50 km/h	• Connects to Coleman Street at stop-controlled intersection.
Nelson Street	Local Road	2-lane	50 km/h	• Connects to Franktown at stop-controlled intersection.
Findlay Avenue	Local Road	2-lane	50 km/h	• Connects to Franktown at stop-controlled intersection.
Alexander Street	Local Road	2-lane	50 km/h	• Connects to Franktown at stop-controlled intersection.

The existing lane geometry and traffic control at key intersections is illustrated on **Figure 2**.

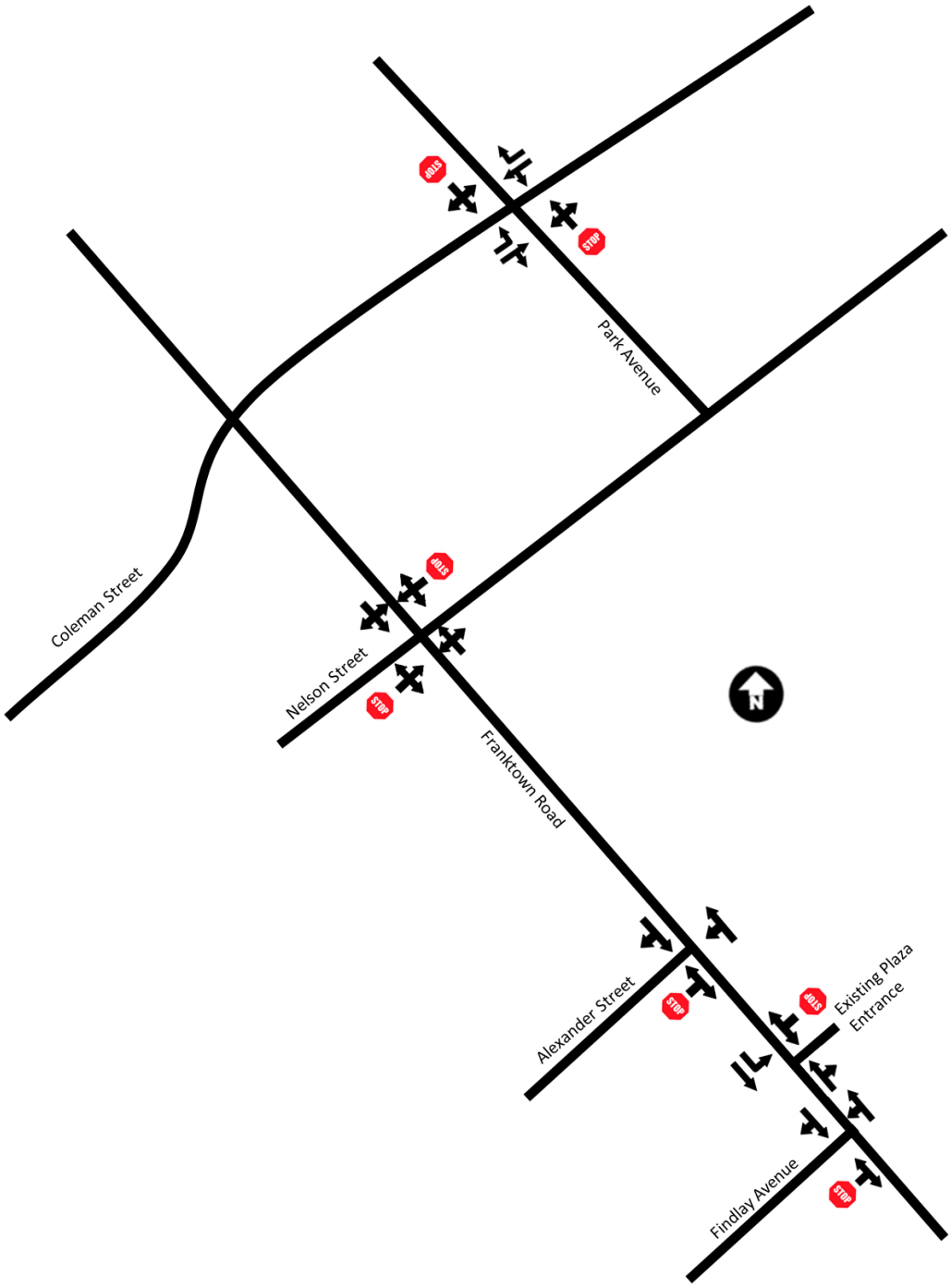

Figure 2: Existing Lane Geometry at Key Intersections

2.2. Transit Service

Currently the site is not serviced by any transit routes. Approximately 0.3 km north of Nelson Street, the area is serviced by Leduc Bus Lines Route 538 to provide daily commuter services to Ottawa. Due to low ridership, Route 538 was suspended on October 30, 2020 and will

remain temporarily suspended until further notice. Lanark Transportation, a community bus service for medical/social service appointments, offers services at the locations of Carabeck Community Centre and Carleton Place Town Hall biweekly on Tuesdays. The bus service also offers personalized in-town pick ups and drop-offs.

2.3. Provisions for Pedestrians and Cyclists

In the study area, Franktown Road has sidewalks with boulevards along the west side. The east side has portions of sidewalk starting at the Alexander Street intersection and continuing north towards the end of the project limits. The Highway 7 and Highway 15 Intersection Improvements Preliminary Design and Class EA Study (2020) recommended the provision of sidewalks on the east side of Franktown Boulevard south of Alexander Street. The side streets do not have pedestrian facilities.

There are no existing cycling facilities in the study area.

2.4. Traffic Operations

Existing traffic demands throughout the study area were obtained from peak period traffic counts provided in previous traffic reports and from turning movement counts. A list of the intersections and the counts obtained is presented in **Table 3**. This traffic impact study has utilized previous traffic counts, factoring them to 2021, to reflect more normal (pre COVID-19) conditions.

Table 3: Turning Movement Count Location and Source

Intersection	Source
Coleman Street at Park Avenue	Traffic Impact Study Addendum – Coleman Street Subdivision (McIntosh Perry Consulting Engineers Ltd., 2019)
Franktown Road at Nelson Street	
Franktown Road at Alexander Street	Highway 7 and Highway 15 Intersection Improvements Preliminary Design and Class EA Study – Traffic Analysis Report (2020)
Franktown Road at Findlay Avenue	
Franktown Road at Existing Commercial Plaza (355 Franktown Road)	BTE Turning Movement Count on October 21, 2021 (PM) and October 22, 2021 (AM)

Existing peak hour traffic demands are shown in **Figure 3**. The existing roadway capacity in the area was evaluated using Synchro 9 and is summarized in **Table 4**. Detailed analysis reports are provided in **Appendix B**.

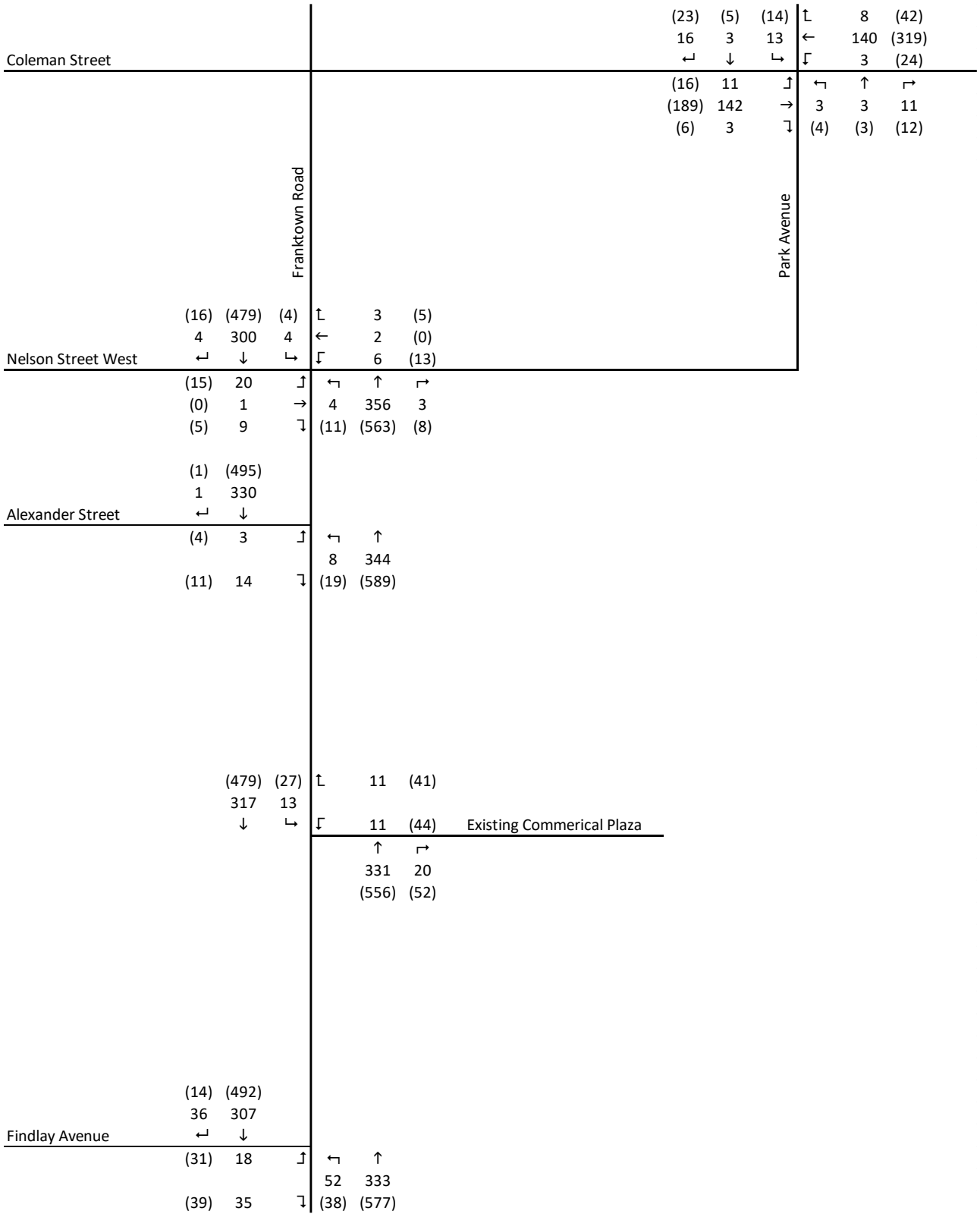

Figure 3: Existing (2021) AM (PM) Peak Hour Traffic Volumes

Table 4: Existing Traffic Operations

Intersection	Movement	AM Peak Hour V/C	AM Peak Hour Delay (s)	AM Peak Hour LOS	AM Peak Hour 95th Queue (m)	PM Peak Hour V/C	PM Peak Hour Delay (s)	PM Peak Hour LOS	PM Peak Hour 95th Queue (m)
Coleman Street at Park Avenue	EBL	0.01	7.6	A	0.2	0.01	8.1	A	0.4
	EBTR	0.09	0.0	A	0.0	0.12	0.0	A	0.0
	WBL	0.0	7.5	A	0.1	0.02	7.7	A	0.5
	WBTR	0.09	0.0	A	0.0	0.23	0.0	A	0.0
	SBLTR	0.05	10.4	B	1.2	0.09	13.2	B	2.5
	NBLTR	0.02	9.9	A	0.6	0.04	11.7	B	0.9
	Overall		**1.7**	**A**			**1.6**	**A**	
Franktown Road at Nelson Street	SBLTR	0.0	0.1	A	0.1	0.0	0.1	A	0.1
	NBLTR	0.0	0.1	A	0.1	0.01	0.3	A	0.3
	EBLTR	0.08	15.0	B	2.2	0.11	25.6	D	2.8
	WBLTR	0.03	14.9	B	0.8	0.10	25.5	D	2.7
	Overall		**1.0**	**A**			**1.1**	**A**	
Franktown Road at Alexander Street	SBTR	0.21	0.0	A	0.0	0.32	0.0	A	0.0
	NBTL	0.01	0.3	A	0.2	0.02	0.5	A	0.5
	EBLR	0.03	11.2	B	0.7	0.04	15.0	C	1.1
	Overall		**0.4**	**A**			**0.5**	A	
Franktown Road at Commercial Plaza (355 Franktown)	SBL	0.01	8.1	A	0.3	0.03	9.0	A	0.8
	SBT	0.20	0.0	A	0.0	0.31	0.0	A	0.0
	NBTR	0.22	0.0	A	0.0	0.39	0.0	A	0.0
	WBLR	0.05	12.8	B	1.2	0.34	24.8	C	11.6
	Overall		**0.6**	**A**			**2.0**	**A**	
Franktown Road at Findlay Avenue	SBTR	0.22	0.0	A	0.0	0.32	0.0	A	0.0
	NBLT	0.05	1.5	A	1.2	0.04	1.1	A	1.0
	EBLR	0.12	13.2	B	3.2	0.26	21.9	C	8.3
	Overall		**1.7**	**A**			**1.8**	**A**	

The analysis found that all existing intersections operated well within their capacity, at a reasonable level of service during the peak hours.

3. BACKGROUND TRAFFIC

An annual growth rate of 1.5% has been assumed for the background traffic along Franktown Road and Coleman Street. Additionally, the development generated traffic from the Coleman Street Subdivision Traffic Impact Study Addendum (2019) has been added to the background growth at the intersections of Franktown Road/Nelson Street and Coleman Street/Park Avenue.

3.1. 2028 Background Traffic (Phase 1)

Phase 1 of the subject site could potentially be fully developed by 2023. The year 2028 was therefore assumed as the 5-year planning horizon beyond Phase 1 development.

The resulting 2028 background traffic volumes are presented in **Figure 4**. The traffic operations of the intersections were evaluated using Synchro 11.

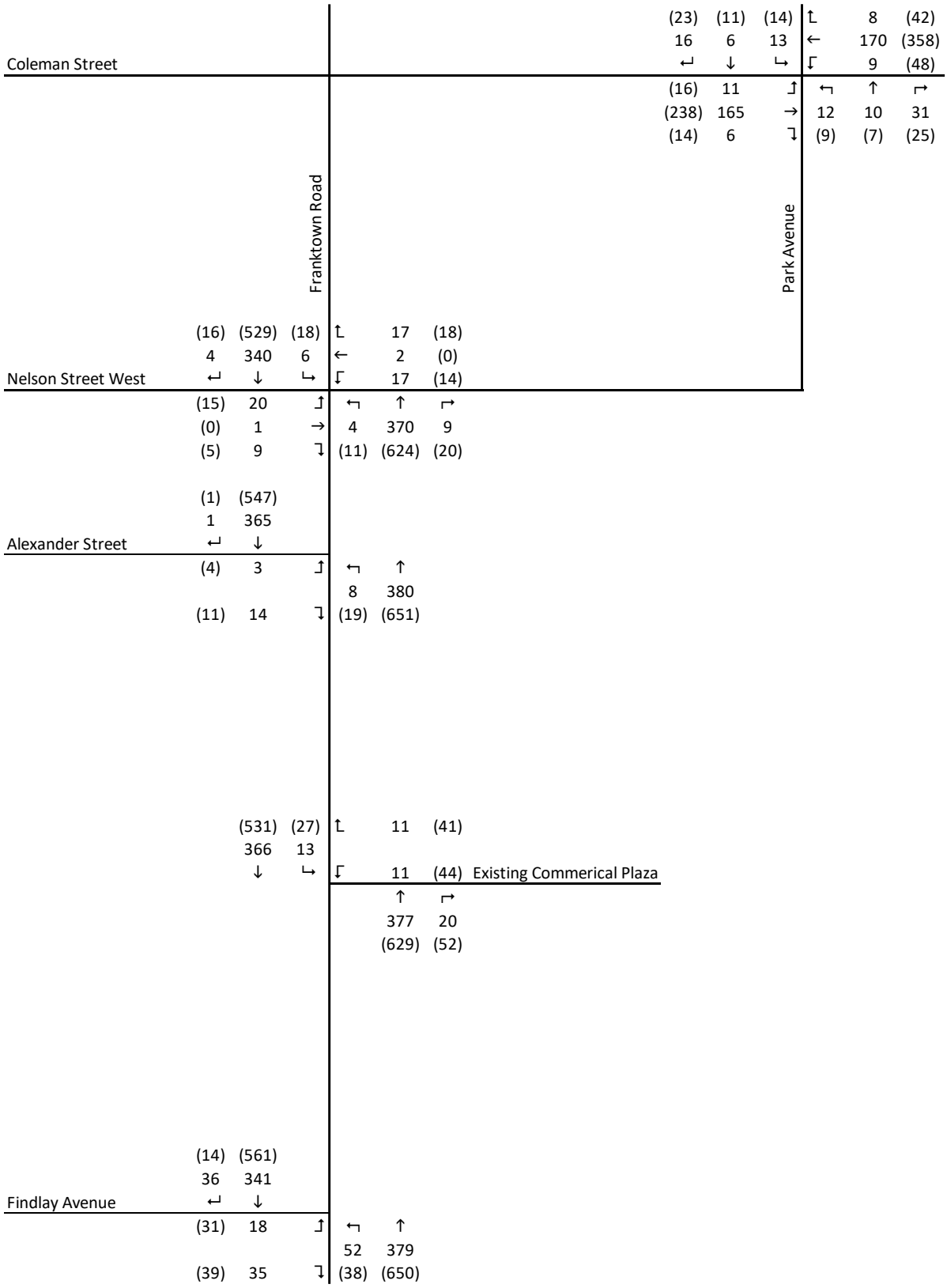

Figure 4: 2028 Background AM (PM) Peak Hour Traffic Volumes

Table 5 provides a summary of the background traffic conditions in 2028. The intersections under study are anticipated to continue to operate well within their capacity. During the PM peak hour the stop-controlled approaches at Franktown Road/ Nelson Street and Franktown Road / Findlay Avenue are operating at a reduced level of services and experience longer delays (LOS D). However, they continue to operate below capacity at an acceptable level of service.

Table 5: 2028 Background Traffic Operations

Intersection	Movement	AM Peak Hour V/C	AM Peak Hour Delay (s)	AM Peak Hour LOS	AM Peak Hour 95th Queue (m)	PM Peak Hour V/C	PM Peak Hour Delay (s)	PM Peak Hour LOS	PM Peak Hour 95th Queue (m)
Coleman Street at Park Avenue	EBL	0.01	7.6	A	0.2	0.02	8.3	A	0.4
	EBTR	0.11	0.0	A	0.0	0.16	0.0	A	0.0
	WBL	0.01	7.6	A	0.2	0.04	7.9	A	1.0
	WBTR	0.11	0.0	A	0.0	0.26	0.0	A	0.0
	SBLTR	0.06	11.3	B	1.6	0.14	16.1	C	3.8
	NBLTR	0.09	10.9	B	2.3	0.10	14.0	B	2.7
	Overall		**2.5**	**A**			**2.3**	**A**	
Franktown Road at Nelson Street	SBLTR	0.01	0.2	A	0.1	0.02	0.6	A	0.5
	NBLTR	0.0	0.1	A	0.1	0.01	0.3	A	0.3
	EBLTR	0.1	16.6	C	2.5	0.15	34.3	D	1.0
	WBLTR	0.1	15.1	C	2.5	0.17	25.3	D	4.6
	Overall		**1.4**	**A**			**1.6**	**A**	
Franktown Road at Alexander Street	SBTR	0.23	0.0	A	0.0	0.35	0.0	A	0.0
	NBTL	0.01	0.3	A	0.2	0.02	0.6	A	0.5
	EBLR	0.03	11.6	B	0.8	0.05	16.4	C	1.2
	Overall		**0.4**	**A**			**0.5**	**A**	
Franktown Road at Commercial Plaza (355 Franktown)	SBL	0.01	8.2	A	0.3	0.03	9.3	A	0.8
	SBT	0.23	0.0	A	0.0	0.34	0.0	A	0.0
	NBTR	0.25	0.0	A	0.0	0.44	0.0	A	0.0
	WBLR	0.06	13.8	B	1.4	0.40	30.7	D	14.6
	Overall		**0.5**	**A**			**2.2**	**A**	
Franktown Road at Findlay Avenue	SBTR	0.24	0.0	A	0.0	0.37	0.0	A	0.0
	NBLT	0.05	1.5	A	1.3	0.04	1.1	A	1.1
	EBLR	0.13	14.1	B	3.5	0.32	26.9	D	10.5
	Overall		**1.6**	**A**			**2.0**	**A**	

3.2. 2032 Background Traffic

Phases 1 to 4 of the subject site could potentially be fully developed by 2027. The year 2032 was therefore assumed as the 5-year planning horizon beyond full development.

The resulting 2032 background traffic volumes are presented in **Figure 5**. The traffic operations of the intersections were evaluated using Synchro 11.

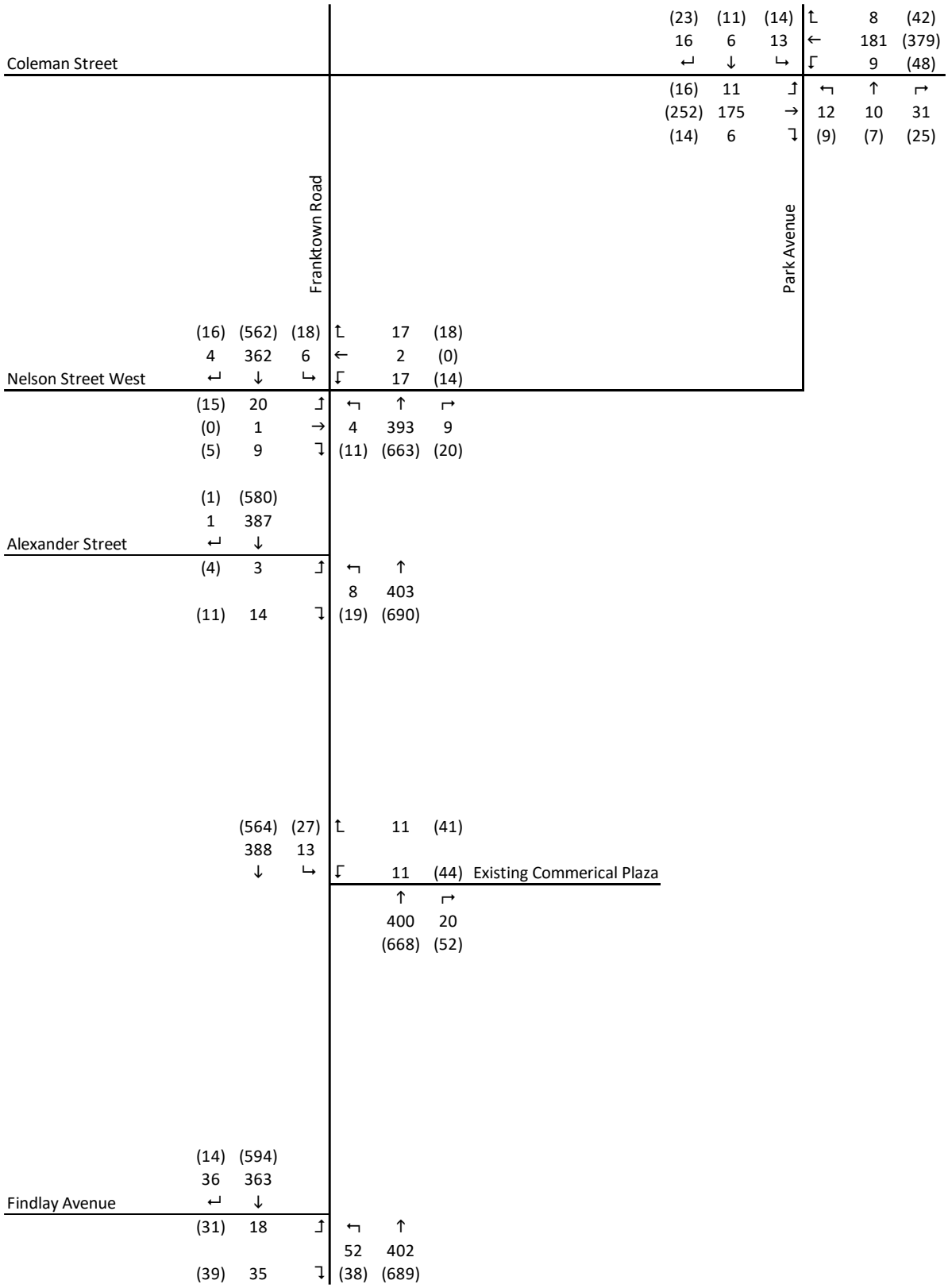

Figure 5: 2032 Background AM (PM) Peak Hour Traffic Volumes

Table 6 provides a summary of the background traffic conditions in 2032. The intersections under study are anticipated to operate similar to the 2028 Background Traffic scenario. The road network will continue to operate well within their capacity with some minor delays at the stop-controlled approaches to Franktown Road at Nelson Street and Findlay Avenue.

Table 6: 2032 Background Traffic Operations

Intersection	Movement	AM Peak Hour V/C	AM Peak Hour Delay (s)	AM Peak Hour LOS	AM Peak Hour 95th Queue (m)	PM Peak Hour V/C	PM Peak Hour Delay (s)	PM Peak Hour LOS	PM Peak Hour 95th Queue (m)
Coleman Street at Park Avenue	EBL	0.01	7.7	A	0.2	0.02	8.3	A	0.4
	EBTR	0.12	0.0	A	0.0	0.17	0.0	A	0.0
	WBL	0.01	7.6	A	0.2	0.04	7.9	A	1.0
	WBTR	0.12	0.0	A	0.0	0.27	0.0	A	0.0
	SBLTR	0.06	11.5	B	1.6	0.15	16.8	C	4.0
	NBLTR	0.09	11.0	B	2.3	0.11	14.5	B	2.8
	Overall		**2.4**	**A**			**2.3**	**A**	
Franktown Road at Nelson Street	SBLTR	0.01	0.2	A	0.2	0.02	0.6	A	0.6
	NBLTR	0.0	0.1	A	0.1	0.01	0.3	A	0.3
	EBLTR	0.1	17.5	C	2.7	0.17	38.9	E	4.6
	WBLTR	0.1	15.8	C	2.7	0.18	28.2	D	5.2
	Overall		**1.4**	**A**			**1.7**	**A**	
Franktown Road at Alexander Street	SBTR	0.25	0.0	A	0.0	0.37	0.0	A	0.0
	NBTL	0.01	0.3	A	0.2	0.02	0.6	A	0.5
	EBLR	0.03	11.9	B	0.8	0.05	17.1	C	1.3
	Overall		**0.4**	**A**			**0.5**	**A**	
Franktown Road at Commercial Plaza (355 Franktown)	SBL	0.01	8.3	A	0.3	0.03	9.5	A	0.9
	SBT	0.25	0.0	A	0.0	0.36	0.0	A	0.0
	NBTR	0.27	0.0	A	0.0	0.46	0.0	A	0.0
	WBLR	0.06	14.4	B	1.5	0.44	35.1	E	16.7
	Overall		**0.5**	**A**			**2.3**	**A**	
Franktown Road at Findlay Avenue	SBTR	0.26	0.0	A	0.0	0.39	0.0	A	0.0
	NBLT	0.05	1.5	A	1.3	0.04	1.1	A	1.1
	EBLR	0.13	14.6	B	3.7	0.35	30.1	D	11.9
	Overall		**1.6**	**A**			**2.1**	**A**	

4. SITE TRAVEL DEMANDS

4.1. Trip Generation

The ITE Trip Generation Manual was used to estimate the traffic volumes generated by the construction of the proposed development. The projected AM and PM peak hour site-generated traffic volumes are presented in **Table 7**.

Table 7: Site Trip Generation, Full Development

Phase	ITE Land Use	ITE Unit	Item	AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out
Phase 1 - Retirement Home Building (Independent Retirement Units)	Congregate Care Facility (253)	Dwelling Unit	Quantity	59			59		
			Trip Rate	0.06			0.17		
			Distribution	100%	59%	41%	100%	55%	45%
			Veh. Trips	5	3	2	11	6	5
Phase 1 - Retirement Home Building (Assisted Care/Memory Care)	Assisted Living (254)	Dwelling Unit	Quantity	93			93		
			Trip Rate	0.18			0.29		
			Distribution	100%	68%	32%	100%	50%	50%
			Veh. Trips	18	12	6	28	14	14
	Subtotal			**23**	**15**	**8**	**39**	**20**	**19**
Phase 2 - Senior's Apartment Building	Senior Adult Housing - Attached (252)	Dwelling Unit	Quantity	70			70		
			Trip Rate	0.2			0.25		
			Distribution	100%	34%	66%	100%	54%	46%
			Veh. Trips	15	5	10	19	10	9
	Subtotal			**15**	**5**	**10**	**19**	**10**	**9**
Phase 3 - Medical Clinic Building	Medical-Dental Office Building (720)	Gross Floor Aera (1000 sq ft)	Quantity	12.174			12.174		
			Trip Rate	2.39			3.57		
			Distribution	100%	79%	21%	100%	28%	72%
			Veh. Trips	30	23	7	45	13	32
	Subtotal			**30**	**23**	**7**	**45**	**13**	**32**
Phase 4 - Townhouse Development	Residential Condominium / Townhouse (230)	Dwelling Unit	Quantity	18			18		
			Trip Rate	0.44			0.52		
			Distribution	100%	17%	83%	100%	67%	33%
			Veh. Trips	9	2	7	11	7	4
	Subtotal			**9**	**2**	**7**	**11**	**7**	**4**
	TOTAL			**77**	**45**	**32**	**114**	**50**	**64**

4.2. Scenario 1 (Phase 1 of Development)

4.2.1. Trip Distribution and Assignment

Scenario 1 applies to Phase 1 of the development. Under this scenario, principal site access would be provided via full-movement access south of the commercial plaza located at 355 Franktown Road. The Site Plan identifies that this access would remain for emergency vehicles only beyond Phase 1 of the development. Constructing a site access south of the commercial plaza would include realignment of the existing entrance to the commercial plaza to the north of the commercial site consistent with MTO's longer term plan. A driveway to the commercial plaza would also be provided from the temporary site access. It is assumed that 2/3 of the vehicles travelling to/from the commercial site would enter the plaza via the first entrance on their route.

Secondary access to the development would be provided via right-in access at 347 Franktown Road and to the east side of the development via a planned north-south Municipal Street. Following Phase 1, it is assumed that the temporary access south of the commercial plaza would be closed to vehicular traffic and would become an emergency/fire access route.

This Scenario only evaluated traffic conditions up to buildout of Phase 1 (2028). The distribution and assignment of site-generated traffic, as presented in **Figure 6**, was based on existing travel patterns observed in the study area. It was assumed that traffic to/from the site would be split 50/50 from the north and south.

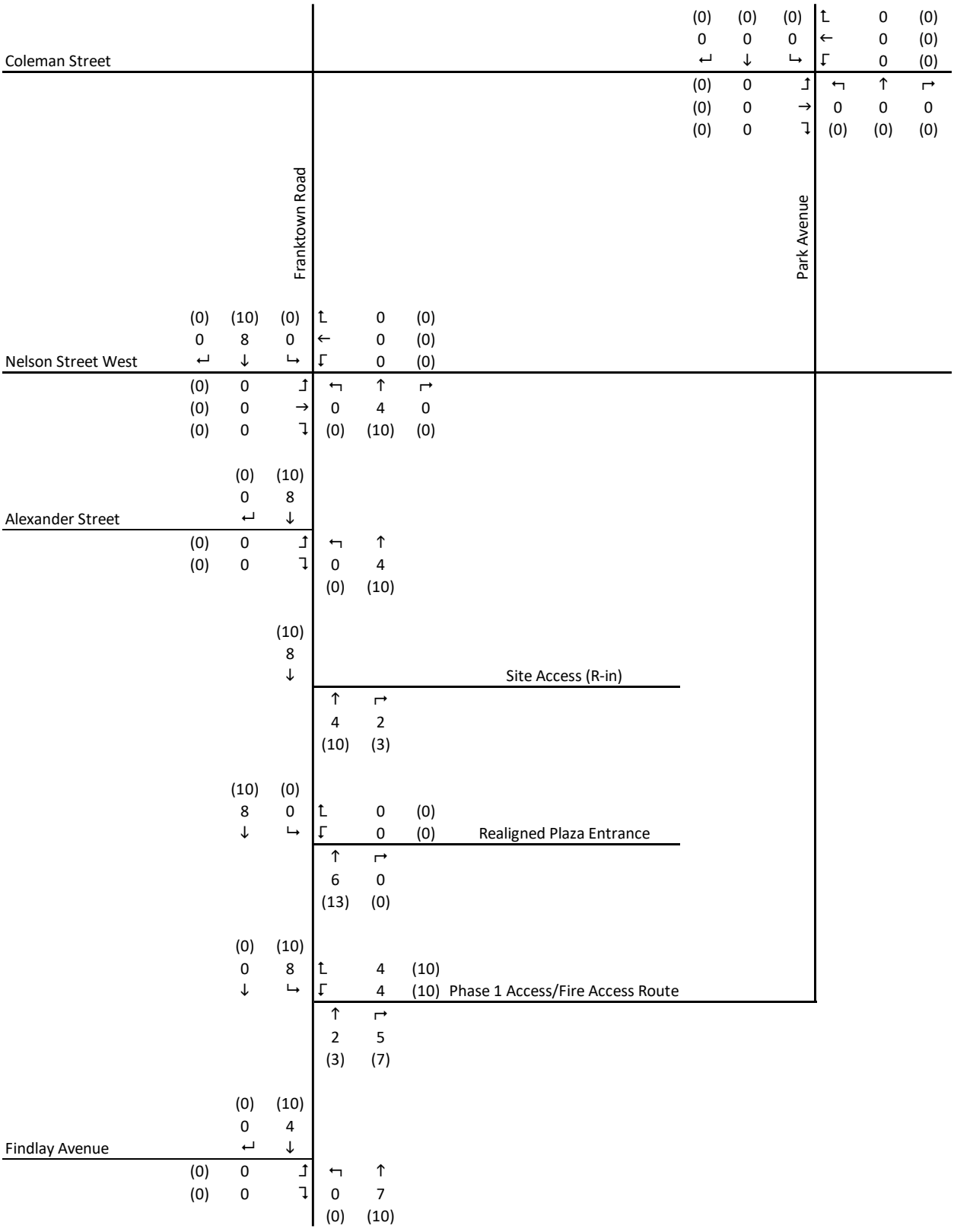

Figure 6: Scenario 1 AM (PM) Peak Hour Site Generated Traffic

4.2.2. 2028 Total (Phase 1) Traffic

Total traffic values were calculated by combining the projected Phase 1 site generated traffic with the 2028 background traffic volumes. The resulting 2028 total peak hour traffic projections are presented in Figure 8.

The warrant for the southbound left-turn movement entering the site access south of the commercial plaza at 355 Franktown Road was prepared using the nomograph for the MTO Geometric Design Standards for Ontario Highways corresponding to a 5% proportion of left turns and a design speed of 60 km/h (see **Figure 7**). The warrant was analysed by combining the left-turning vehicles at the realigned commercial plaza entrance and the temporary site access. These volumes were combined due to the proximity of the realigned entrance and the temporary site access, and a left turn lane would be warranted during the PM Peak hour.

It is recommended that the pavement markings be modified to extend the existing left-turn lane so that it continues to serve the commercial plaza entrance as well as the temporary site access.

A summary of the resulting peak hour traffic operations projected for the 2028 total traffic for Scenario 1 (full-movement access at 347 Franktown Road) is provided in **Table 8**. The proposed site access and adjacent intersection are all projected to operate within capacity in 2028. The Total Traffic reflects similar operational constraints seen in the Background Traffic, however the intersections will remain at reasonable levels of service and all operate well within their capacities.

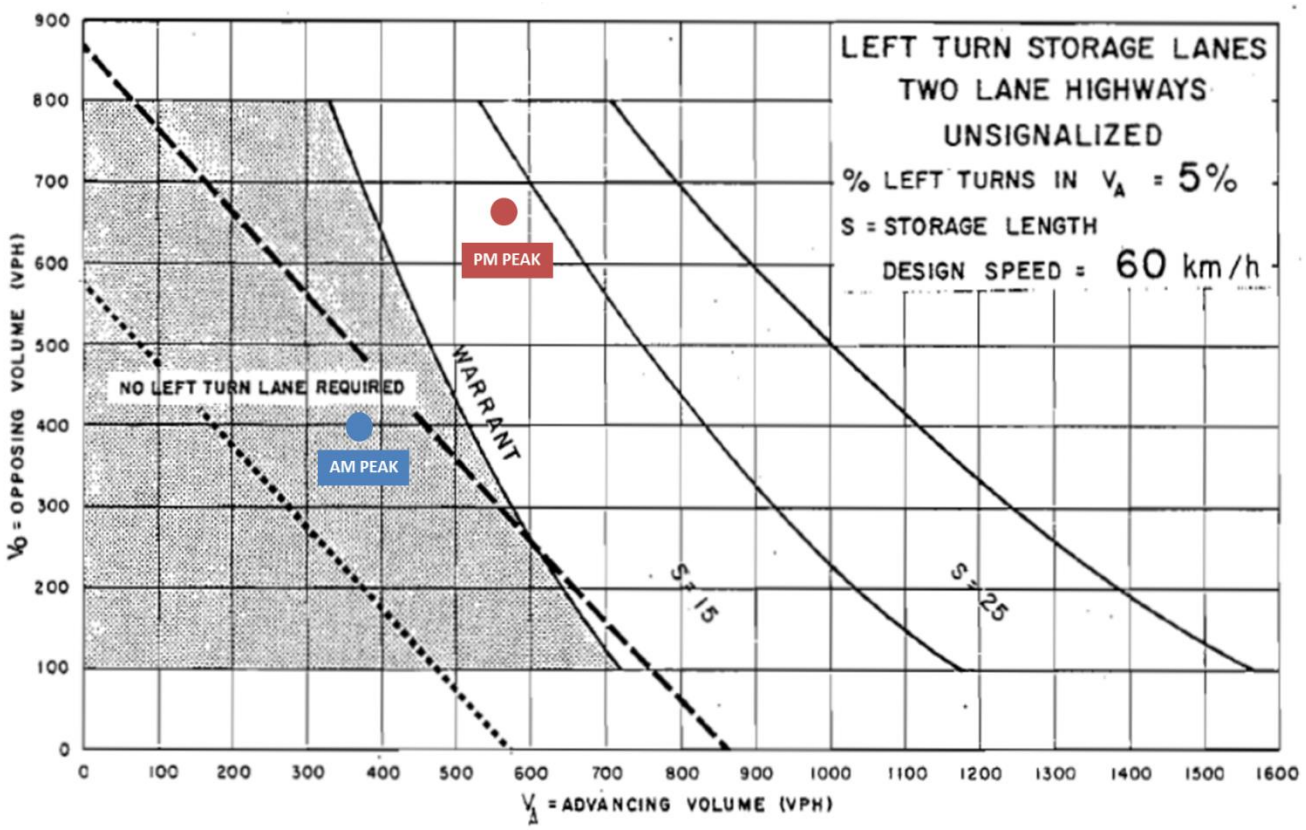

Figure 7: Left Turn Warrant Nomograph at Temporary Site Access, 2028 Scenario 1 Total Traffic

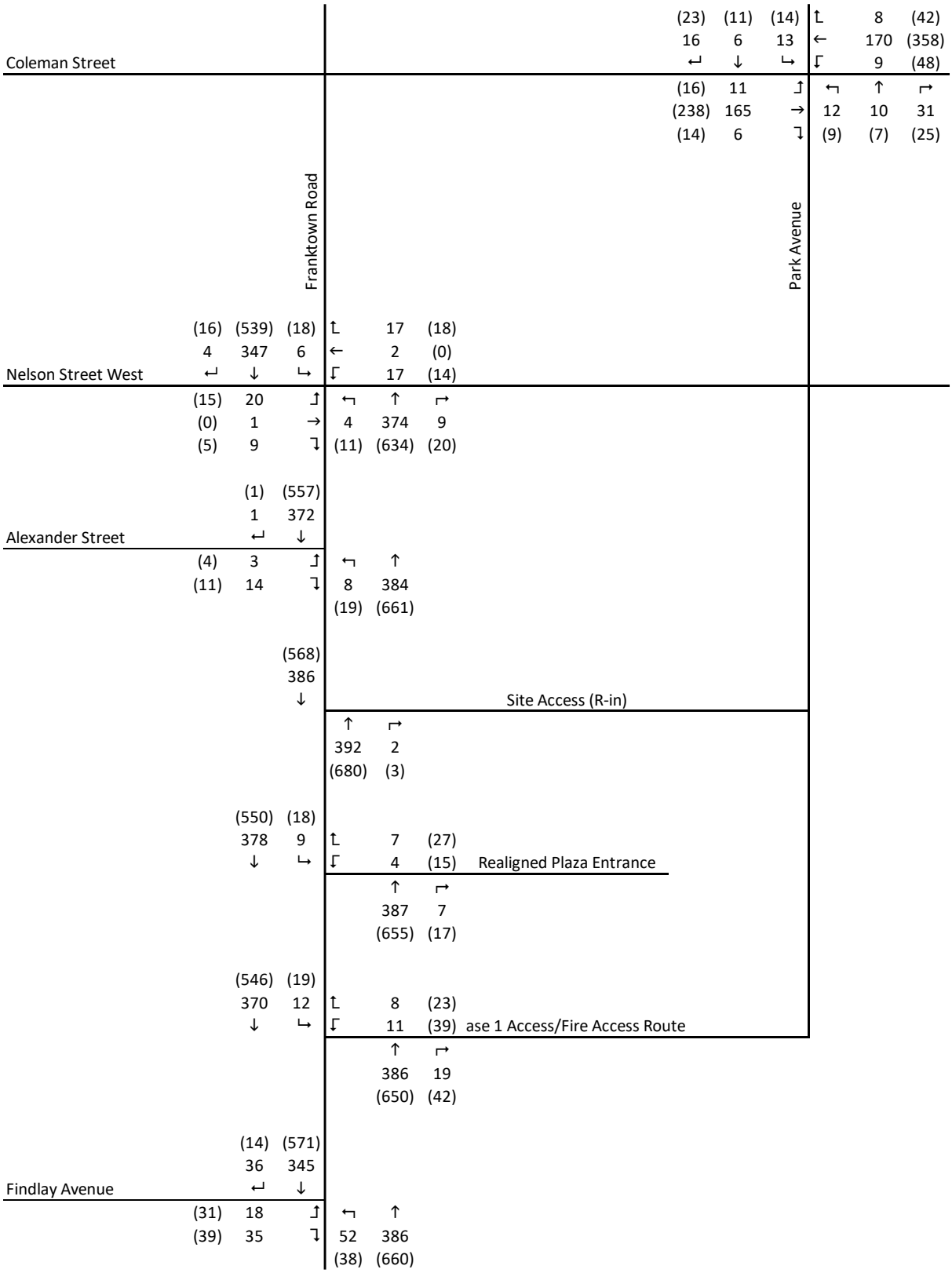

Figure 8: 2028 Scenario 1 Total Future AM (PM) Peak Hour Traffic

Table 8: 2032 Scenario 1 Total Traffic Operations

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		V/C	Delay (s)	LOS	95th Queue (m)	V/C	Delay (s)	LOS	95th Queue (m)
Coleman Street at Park Avenue	EBL	0.01	7.6	A	0.2	0.02	8.3	A	0.4
	EBTR	0.11	0.0	A	0.0	0.16	0.0	A	0.0
	WBL	0.01	7.6	A	0.2	0.04	7.9	A	1.0
	WBTR	0.11	0.0	A	0.0	0.26	0.0	A	0.0
	SBLTR	0.06	11.3	B	1.6	0.14	16.1	C	3.8
	NBLTR	0.09	10.9	B	2.3	0.10	14.0	B	2.7
	Overall		**2.5**	**A**			**2.3**	**A**	
Franktown Road at Nelson Street	SBLTR	0.01	0.2	A	0.1	0.02	0.6	A	0.6
	NBLTR	0.0	0.1	A	0.1	0.01	0.3	A	0.3
	EBLTR	0.1	16.8	C	2.6	0.15	35.5	E	4.1
	WBLTR	0.1	15.3	C	2.6	0.17	26.1	D	4.8
	Overall		**1.4**	**A**			**1.6**	**A**	
Franktown Road at Alexander Street	SBTR	0.24	0.0	A	0.0	0.36	0.0	A	0.0
	NBTL	0.01	0.3	A	0.2	0.02	0.6	A	0.5
	EBLR	0.03	11.7	B	0.8	0.05	16.7	C	1.2
	Overall		**0.4**	**A**			**0.5**	**A**	
Franktown Road at Site Access (R-in)	SBT	0.25	0.0	A	0.0	0.36	0.0	A	0.0
	NBTR	0.25	0.0	A	0.0	0.44	0.0	A	0.0
	Overall		**0.0**	**A**			**0.0**	**A**	
Franktown Road at Realigned Commercial Plaza	SBL	0.01	8.2	A	0.2	0.02	9.2	A	0.6
	SBT	0.24	0.0	A	0.0	0.35	0.0	A	0.0
	NBTR	0.25	0.0	A	0.0	0.43	0.0	A	0.0
	WBLR	0.03	12.7	B	0.6	0.17	21.1	C	4.7
	Overall		**0.3**	**A**			**0.8**	**A**	
Franktown Road at Phase 1 Access	SBT	0.01	8.3	A	0.3	0.02	9.3	A	0.6
	SBL	0.24	0.0	A	0.0	0.35	0.0	A	0.0
	SBTR	0.26	0.0	A	0.0	0.44	0.0	A	0.0
	WBLR	0.05	14.3	B	1.3	0.32	30.6	D	10.7
			0.5	**A**			**1.6**	**A**	
Franktown Road at Findlay Avenue	SBTR	0.24	0.0	A	0.0	0.37	0.0	A	0.0
	NBLT	0.05	1.5	A	1.3	0.04	1.1	A	1.1
	EBLR	0.13	14.2	B	3.5	0.33	27.7	D	10.9
	Overall		**1.6**	**A**			**2.0**	**A**	

4.3. Scenario 2

4.3.1. Trip Distribution and Assignment

Scenario 2 assumes that for full buildout of the development (Phases 1 to 4), principal site access would be provided via full-movement access on the south side of 347 Franktown Road, along the frontage that was created onto Franktown Road as part of the property severance. A secondary access will connect to the proposed development on the east side via a planned north-south Municipal Street. The resulting Franktown Road access would be offset approximately 20 m from the intersection with Alexander Street.

The distribution and assignment of site-generated traffic, as presented in **Figure 9**, was based on existing travel patterns observed in the study area. It was assumed that 80% of traffic to/from the development would utilize Franktown Road to access the site. The remaining 20% would use the proposed north-south Municipal Street that connects through adjacent developments to the local road network.

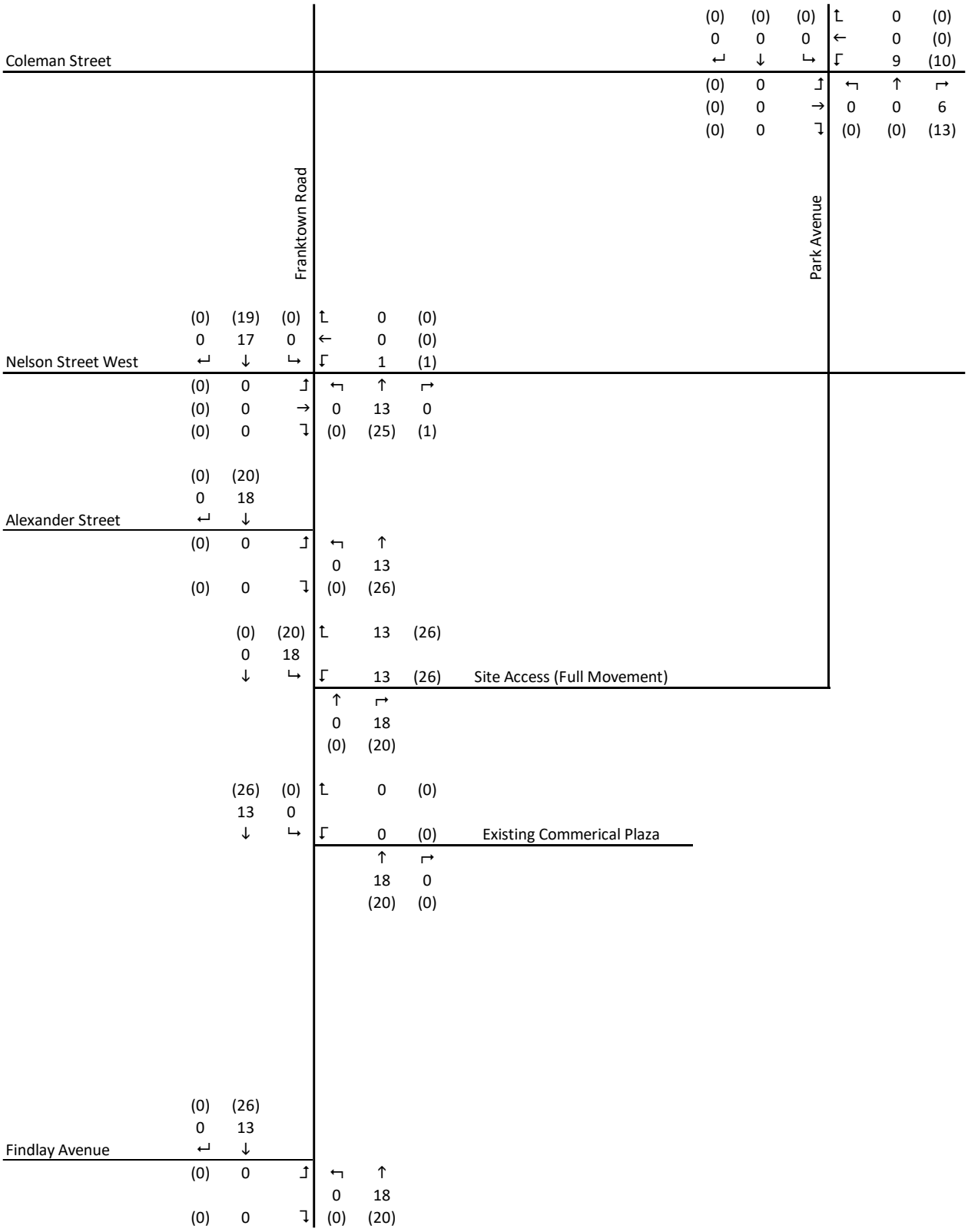

Figure 9: Scenario 2 AM (PM) Peak Hour Site Generated Traffic

4.3.2. 2032 Total (Scenario 2) Traffic

Total traffic values were calculated by combining the projected site generated traffic with the 2032 background traffic volumes. The resulting 2032 total peak hour traffic projections are presented in **Figure 11**.

The warrant for the southbound left-turn movement entering the site was prepared using the nomograph for the MTO Geometric Design Standards for Ontario Highways corresponding to a 5% proportion of left turns and a design speed of 60 km/h (see **Figure 10**). The proportion of left-turning vehicles during the peak hour is approximately 3-4%.

Based on this analysis, a left-turn lane would be warranted at the site access for a portion of the day; however, considering the proximity to the Alexander Street intersection, and that the projected left-turn volume represents only 3% of the approaching volume in the PM Peak, delineation of a left-turn lane is not recommended. Maintaining the existing shared left and through lane was found to have no significant impact on the operation or LOS on Franktown Road. The existing pavement width also allows most motorists to bypass a stopped left-turning vehicle, if on-street parking is prohibited on Franktown Road, adjacent to the intersection with Alexander Street.

NO

A summary of the resulting peak hour traffic operations projected for the 2032 total traffic for Scenario 2 (full-movement access at 347 Franktown Road) is provided in **Table 9**. The proposed site access and adjacent intersection are all projected to operate within capacity in 2032. The Total Traffic reflects similar operational constraints seen in the Background Traffic during the PM Peak (i.e. relatively minor delays for motorists and a reduced level of service on stop-controlled approaches to Franktown Road); however, the intersections will remain at reasonable levels of service and all operate well within their capacities.

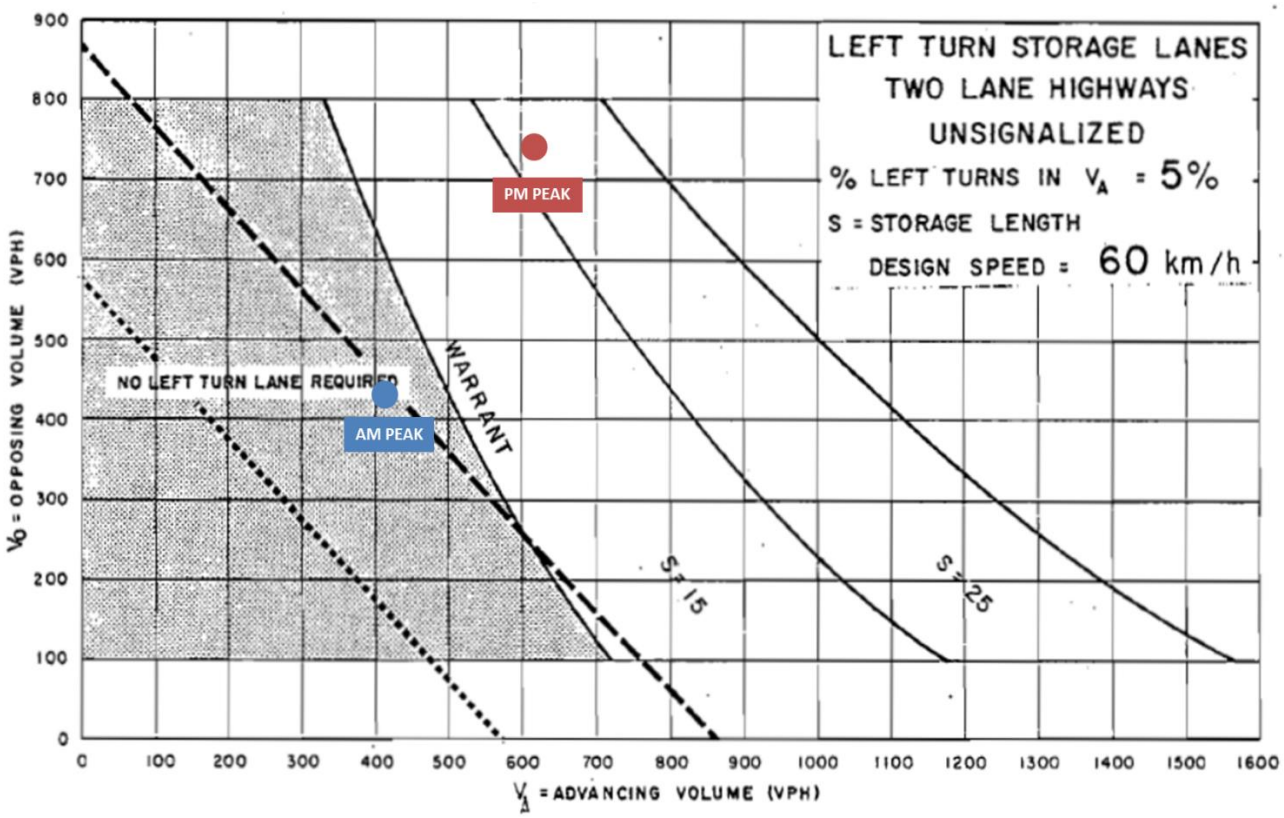

Figure 10: Left Turn Warrant Nomograph at Site Access, 2032 Scenario 2 Total Traffic

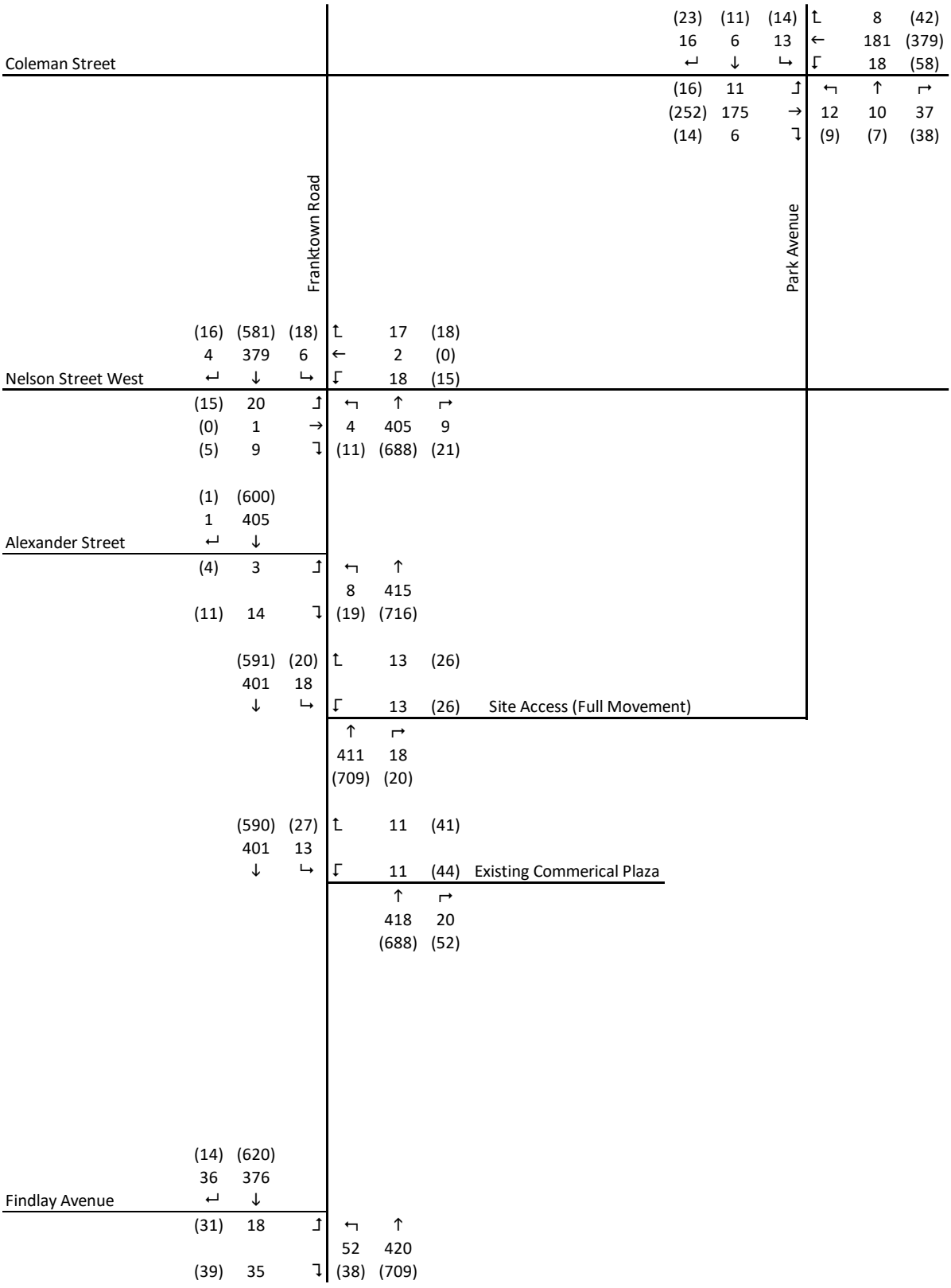

Figure 11: 2032 Scenario 2 Total Future AM (PM) Peak Hour Traffic

Table 9: 2032 Scenario 2 Total Traffic Operations

Intersection	Movement	AM Peak Hour V/C	AM Peak Hour Delay (s)	AM Peak Hour LOS	AM Peak Hour 95th Queue (m)	PM Peak Hour V/C	PM Peak Hour Delay (s)	PM Peak Hour LOS	PM Peak Hour 95th Queue (m)
Coleman Street at Park Avenue	EBL	0.01	7.7	A	0.2	0.02	8.3	A	0.4
	EBTR	0.12	0.0	A	0.0	0.17	0.0	A	0.0
	WBL	0.01	7.7	A	0.4	0.05	8.0	A	1.2
	WBTR	0.12	0.0	A	0.0	0.27	0.0	A	0.0
	SBLTR	0.07	11.7	B	1.7	0.15	17.5	C	4.3
	NBLTR	0.10	11.1	B	2.6	0.13	13.9	B	3.5
	Overall		**2.6**	**A**			**2.5**	**A**	
Franktown Road at Nelson Street	SBLTR	0.01	0.2	A	0.2	0.02	0.6	A	0.6
	NBLTR	0.0	0.1	A	0.1	0.01	0.3	A	0.3
	EBLTR	0.11	18.2	C	2.9	0.18	42.1	E	5.0
	WBLTR	0.11	16.6	C	3.1	0.21	31.0	D	6.0
	Overall		**1.5**	**A**			**1.8**	**A**	
Franktown Road at Alexander Street	SBTR	0.26	0.0	A	0.0	0.38	0.0	A	0.0
	NBTL	0.01	0.2	A	0.2	0.02	0.6	A	0.6
	EBLR	0.03	12.1	B	0.8	0.05	18.1	C	1.4
	Overall		**0.4**	**A**			**0.5**	**A**	
Franktown Road at Site Access	SBTL	0.02	0.6	A	0.4	0.03	0.7	A	0.7
	NBTR	0.27	0.0	A	0.0	0.47	0.0	A	0.0
	WBLR	0.07	14.9	B	1.8	0.28	29.3	D	8.6
	Overall		**0.7**	**A**			**1.4**	**A**	
Franktown Road at Commercial Plaza (355 Franktown)	SBL	0.01	8.4	A	0.3	0.04	9.6	A	0.9
	SBT	0.26	0.0	A	0.0	0.38	0.0	A	0.0
	NBTR	0.28	0.0	A	0.0	0.47	0.0	A	0.0
	WBLR	0.06	14.7	B	1.6	0.47	38.5	E	12.8
	Overall		**0.5**	**A**			**2.5**	**A**	
Franktown Road at Findlay Avenue	SBTR	0.26	0.0	A	0.0	0.41	0.0	A	0.0
	NBLT	0.05	1.5	A	1.3	0.05	1.2	A	1.1
	EBLR	0.14	15.0	C	3.8	0.37	32.6	D	12.9
	Overall		**1.6**	**A**			**2.2**	**A**	

4.4. Scenario 3

4.4.1. Trip Distribution and Assignment

Scenario 3 assumes that for full buildout of the development (Phases 1 to 4), principal site access would be provided on the east side via a planned north-south Municipal Street connecting to Nelson Street. In addition, a secondary right-in access would be provided at 347 Franktown Road. This scenario assumes the temporary site access south of the commercial plaza would become a fire access route and would be closed to vehicular traffic.

The distribution and assignment of site-generated traffic, as presented in **Figure 12**, was based on existing travel patterns observed in the study area.

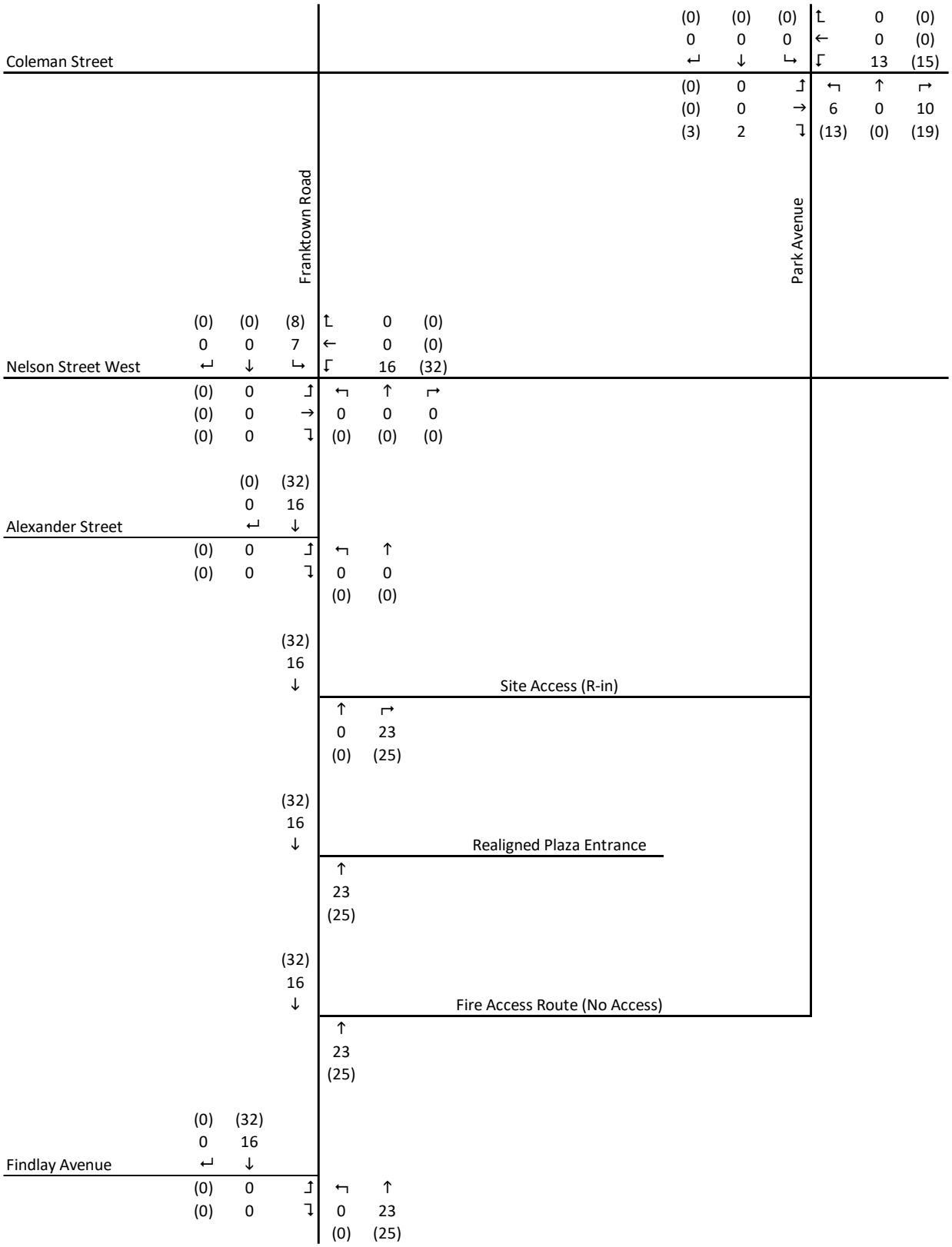

Figure 12: Scenario 3 AM (PM) Peak Hour Site Generated Traffic

4.4.2. 2032 Total (Scenario 3) Traffic

Total Scenario 3 traffic values were calculated by combining the projected Scenario 3 site generated traffic with the 2032 background traffic volumes. The resulting 2032 total peak hour traffic projections are presented in **Figure 14**.

A summary of the resulting peak hour traffic operations projected for the 2032 total traffic for Scenario 3 (access provided via north-south municipal streets) is provided in **Table 10**. The proposed site access and adjacent intersection are all projected to operate within capacity in 2032. Left-turning vehicles will experience minor delays and a reduced level of service on stop-controlled approaches. However, the intersections will continue to operate well within their capacities. During the PM peak hour, although the westbound approach to Franktown Road on Nelson Street would be reduced to LOS F, the projected capacity would remain approximately double the traffic demand.

The warrant for the provision of a left-turn lane on Franktown Road at Nelson Street was evaluated as shown in **Figure 13**. A left-turn lane was found to be warranted on Franktown Road during the PM peak hour.

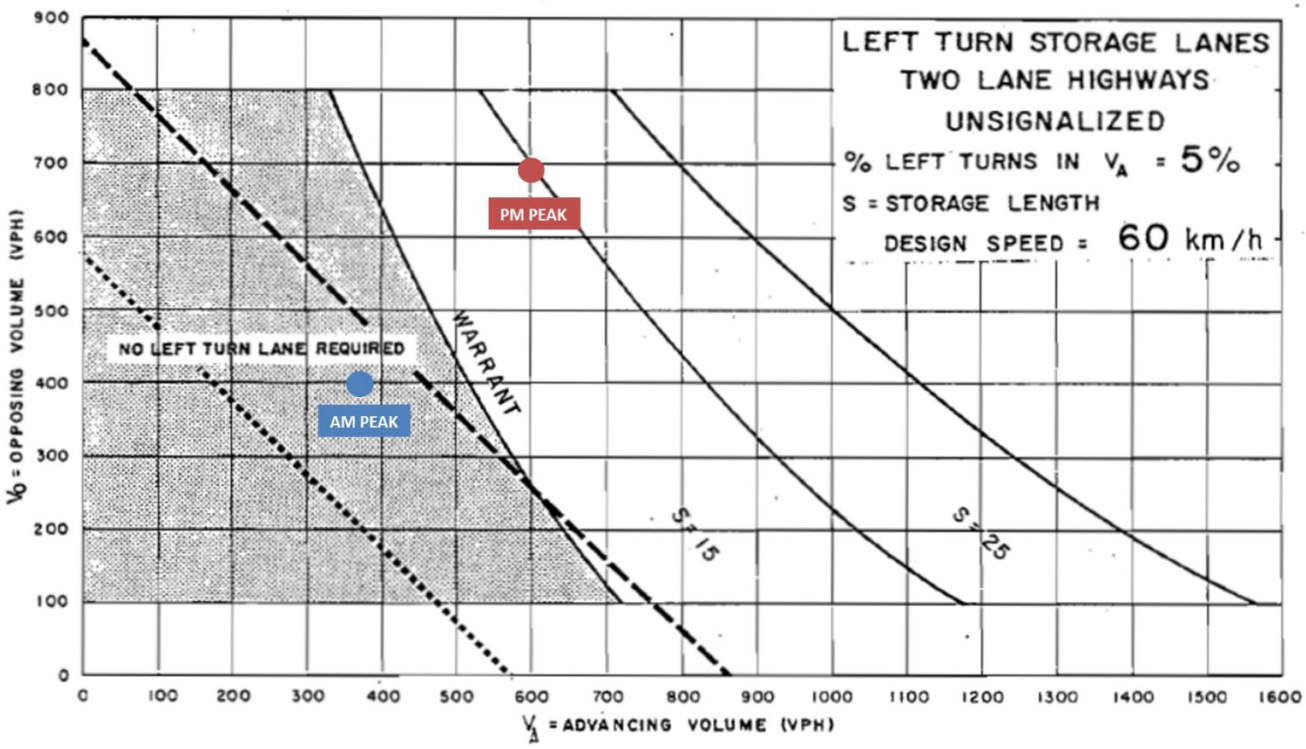

Figure 13: Left Turn Warrant Nomograph at Site Access, 2032 Scenario 3 Total Traffic

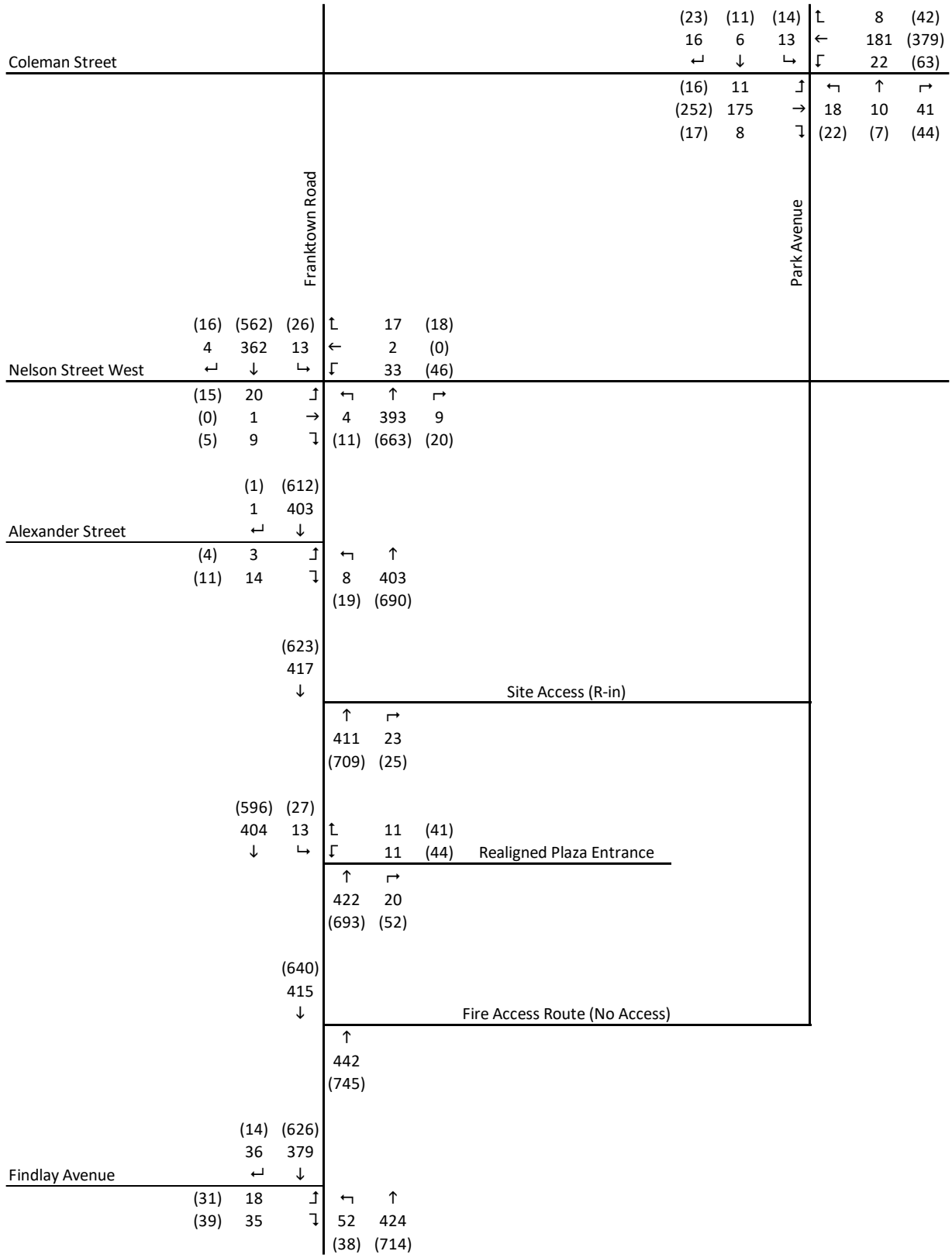

Figure 14: 2032 Scenario 3 Total Future AM (PM) Peak Hour Traffic

Table 10: 2032 Scenario 3 Total Traffic Operations

Intersection	Movement	AM Peak Hour V/C	AM Peak Hour Delay (s)	AM Peak Hour LOS	AM Peak Hour 95th Queue (m)	PM Peak Hour V/C	PM Peak Hour Delay (s)	PM Peak Hour LOS	PM Peak Hour 95th Queue (m)
Coleman Street at Park Avenue	EBL	0.01	7.7	A	0.2	0.02	8.3	A	0.4
	EBTR	0.12	0.0	A	0.0	0.17	0.0	A	0.0
	WBL	0.02	7.7	A	0.4	0.05	8.0	A	1.4
	WBTR	0.12	0.0	A	0.0	0.27	0.0	A	0.0
	SBLTR	0.07	11.9	B	1.7	0.16	17.8	C	4.4
	NBLTR	0.12	11.4	B	3.2	0.20	16.2	C	5.9
	Overall		**2.9**	**A**			**3.0**	**A**	
Franktown Road at Nelson Street	SBLTR	0.01	0.4	A	0.3	0.03	0.9	A	0.8
	NBLTR	0.0	0.1	A	0.1	0.01	0.3	A	0.3
	EBLTR	0.11	17.8	C	2.8	0.17	40.1	E	4.7
	WBLTR	0.17	18.4	C	4.9	0.52	57.3	F	19.8
	Overall		**2.0**	**A**			**3.8**	**A**	
Franktown Road at Alexander Street	SBTR	0.26	0.0	A	0.0	0.39	0.0	A	0.0
	NBTL	0.01	0.3	A	0.2	0.02	0.6	A	0.6
	EBLR	0.03	12.0	B	0.8	0.05	18.0	C	1.4
	Overall		**0.4**	**A**			**0.5**	**A**	
Franktown Road at Site Access (R-in)	SBT	0.27	0.0	A	0.0	0.40	0.0	A	0.0
	NBTR	0.28	0.0	A	0.0	0.47	0.0	A	0.0
	Overall		**0.0**	**A**			**0.0**	**A**	
Franktown Road at Realigned Commercial Plaza	SBL	0.01	8.4	A	0.3	0.04	9.6	A	0.9
	SBT	0.26	0.0	A	0.0	0.38	0.0	A	0.0
	NBTR	0.28	0.0	A	0.0	0.48	0.0	A	0.0
	WBLR	0.06	14.8	B	1.6	0.48	39.4	E	18.6
	Overall		**0.5**	**A**			**2.5**	**A**	
Franktown Road at Findlay Avenue	SBTR	0.27	0.0	A	0.0	0.41	0.0	A	0.0
	NBLT	0.05	1.5	A	1.3	0.05	1.2	A	1.1
	EBLR	0.14	15.1	C	3.9	0.38	33.2	D	13.1
	Overall		**1.6**	**A**			**2.2**	**A**	

5. SITE CIRCULATION AND ACCESS REVIEW

5.1. Scenario 1 (Phase 1 of Development)

For Phase 1 of the development the site access is located on Franktown Road approximately 125 m south of Alexander Street. A right-in access is located at 347 Franktown Road. During Phases 2 to 4 of construction, the south access would be closed to vehicular traffic and would become an emergency access route.

This site access would be located across the south limits of the commercial plaza located at 355 Franktown Road. The plaza entrance would be realigned to the north limits of the commercial plaza site. A secondary access to the plaza would be provided off of the site access road.

5.2. Scenario 2

The site access in this scenario would be located on Franktown Road approximately 20 m south of Alexander Street. Two secondary accesses are provided to/from a planned municipal street at the east limits of the site. The site access is located in close proximity to the residential properties at 347 Franktown Road and 349 Franktown Road. The Town of Carlton Place's initial reaction was not supportive of this access scenario.

Vehicular traffic and emergency vehicles could access the development from the main entrance on Franktown Road as well as the secondary access via the north-south Municipal Street connecting to adjacent developments. A 7 m east-west fire access lane from the Franktown Road site access to the Municipal Street could suitably accommodate access for emergency vehicles.

5.3. Scenario 3

The site access in this scenario would be provided via a planned Municipal Street at the east limits of the site. A right-in access at 347 Franktown Road would also be provided. A 7 m east-west fire access lane would be provided via the interim access described in Scenario 2. This lane can suitably accommodate access for emergency vehicles.

To minimize cut-through traffic through the development, traffic calming measures are recommended to slow traffic and deter motorists on Franktown Road from utilizing the development's internal roads. This may include the provision of raised crosswalks at the 3 pedestrian walkways crossing the main east/west fire route through the site.

5.4. Parking

On-site parking is proposed to consist of a total of 209 parking spaces as follows:

- Phase 1 – 52 parking spaces (38 spaces for residents, 14 spaces for staff)
- Phase 2 – 107 parking spaces (89 spaces for residents. 18 spaces for visitors)

- Phase 3 – 50 parking spaces

Additional parking is provided for each of the proposed townhouse units, identified as Phase 4, individually. The townhouse units would front onto the planned Municipal Street to be located on the east side of the site. The proposed 209 parking spaces supplied for Phases 1 – 3 will exceed zoning bylaw requirements.

6. CONCLUSIONS AND RECOMMENDATIONS

The proposed development at 347 Franktown Road will consist of a retirement care home, senior's apartment building, medical offices and a townhouse development. Construction completion of Phase 1 could potentially be in 2023 and Phases 2-4 by 2027. The transportation impact assessment included the evaluation of existing (2021) traffic and projected (2028 and 2032) traffic conditions for the AM and PM peak hours as the planning horizon for Phase 1 and full buildout of the development.

Three scenarios were evaluated for total traffic conditions including:

- Scenario 1 (Phase 1 of Development): Site access via: right-in access at 347 Franktown Road and a temporary full-movement access south of the commercial plaza. This Scenario only evaluated to buildout of Phase 1 of the development.
- Scenario 2: Principal site access provided via full-movement access at 347 Franktown Road and secondary access on the east side via a planned north-south Municipal Street.
- Scenario 3: Principal site access provided on the east side via a planned north-south Municipal Street connecting to Nelson Street and a secondary right-in access at 347 Franktown Road.

Under all scenarios, the proposed development was found to have no significant impacts on the existing road network, with relatively minor delays for left-turning vehicles at the stop approaches. These delays are mainly a result of background growth within the Town and are reflected in both the Background and Total Traffic scenarios.

It is recommended that Access Scenario 1 be accepted to provide access to Phase 1 of the planned development. To address the concerns expressed by the Town of Carleton Place regarding Access Scenario 2, it is further recommended that prior to development of Phase 2, Access Scenario 3 should be implemented with the Phase 1 access to Franktown Road (south of the commercial plaza) controlled to limit its use to emergency vehicles only. The measures to control that access would be subject to MTO approval.

For the Access Scenario (Phase 1 development), it is recommended that the existing pavement markings on Franktown Road be revised to extend the current left-turn lane to provide access to both the relocated plaza entrance and the access to be located on the south side of the commercial plaza.

As part of the overall area development, consideration should be given to revising the existing pavement markings on Franktown Road at Nelson Street to delineate a north/south left-turn lane. It is recommended that the Transportation Master Plan currently being developed for the Town of Carleton Place consider the extension of the planned north-south Municipal Street

south to the proposed extension of Findlay Avenue. This would accommodate a more balanced distribution of all area development traffic.

Within the proposed site, consideration could be given to the provision of raised crosswalks at 3 locations within the site, crossing the main access which also serves as the east/west fire access lane. This would assist in controlling traffic speeds within the site and would help to discourage external traffic from cutting through the site. Pedestrian access from Franktown Road must be accommodated upon completion of the first phase of development and ultimately also be provided from the local municipal road network at the east end of the site.

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