TTC-TWRC Waterfront Transit EAs
Demand Forecasting Report

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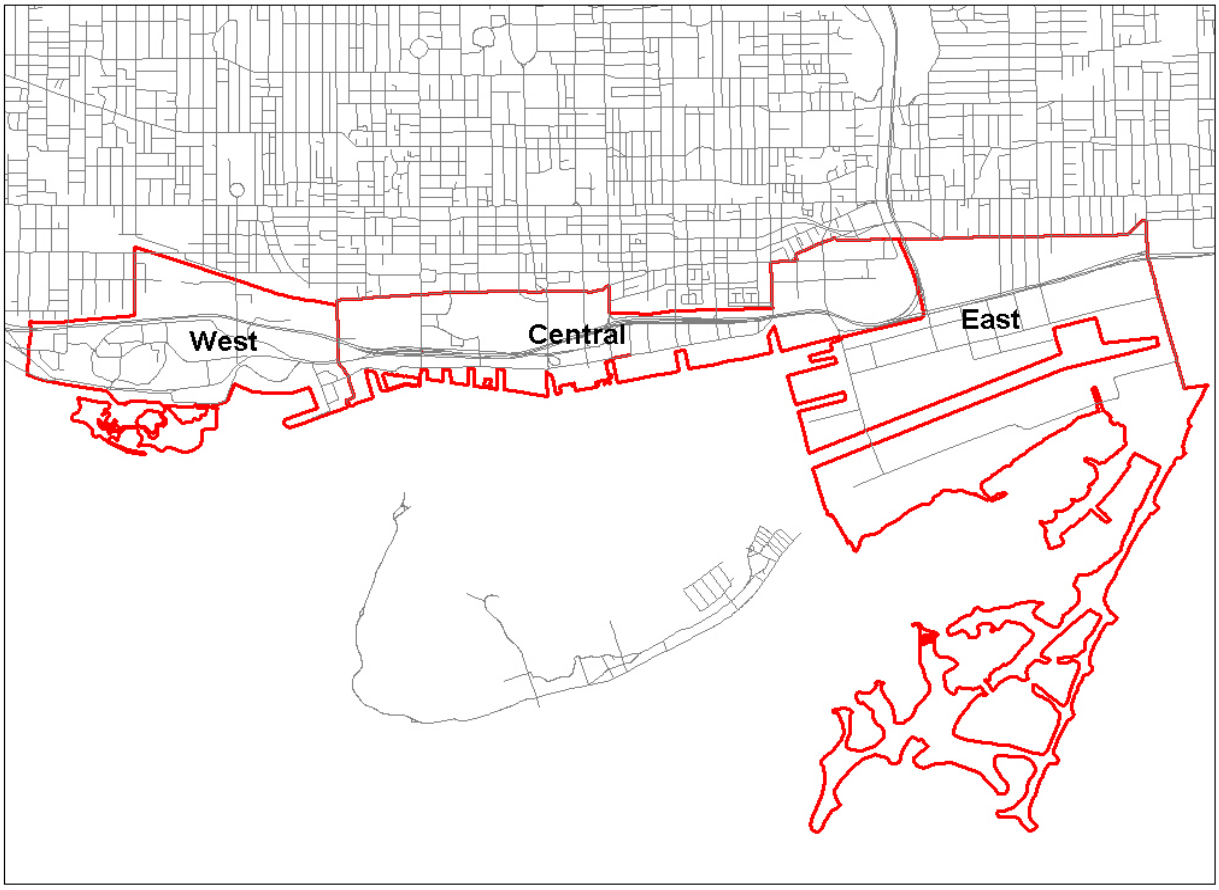
1 INTRODUCTION

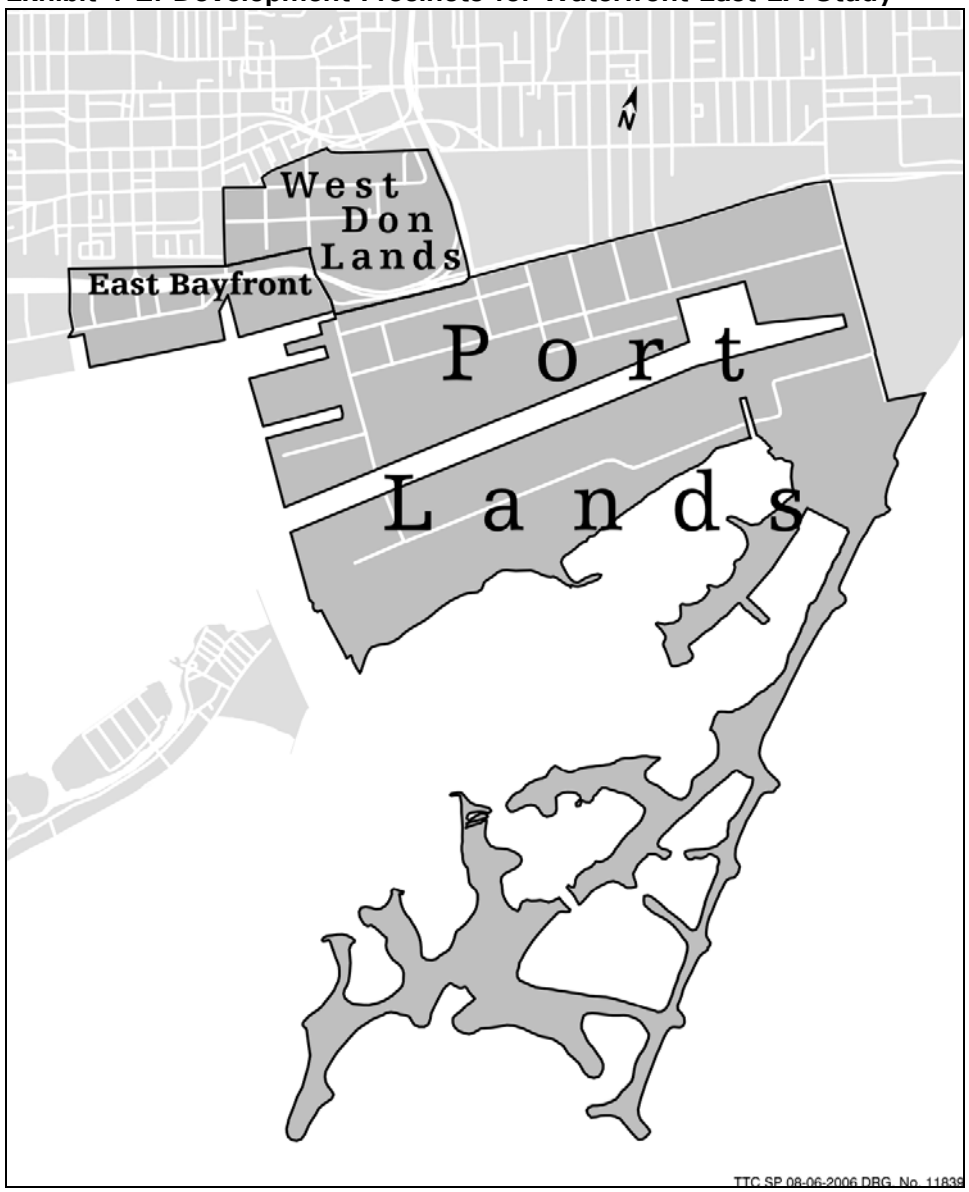
This report presents the analysis prepared by the Demand Forecasting Sub-Group of the Waterfront East EA study. This report contains the travel demand forecasts for future Waterfront East road and transit base networks under the future land use for the Waterfront study area (Exhibit 1-1). This report then looks in more detail at the Waterfront area that contains the eastern precincts of East Bayfront, West Don Lands, and the Port Lands. The locations and boundaries of these precincts are shown in Exhibit 1-2.

Exhibit 1-1: Waterfront East EA Study Area



Note: Boundaries are based on model traffic zone definitions that closely reflect Waterfront planning precincts.

Exhibit 1-2: Development Precincts for Waterfront East EA Study



Note: Boundaries are based on model traffic zone definitions that closely reflect Waterfront planning precincts.

2 APPROACH

The City of Toronto's GTA Model[1] has been used to generate the travel forecasts for 2021. It is an EMME/2-based model. The GTA Model contains GTA-wide road and transit networks, and is calibrated on the 2001 and 1996 Transportation Tomorrow Survey[2] data. The Model has been used extensively by the City in many transportation planning,

[1] GTA Model is a customized modeling framework that the City of Toronto uses for travel demand forecasting. The modeling framework uses EMME/2 travel demand forecasting software as a platform for completing calculations and performing various tasks to complete a four-stage travel demand forecasting procedure.
[2] The Transportation Tomorrow Survey (TTS) is a comprehensive GTA-wide telephone interview survey conducted every 5 years, in parallel with the Census, which collects detailed information on travel habits and behaviours for weekday travel.

assignments, transportation environmental assessments and in the preparation of the approved Official Plan[3].

Before generating the 2021 auto and transit forecasts, the GTA model is validated by comparing recent observed field data to the model forecasts for the current or recent year. Upon confirming that the model is adequate for this forecasting exercise, the future land use and transportation networks are assembled and then 2021 forecasts are generated.

The 2021 screenline forecasts from the GTA model have been compared to those contained in a April 2006 IBI Group report entitled "Toronto Waterfront – Travel Demand Forecasting Study." The comparison provides further credibility that the GTA model is producing reasonable forecast figures. The forecast analysis goes one step further in studying and presenting the degree of use of the road and transit networks for each of the individual precincts. For the transit analysis, a refined approach is used to assign future transit trips to the proposed transit network for the study area. This approach involved assigning these transit trips on a disaggregated basis.

The results of this forecasting work provide input to the City towards the sizing of transportation facilities and the development of transportation policies.

3 MODEL VALIDATION

The purpose of a model validation exercise is to ensure that the results generated by the GTA Model are within reasonable limits of estimating automobile and transit person trips. The validation exercise compares the base year (2001) GTA Model simulation results to survey data from the 2001 Transportation Tomorrow Survey (TTS).

The validation area used in this exercise is the City of Toronto's Central Area Cordon. The boundaries of the cordon are shown in Exhibit 3-1.

[3] The City of Toronto Official Plan was approved by City Council in December 2002 and by the Ontario Municipal Board in July, 2006.

Exhibit 3-1: Central Area Cordon

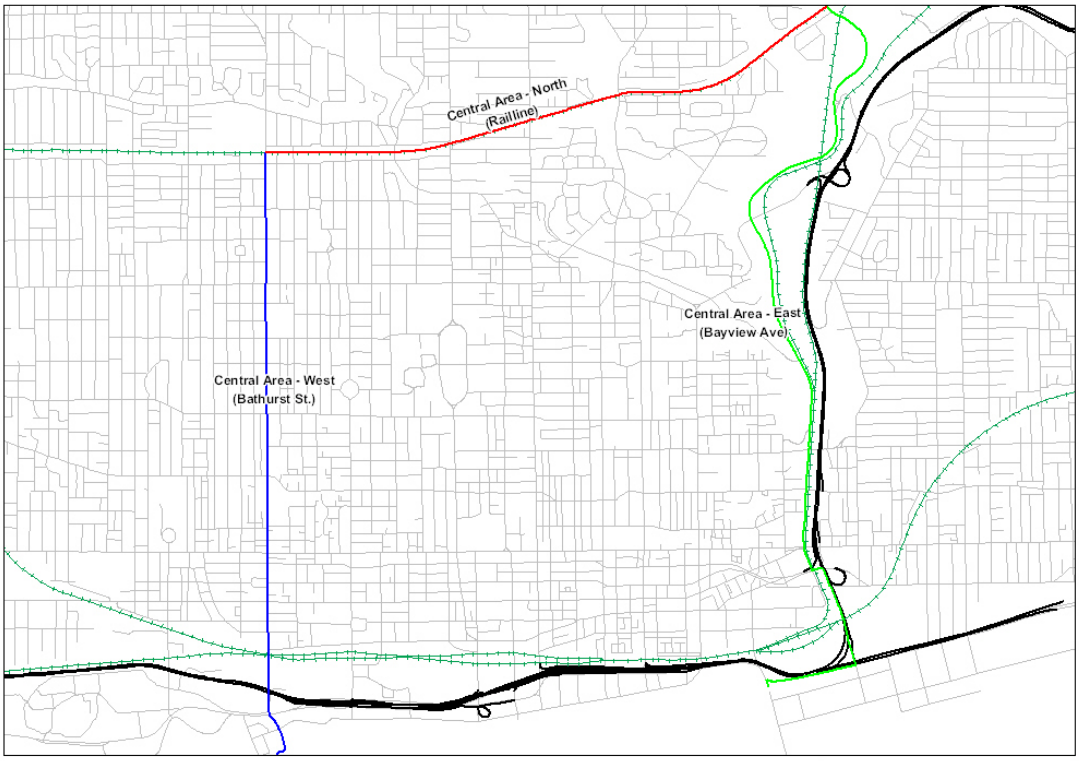


Table 3-1 compares A.M. peak hour auto driver flows to the 2001 TTS.

There is a reasonable fit comparing the auto driver assignments of 2001 simulated and 2001 TTS. The inbound direction is under-simulated by approximately -2% while the smaller volumes forecast for the outbound direction are over-predicted by approximately +18%. This larger difference in the outbound direction is expected since TTS under reports non-work trips travelling in the off-peak direction. An over-simulation of 31% is noted in the outbound direction for the East and North screenlines. Given that this over representation is in the non-peak direction, and is well below capacity, this percent difference will not affect the analysis of peak direction travel. The IBI figures are listed in the table for information.

Table 3-1 Central Area Cordon Observed, TTS and GTA Model Auto Volumes – 2001 AM Peak Hour

Inbound Direction					
Auto	2001 Cordon Count	2001 TTS	GTA Model	GTA Model vs TTS	IBI 2001
East Central Area Screenline	14,000	19,100	19,200	1%	16,600
North Central Area Screenline	6,900	6,500	6,100	-6%	6,500
West Central Area Screenline	14,000	18,600	17,900	-4%	16,600
Total Central Area Cordon	34,900	44,300	43,300	-2%	39,700

Outbound Direction					
Auto	2001 Cordon Count	2001 TTS	GTA Model	GTA Model vs TTS	IBI 2001
East Central Area Screenline	6,500	6,400	8,400	31%	6,900
North Central Area Screenline	3,400	2,600	3,400	31%	3,200
West Central Area Screenline	7,700	7,200	7,300	1%	6,800
Total Central Area Cordon	17,600	16,200	19,100	18%	16,900

Table 3-2 compares A.M peak period transit person trips to the 2001 TTS. These flows were analysed by looking at the local transit and commuter rail (GO Rail) sub modes separately.

The comparison of simulated transit trips and 2001 TTS transit trips shows a good fit. The local transit modes are over-simulated in the inbound and outbound direction by +11% and +23% respectively. GO Rail in the inbound direction is under-simulated by -20%. Under representing GO Rail in the peak direction has been an ongoing tendency of the GTA model which should be recognized given the importance of this direction of travel.

Combining all transit modes for the overall cordon, the transit simulations show a reasonable fit of +4% for the inbound direction and +23% for the outbound (off peak) direction when compared to the 2001 TTS transit trips. Again, the IBI figures are listed in the table for information.

The results of this validation work indicate that, on an aggregate basis, the accuracy of the GTA model results are well within accepted limits for a regional modelling exercise.

Table 3-2: Central Area Cordon Observed, TTS and Simulated Transit Volumes – 2001 AM Peak Period

Inbound Direction					
Local Transit incl GOBus	2001 Cordon Count	2001 TTS	GTA Model	GTA Model vs TTS	IBI 2001
East Central Area Screenline	55,000	41,500	53,000	28%	39,000
North Central Area Screenline	56,700	71,900	71,300	-1%	57,700
West Central Area Screenline	45,300	43,500	50,200	15%	44,000
Local Transit TOTAL	157,000	156,900	174,600	11%	140,700
GO Rail					
East Central Area Screenline	21,500	20,500	13,000	-37%	21,700
North Central Area Screenline	-	-	-	-	-
West Central Area Screenline	33,600	29,500	27,100	-8%	28,200
GO Rail TOTAL	55,100	50,100	40,100	-20%	49,900
Local Transit & GO RAIL TOTAL					
East Central Area Screenline	76,500	62,100	66,000	6%	60,800
North Central Area Screenline	56,700	71,900	71,300	-1%	57,700
West Central Area Screenline	79,000	73,000	77,300	6%	72,200
Total Central Area Cordon	212,200	207,000	214,700	4%	190,600

Outbound Direction					
Local Transit incl GOBus	2001 Cordon Count	2001 TTS	GTA Model	GTA Model vs TTS	IBI 2001
East Central Area Screenline	12,800	8,700	12,400	43%	7,600
North Central Area Screenline	27,100	21,200	23,000	9%	17,400
West Central Area Screenline	15,500	10,400	14,300	38%	9,600
Local Transit TOTAL	55,500	40,300	49,600	23%	34,600
GO Rail					
East Central Area Screenline	200	100	200	100%	200
North Central Area Screenline	-	-	-	-	-
West Central Area Screenline	400	300	300	0%	600
GO Rail TOTAL	600	400	500	25%	800
Local Transit & GO RAIL TOTAL					
East Central Area Screenline	13,000	8,800	12,500	42%	7,800
North Central Area Screenline	27,100	21,200	23,000	9%	17,400
West Central Area Screenline	15,900	10,700	14,600	36%	10,300
Total Central Area Cordon	56,100	40,700	50,100	23%	35,400

4 LAND USE

Table 4-1 contains the regional 2021 population and employment control totals used in the GTA model. Each region provided this information at a regional and traffic zone level.

Table 4-1 - Regional Land Use Assumptions

Region	Source	2001 POP	2001 EMP	2021 POP	2021 EMP
Toronto	Official Plan	2,450,700	1,453,600	2,845,100	1,766,300
Durham	Development Charges study	527,000	166,300	849,800	311,000
York	York Region Official Plan (September 2004 update)	772,000	386,000	1,272,000	721,200
Peel	Peel Region Official Plan (August 2003 update)	981,600	517,800	1,394,900	761,400
Halton	Halton Region Official Plan (June 2003 update)	389,300	169,000	592,300	308,000
Hamilton	1999-2001 TMP	498,100	192,400	566,800	229,600
TOTAL		5,618,700	2,885,100	7,520,900	4,097,500

Note: See Appendix C for more detailed explanation on Toronto's future land use forecasts and the Waterfront's land use forecasts.

Table 4-2 summarizes the existing (2001), future interim and ultimate population and employment in the East, Central and West sections of the study area.

Table 4-2: Land Use – Existing (2001), Interim and Ultimate Population and Employment

	Population			Employment		
Area	2001	2021 Interim	2021 Ultimate	2001	2021 Interim	2021 Ultimate
East	800	12,300	33,700	6,800	13,100	28,000
Central	7,500	57,300	57,300	25,300	47,300	47,300
West	1,300	13,600	13,600	4,300	17,700	17,700
Total	**9,600**	**83,200**	**104,600**	**36,400**	**78,100**	**93,000**

Table 4-3 summarizes the existing (2001), future interim and ultimate population and employment in the East Bayfront, West Don Lands, and Port Lands precincts.

Table 4-3: Land Use – Existing (2001), Interim and Ultimate Population and Employment for Precincts

	Population			Employment		
Precinct	2001	2021 Interim	2021 Ultimate	2001	2021 Interim	2021 Ultimate
East Bayfront	-	14,400	14,400	1,100	3,800	3,800
West Don Lands	1,300	10,200	10,200	2,800	4,100	4,100
Port Lands	-	11,400	32,900	3,500	9,800	24,700
Total	**1,300**	**36,000**	**57,500**	**7,400**	**17,700**	**32,600**

5 FUTURE BASE NETWORKS

The assumptions for the 2021 road network and base transit network are listed below. All planned road and transit network changes for 2021 are included in the GTA Model networks.

Base Road Network

The 2021 future base road network includes potential road improvements planned by each Region in the GTA. Road improvements expected to have the most impact within the Waterfront East study area are listed in Table 5-1.

Table 5-1: Description of Road Network Changes in Study Area

Road	Description
Bremner Blvd.	Extension from Spadina Ave. to Lake Shore Blvd., west of Bathurst St.
Simcoe St.	Extension from Bremner Blvd. to Lake Shore Blvd.
Queens Quay East	Extension from west of Parliament St to Cherry St. and Lake Shore Blvd.
Basin St.	Extension from Basin St. to Cherry St.
Don Roadway	Extension between Commissioners St. and Unwin Ave.
Front St./ Bayview Ave.	Minor realignment
River St.	Extension from Queen St. to realignment of Bayview Ave.
Front St.	Extension from Bathurst St. to Dufferin St. Gardiner Expressway ramps east of Dufferin St.
Liberty St.	Dufferin St. to Stachan Ave.
Dufferin St.	Extension to LakeShore Blvd.

Note: Gardiner Expressway is assumed to remain unchanged from 2001

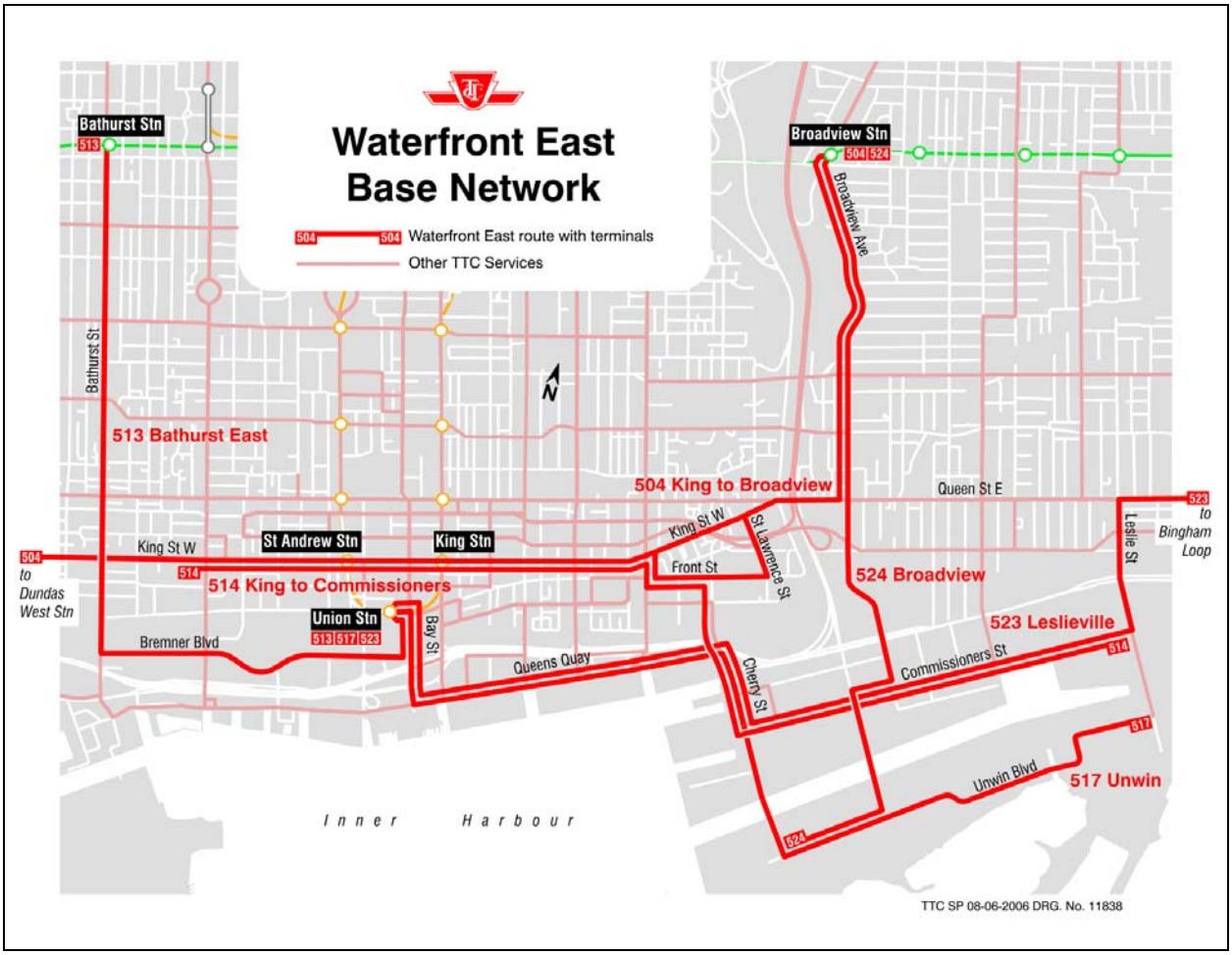
Base Transit Network

Table 5-2 lists the current and proposed streetcar services that will serve the study area. It also lists proposed bus route extensions that will better serve the area. Exhibit 5-1 contains a map that shows these transit services. The services reflect the base network in the GTA Model and will likely be refined further as environmental assessments for each of the precincts proceed.

Table 5-2: Description of AM Peak Base Transit Network in Study Area

Existing and Modified Streetcar Services	**Description**
504 King speed 13.2kph headway 4 min	Operating between Dundas West Station and Broadview Station via King St. As reflected in the approved secondary plan, a branch of the 504 will operate on roads in the West Don Lands.
509 Harbourfront speed 17.0kph headway 10 min	Operating between Union Station and Exhibition Grounds but extended to Dufferin loop
510 Spadina speed 17kph on QQ headway 4min	Operating between Spadina Station and Union Station via Spadina and Queen's Quay.
511 Bathurst speed 17kph thru Exhibition headway 5min	Operating between Bathurst Station and Exhibition Grounds via Bathurst and Exhibition loop
New Streetcar Services	**Description**
507 Long Branch speed 17kph Dufferin to Union headway 10min	Operating between Long Branch and Union Station via Lake Shore, Queensway, King W., Dufferin, Exhibition Grounds, and Queens Quay West
513 Bathurst East speed 17kph along Bremner headway 7.5min	Operating between Bathurst Station and Union Station via Bremner
514 King to Commissioners speed 17kph on Commissioners speed 8.0 to 12.4kph Cherry to Spadina headway 4min	Operating along King St. between Spadina and Commissioners serving the West Don Lands precinct
517 Unwin speed 17kph headway 7.5min	Operating between Union Station and Unwin Ave. via Queens Quay East
523 Leslieville speed 17kph Union to Eastern speed 15kph Eastern to Bingham headway 7.5min	Operating between Union Station and Queen St. East via Queens Quay East, Commissioners St., and Leslie St.
524 Broadview speed 17kph Lakeshore to Cherry headway 10min	Operating between Broadview Station and Unwin Ave. via Broadview Ave.
Existing and Modified Bus Services	**Description**
83 Jones	Extend route south to Unwin Ave. via Leslie St.
65 Parliament	Extend route south to Queens Quay East
63 Ossington	Extend route into Exhibition grounds
29 Dufferin	Extend route south to Lake Shore Blvd.
72A Pape	Remove service between Union Station and Carlaw Ave.
172 Cherry, 75 Sherbourne, 6 Bay	No changes to these existing routes

Exhibit 5-1: 2021 Base Network for Waterfront East



6 RIDERSHIP FORECAST RESULTS

This section presents the auto and transit forecasts for the future scenario of the 2021 ultimate land use on the 2021 road and transit network as described earlier.

The forecasts are presented at different levels of geography. Auto and transit volumes are shown at the Central Area screenline and Waterfront area levels. The GTA model forecasts are compared to IBI Group's forecasts. The intent of the comparison is not to validate IBI Group's model.

Forecasts are also presented at the precinct level. The forecasts show what roads and transit lines are used to accommodate the trips that are generated from and attracted to each precinct. This analysis is in response to questions by the community on what corridors trip-makers are using to get to/from their precinct.

Central Area Screenline Forecasts

Tables 6-1 and 6-2 provide screenline volumes for the Central Area and for specific screenlines in the study area. These volumes are for the year 2021 and assume the ultimate land use scenario.

Table 6-1: 2021 Auto Peak Hour Screenline Volumes for the Central Area Cordon

	GTA Model		IBI Model	
	Inbound	Outbound	Inbound	Outbound
Auto				
East Central Area Screenline	20,600	11,000	19,900	NA
North Central Area Screenline	6,600	4,600	7,000	NA
West Central Area Screenline	19,300	9,900	19,500	NA
Total Central Area Cordon	**46,500**	**25,500**	**46,400**	NA

Table 6-2: 2021 Transit AM Peak Period Screenline Volumes for Central Area Cordon

	GTA Model		IBI Model	
	Inbound	Outbound	Inbound	Outbound
Local Transit incl GOBus				
East Central Area Screenline	67,200	19,800	49,100	NA
North Central Area Screenline	93,100	35,100	75,000	NA
West Central Area Screenline	54,200	23,200	55,600	NA
Local Transit TOTAL	**214,600**	**78,100**	**179,700**	NA
GO Rail				
East Central Area Screenline	31,500	200	34,100	NA
North Central Area Screenline	-	-	-	NA
West Central Area Screenline	53,500	300	52,600	NA
GO Rail TOTAL	**84,900**	**500**	**86,700**	NA
Local Transit & GO Rail TOTAL	**299,500**	**78,700**	**266,400**	NA

The future auto volumes crossing the Central Area screenlines are very similar in both the GTA and IBI models. The GTA model, however, forecasts about 33,000 more AM peak period transit trips crossing the Central Area cordon when compared to the IBI model. This difference represents approximately 11% of the GTA model forecast which is not that significant especially with the difference spread along the screenlines.

The GTA model shows the AM peak hour automobile trips into the Central Area growing from 43,300 in 2001 to 46,500 in 2021. The AM peak period transit trips into the Central Area grow from about 215,000 in 2001 to 300,000 in 2021.

The next two sections look at these auto and transit trips at a finer level of geography. The transit trip volumes will be presented in AM peak hour so that they can be compared to the peak hour automobile trips. Based on recent riding counts on several TTC services in the study area, a peak hour factor of 0.55 will be applied to the AM peak period volumes.

Waterfront Area Forecasts

Table 6-3 shows the 2021 AM peak hour auto traffic volumes on selected east-west roads along the length of the Waterfront from the Exhibition Grounds. Peak direction auto traffic volumes show only modest growth over current traffic volumes due to limits on the practical capacity of the road network. Appendix A contains plots (Exhibits A-1 and A-2) showing the AM peak hour auto volumes and Volume/Capacity (v/c) ratios on all major roads in the Waterfront area.

Appendix A also contains plots (Exhibit A-3a and A-3b) of the 2021 AM peak hour transit volumes on the transit lines in the vicinity of the Waterfront area. Exhibit A-3a shows the link volumes with the King streetcars operating at a speed of 12.4kph between Cherry St. and Yonge St. Exhibit A-3b shows the link volumes with the King streetcars operating at a slower speed of 8kph between Cherry St. and Yonge St. The most noticeable effect of the slower speed is the diversion of transit trips from the King East corridor to the Queens Quay East corridor with a westbound peak hour volume of about 4,000.

Table 6-3: AM Peak Hour Auto Traffic Volumes at Selected Screenlines

			GTA Model 2021 Ultimate Land Use		
Area	**Screenline**	**Facility**	**Volume**	**Capacity**	**V/C**
West	East of Dufferin (EB)	FGG	6,900	5,400	1.28
		Lake Shore Blvd	3,200	3,000	1.06
		Saskatchewan	400	500	0.82
		Front St	800	1,600	0.53
Total West			11,400	10,500	1.08
Central WB	East of York (WB)	FGG	5,100	5,400	0.94
		Lake Shore Blvd	2,100	2,400	0.89
		Front St	700	1,000	0.67
		Queens Quay	300	1,000	0.33
Total Central WB			8,200	9,800	0.84
Central EB	East of York (EB)	FGG	4,500	5,400	0.83
		Lake Shore Blvd	2,000	2,400	0.85
		Front St	300	1,000	0.27
		Queens Quay	400	1,000	0.42
Total Central EB			7,200	9,800	0.74
East	West of DVP (WB)	FGG	6,500	7,200	0.90
		Lake Shore Blvd	1,100	2,400	0.46
Total East - West of DVP			7,600	9,600	0.79
East	East of DVP (WB)	Lake Shore Blvd	200	2,400	0.07
		FGG WB Ramp	3,000	2,800	1.08
		Eastern Ave	1,200	1,400	0.87
Total East - East of DVP			4,400	6,600	0.67

Precinct Level Forecasts

City staff, TTC staff, and community groups were interested in obtaining trip information for each of the precincts, namely, East Bayfront, West Don Lands, and the Port Lands. In particular, there was interest in knowing what road and transit links are used by people who make trips to and from each of the precincts. Appendix B contains plots for each of the precincts showing AM peak hour automobile and transit link volumes. Two plots are shown for the AM peak hour transit link volumes to reflect the two transit speed assumptions (8.0kph and 12.4kph) on King Street East. For the Port Lands precinct, an extra plot is included that shows the AM peak hour auto link volumes on the roads in the precinct but only for those automobile trips that do not originate or are destined to this precinct. The purpose of this plot is to show the magnitude of automobile traffic that travels through the Port Lands.

Caution must be used in interpreting these results at the individual link volume level. The regional-level GTA model is designed to provide accurate travel forecasts at a screen-line level but the road system and auto movement characteristics are not included in the model at a fine-enough level of detail to provide consistently-accurate auto link volumes on individual roads. A more detailed analysis of auto traffic volumes on individual road links and at intersections will be required as part of the development of design alternatives.

East Bayfront

Exhibit B-1 shows the AM peak hour link volumes for automobile trips originating from or destined to the East Bayfront precinct. The plot shows that the major roads used by these trips are the Gardiner Expressway and Lakeshore Boulevard.

Exhibit B-2a shows the AM peak hour link volumes for transit trips originating from or destined to the East Bayfront precinct. The majority of trips originating from this area are travelling westbound on the streetcar route on Queens Quay East. The volume grows to a maximum of about 1,000 in the AM peak hour.

Exhibit B-2b also shows the AM peak hour link volumes for transit trips originating from or destined to the East Bayfront precinct, but with the King streetcar operating at a slower speed of 8kph through the downtown. This results in westbound peak hour volume of about 1,200 on Queens Quay East.

West Don Lands

Exhibit B-3 shows the AM peak hour link volumes for automobile trips originating from or destined to the West Don Lands precinct. The plot shows that the major roads used by these trips are Lakeshore Boulevard, Richmond Street, and Adelaide Street.

Exhibit B-4a shows the AM peak hour link volumes for transit trips originating from or destined to the West Don Lands precinct. As expected, the majority of the trips are travelling westbound on the 504/514 King streetcar but boarding on the section of the

route that operates on Front Street. The number of westbound boardings on this section is approximately 630 in the AM peak hour.

Exhibit B-4b also shows the AM peak hour link volumes for transit trips originating from or destined to the West Don Lands precinct, but with the King streetcar operating at a slower speed of 8kph through the downtown. The slower speed operation results in the King streetcar westbound figure dropping from 630 to 580 in the AM peak hour. The difference is diverted to Queens Quay East.

Port Lands

Exhibit B-5 shows the AM peak hour auto link volumes for the roads in the Port Lands and vicinity. These volumes correspond only to those auto trips that either originate from or are destined to the Port Lands. These trips going into and out of the Port Lands are distributed well across the north-south roads connecting Commissioners Road and Lake Shore Boulevard East.

Exhibit B-6 shows the AM peak hour auto link volumes for the roads in the Port Lands and vicinity for auto trips that are NOT originating from or destined to the Port Lands. The purpose of this is exhibit is to show the automobile traffic that is forecast to travel through the Port Lands area. This has been raised as a concern by Waterfront community groups. This exhibit shows that approximately 500 AM peak hour auto trips are travelling through the Port Lands area.

Exhibit B-7a shows the AM peak hour transit link volumes for transit trips originating from or destined to the Port Lands precinct. In 2021, this area is expected to have about 33,000 in population and 25,000 in employment. The majority of the AM peak period trips originating in the Port Lands take the streetcar routes that operate on Cherry Street. This figure is approximately 2,600 of the total 3,600 transit trips leaving the Port Lands area in the AM peak hour. The 1,000 difference are leaving the Port Lands via the proposed 524 Broadview streetcar, 72 Pape, 83 Jones, or the 523/517 streetcar that operates on Leslie Street.

For those AM peak hour transit customers leaving the Port Lands via the streetcar services on Cherry Street, approximately 1,350 take the 514 Commissioners that operates via the West Don Lands to King Street. Approximately 1,250 take the streetcar services that operate on Queens Quay East.

The majority (approximately 1,750) of the AM peak hour transit trips destined to the Port Lands are entering the area via Cherry Street. Approximately 800 AM peak hour transit trips are entering the Port Lands area via 524 Broadview, 72 Pape, 83 Jones, or the 523/517 streetcar that operates on Leslie.

By comparing Exhibits A-3a and B-7a, one can estimate the number of TTC customer trips that are forecast to travel through the Port Lands. These exhibits indicate that there will be at least 300 AM peak hour TTC customers travelling through the Port Lands precinct.

This figure comes from the difference between the link volumes in each direction on the north-south roads.

Exhibit B-7b shows the AM peak hour transit link volumes for transit trips originating from or destined to the Port Lands, but with the King streetcar operating at a slower speed of 8kph through the downtown. This exhibit shows clearly the effects of a slower speed on King St. Westbound trips from the Port Lands are mostly using the Queens Quay corridor as opposed to the King corridor to get to the downtown. This westbound volume increases from 1,200 to 2,300 on Queens Quay East.

Tables 6-4a and 6-4b lists transit volumes for selected local roads in the three precincts. The link volumes are listed for the those trips that have a trip end in each of the precincts. The 'Background Trips' column is the link volume for those trips that do not have a trip end in any of the three precincts. Exhibits B-8, B-9a, and B-9b show peak hour link volume plots for these 'Background Trips.'

Table 6-4a: Transit Link Volumes at Selected Locations – 12.4kph on King St. E.

		2021 Transit AM Peak Hour Volume				
Location	Dir'n	Trips to/from East Bayfront	Trips to/from West Don	Trips to/from Port Lands	Background Trips	All Trips
Queens Quay East						
west of Jarvis	WB	1000	140	1200	230	2600
west of Jarvis	EB	400	80	1150	300	1900
west of Cherry	WB	140	10	1250	600	2000
west of Cherry	EB	40	20	1200	300	1500
King St. East						
west of Parliament	WB	300	450	1200	1000	2950
west of Parliament	EB	30	300	530	500	1350
Cherry St.						
north of CN tracks	NB	320	10	1350	0	1700
north of CN tracks	SB	0	10	570	0	600
crossing channel	NB	30	20	2600	200	2800
crossing channel	SB	30	10	1750	160	1900
Commissioners						
east of Cherry	WB	30	10	1120	200	1350
east of Cherry	EB	30	10	1400	160	1550
Unwin Ave.						
east of Cherry	WB	0	0	220	0	220
east of Cherry	EB	0	0	300	0	300
Broadview Ave.						
south of Lakeshore	NB	0	0	580	0	580
south of Lakeshore	SB	0	0	350	0	350
Leslie St.						
south of Lakeshore	NB	20	0	400	70	480
south of Lakeshore	SB	30	0	400	190	600

Table 6-4b: Transit Link Volumes at Selected Locations – 8kph on King St. E.

		2021 Transit AM Peak Hour Volume				
Location	Dir'n	Trips to/from East Bayfront	Trips to/from West Don	Trips to/from Port Lands	Background Trips	All Trips
Queens Quay East						
west of Jarvis	WB	1200	200	2300	370	4100
west of Jarvis	EB	400	100	17000	300	2500
west of Cherry	WB	420	20	2300	750	3500
west of Cherry	EB	70	20	1700	300	2100
King St. East						
west of Parliament	WB	20	400	70	940	1900
west of Parliament	EB	0	300	0	500	1800
Cherry St.						
north of CN tracks	NB	40	10	150	0	190
north of CN tracks	SB	0	30	30	0	50
crossing channel	NB	30	20	2500	340	2800
crossing channel	SB	60	10	1800	180	2000
Commissioners						
east of Cherry	WB	30	10	1100	340	1450
east of Cherry	EB	60	10	1750	180	1700
Unwin Ave.						
east of Cherry	WB	0	0	220	0	220
east of Cherry	EB	0	0	300	0	300
Broadview Ave.						
south of Lakeshore	NB	20	0	640	0	660
south of Lakeshore	SB	0	0	330	0	340
Leslie St.						
south of Lakeshore	NB	20	0	420	80	530
south of Lakeshore	SB	30	0	400	330	770

Tables 6-5 and 6-6 list mode splits for AM peak trips originating from and destined to each of the precincts and the remainder of the GTA. Exhibit 6-1 shows the geographic boundaries for the areas defined in these tables.

Table 6-5: Mode Split Summary of AM Peak Period Person-Trips to and from Precincts

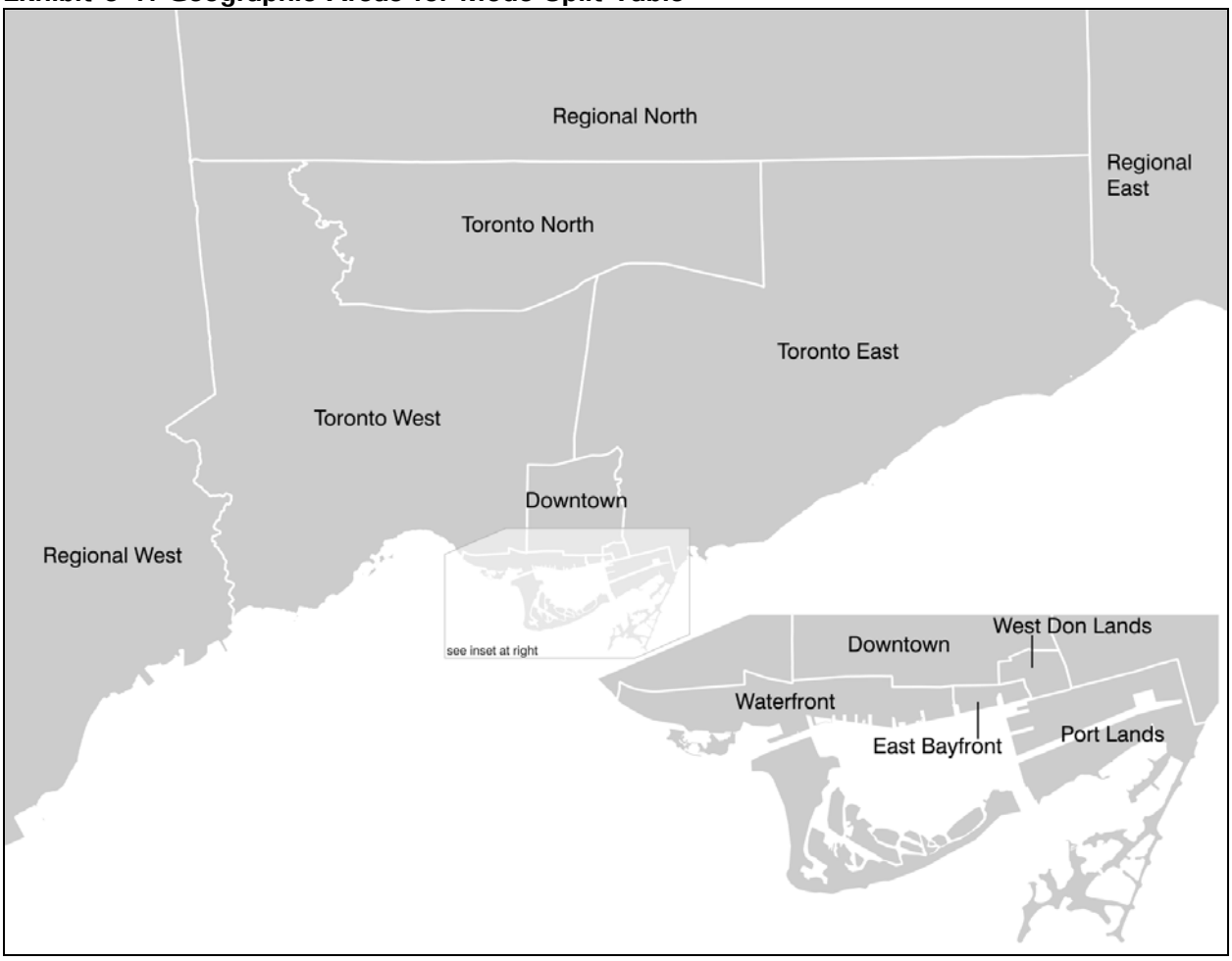
	# AM Peak Trips Destined to Precincts			# AM Peak Trips Originating from Precincts		
	East Bayfront	West Don Lands	Port Lands	East Bayfront	West Don Lands	Port Lands
Auto	1520	1680	11070	2740	2020	7750
Transit	1080	1280	5260	2850	2040	6970
Walk/Cycle/ Other	460	450	1110	1390	960	1580
Total	3060	3410	17440	6980	5020	16300
Modal Split						
Auto	50%	49%	64%	39%	40%	47%
Transit	35%	38%	30%	41%	41%	43%
Walk/Cycle/ Other	15%	13%	6%	20%	19%	10%
Total	100%	100%	100%	100%	100%	100%

Table 6-6: AM Peak Transit Mode Split for Person-Trips to/from Precincts

Trip Origin [A]	Transit Mode Split for Trips **to** Precincts		Trip Destination [A]	Transit Mode Split for Trips **from** Precincts
Downtown	[B]27%		Downtown	[C]47%
Toronto West	34%		Toronto West	40%
Toronto North	38%		Toronto North	53%
Toronto East	31%		Toronto East	48%
Regional West	39%		Regional West	18%
Regional North	31%		Regional North	27%
Regional East	34%		Regional East	8%
Waterfront	40%		Waterfront	43%
Total	32%		Total	42%

[A] See Exhibit 6-1 for geographic boundaries of areas
[B] ie 27% of all person trips travelling from the Downtown to the Precincts use transit
[C] ie 47% of all person trips travelling from the Precincts to the Downtown use transit

Exhibit 6-1: Geographic Areas for Mode Split Table



7 CONCLUSIONS

This report has documented the process and data used in the forecasting of automobile and transit usage on the future base road and transit networks in the Waterfront East. It also provided more detailed information for the individual precincts of East Bayfront, West Don Lands, and Port Lands. The results of this forecasting work provide input to the City and TTC towards the sizing of transportation facilities and developing transportation policies for the Waterfront East area.

Appendix A - 2021 Ultimate Demand Automobile and Transit Link Volume Forecasts

Exhibit A-1: AM Peak Hour Automobile Volumes on Roads

Exhibit A-2: AM Peak Hour Automobile Volume/Capacity (v/c) Ratios

Exhibit A-3a: AM Peak Hour Transit Volumes on Transit Routes – King Streetcar at 12.4kph downtown

Exhibit A-3b: AM Peak Hour Transit Volumes on Transit Routes – King Streetcar at 8.0kph downtown

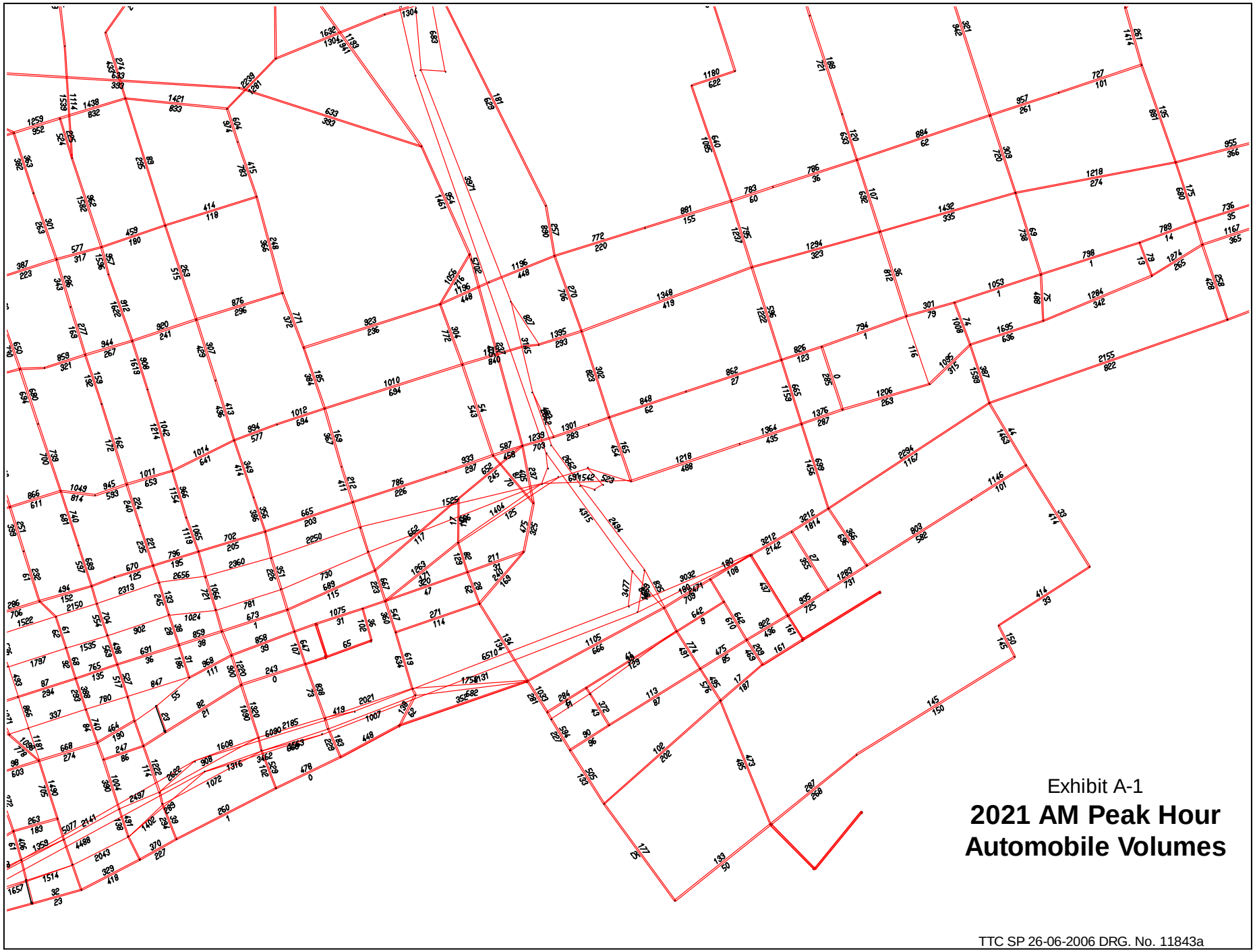


Exhibit A-1

2021 AM Peak Hour Automobile Volumes

TTC SP 26-06-2006 DRG. No. 11843a

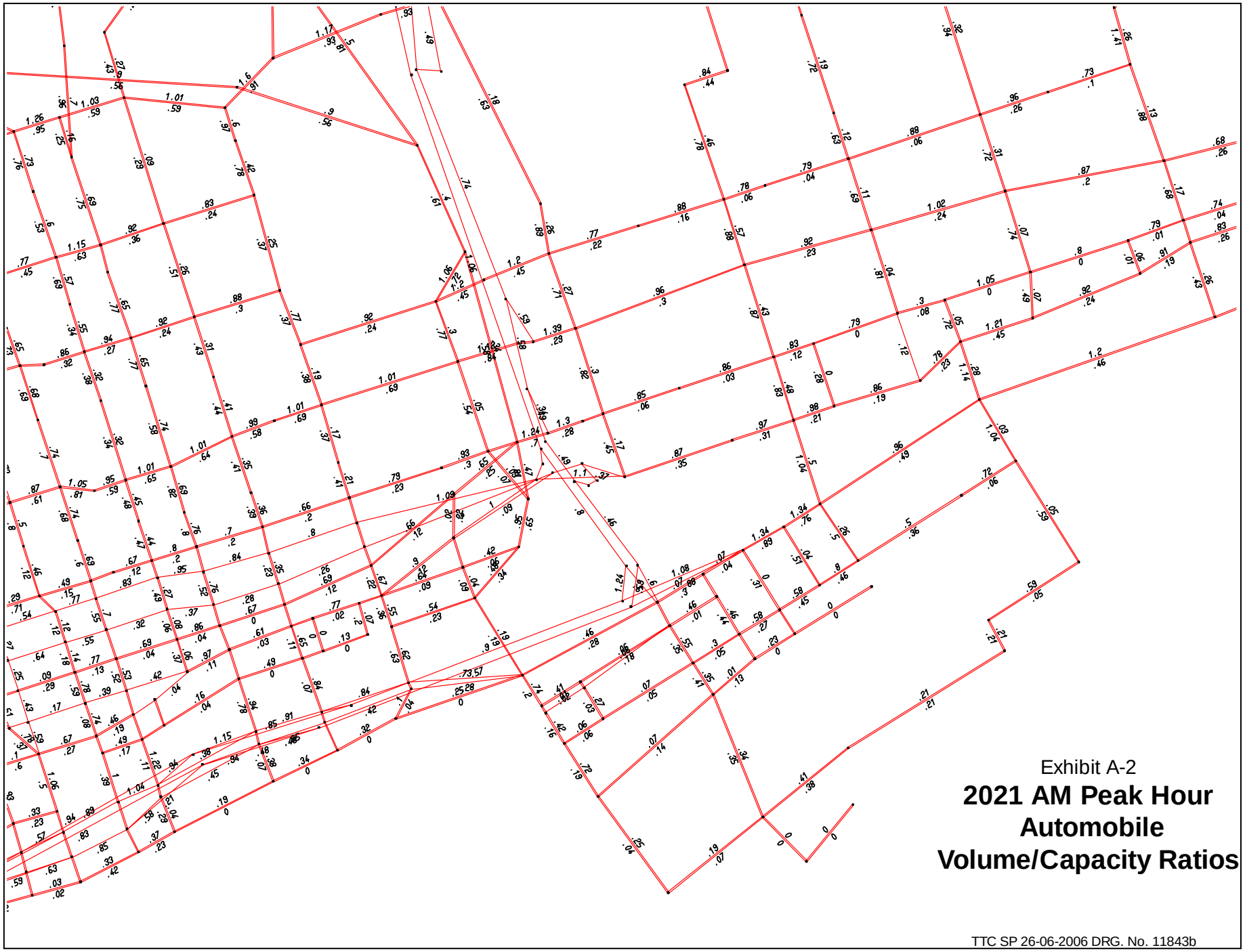


Exhibit A-2

2021 AM Peak Hour Automobile Volume/Capacity Ratios

TTC SP 26-06-2006 DRG. No. 11843b


Exhibit A-3a
AM Peak Hour Transit Link Volumes
2021 Waterfront Network with 2021 Ultimate Demand
12.4kph streetcar speed on King St. E.
0
0.5
1
kilometres

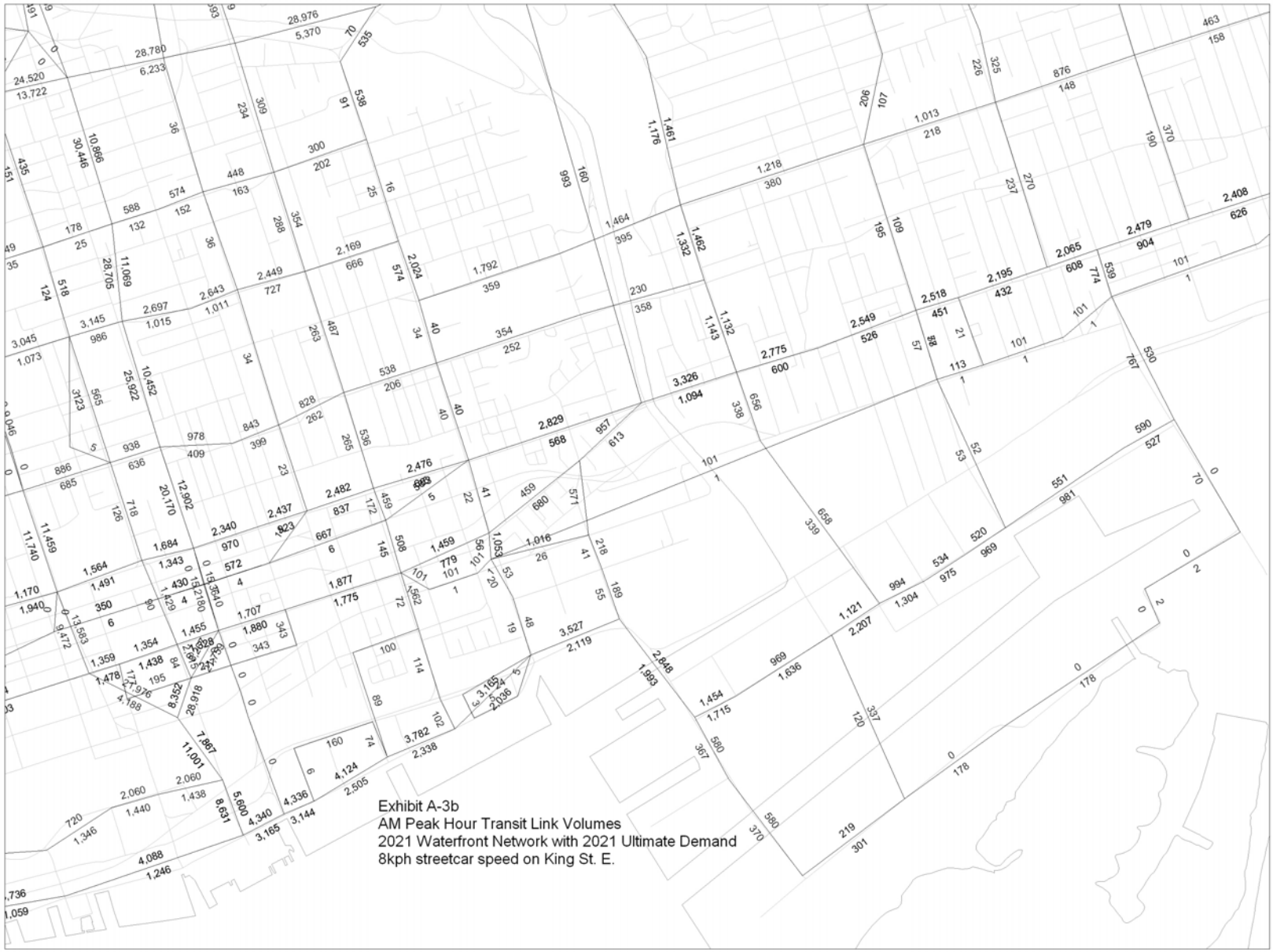


Exhibit A-3b
AM Peak Hour Transit Link Volumes
2021 Waterfront Network with 2021 Ultimate Demand
8kph streetcar speed on King St. E.

Appendix B – 2021 Ultimate Demand Automobile and Transit Link Volumes at Precinct Level

Exhibit B-1: East Bayfront – AM Peak Hour Automobile Volumes

Exhibit B-2a: East Bayfront – AM Peak Hour Transit Volumes – King Streetcar at 12.4kph downtown

Exhibit B-2b: East Bayfront – AM Peak Hour Transit Volumes – King Streetcar at 8.0kph downtown

Exhibit B-3: West Don Lands – AM Peak Hour Automobile Volumes

Exhibit B-4a: West Don Lands – AM Peak Hour Transit Volumes – King Streetcar at 12.4kph downtown

Exhibit B-4b: West Don Lands – AM Peak Hour Transit Volumes – King Streetcar at 8.0kph downtown

Exhibit B-5: Port Lands – AM Peak Hour Automobile Volumes

Exhibit B-6: Port Lands – AM Peak Hour Automobile Volumes for Trips Travelling Through Port Lands

Exhibit B-7a: Port Lands – AM Peak Hour Transit Volumes – King Streetcar at 12.4kph downtown

Exhibit B-7b: Port Lands – AM Peak Hour Transit Volumes – King Streetcar at 8.0kph downtown

Exhibit B-8: Non-Precinct Trips – AM Peak Hour Automobile Volumes for Trips with Trip Ends Outside Precincts

Exhibit B-9a: Non-Precinct Trips – AM Peak Hour Transit Volumes for Trips with Trip Ends Outside Precincts
- King Streetcar at 12.4kph downtown

Exhibit B-9b: Non-Precinct Trips – AM Peak Hour Transit Volumes for Trips with Trip Ends Outside Precincts
- King Streetcar at 8.0kph downtown

Exhibit B-1

East Bayfront
2021 AM Peak Hour
Automobile Volumes

TTC SP 26-06-2006 DRG. No. 11843c


Exhibit B-2a
2021 AM Peak Hour Transit Link Volumes
Trips to/from the East Bayfront Precinct
12.4kph streetcar speed on King St. E.
0
0.5
1
kilometres

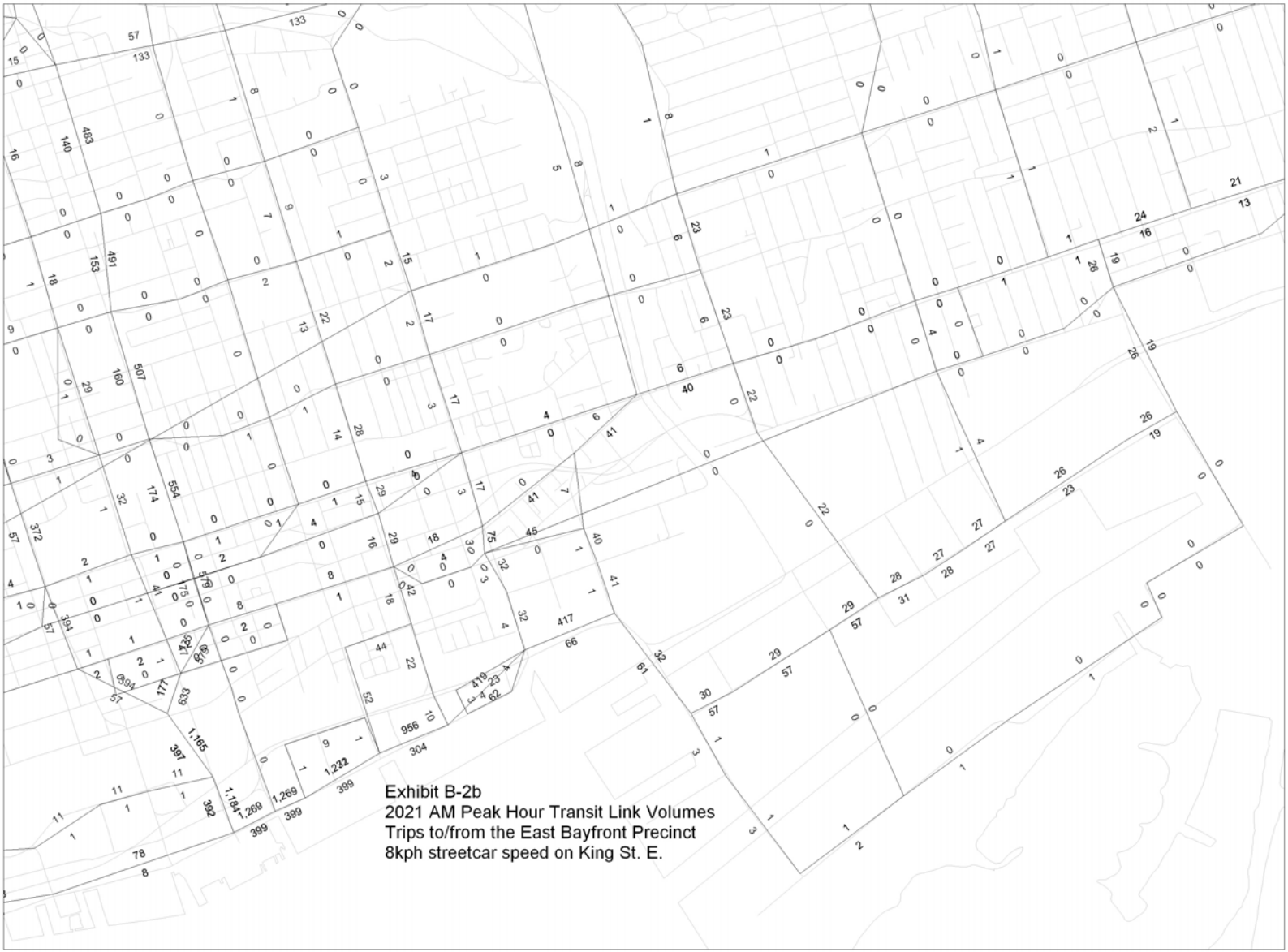


Exhibit B-2b
2021 AM Peak Hour Transit Link Volumes
Trips to/from the East Bayfront Precinct
8kph streetcar speed on King St. E.

Exhibit B-3

West Don Lands
2021 AM Peak Hour
Automobile Volumes

TTC SP 26-06-2006 DRG. No. 11843d


Exhibit B-4a
2021 AM Peak Hour Transit Link Volumes
Trips to/from the West Don Lands Precinct
12.4kph streetcar speed on King St. E.
0
0.5
1
kilometres

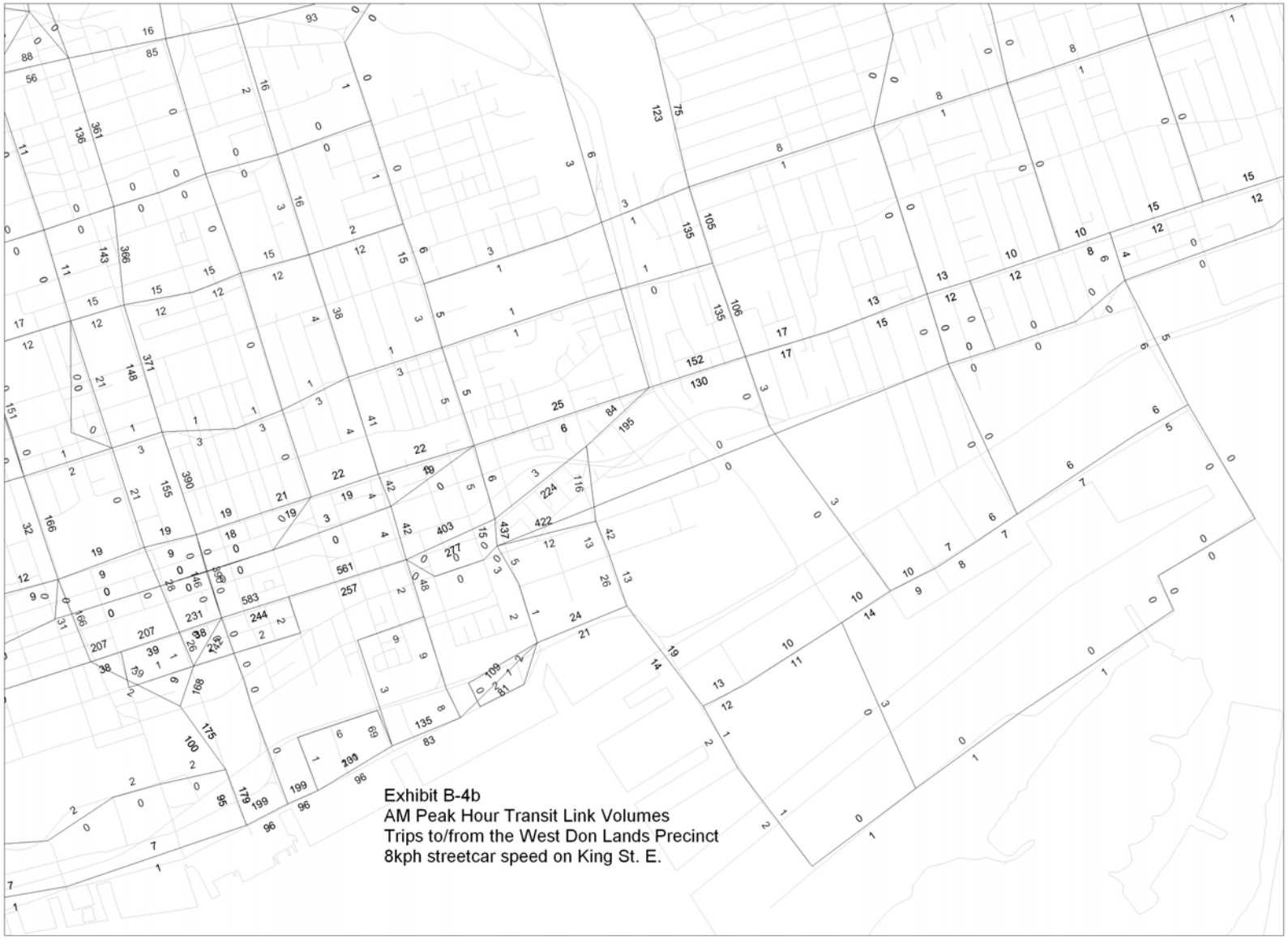


Exhibit B-4b
AM Peak Hour Transit Link Volumes
Trips to/from the West Don Lands Precinct
8kph streetcar speed on King St. E.

Exhibit B-5

Port Lands
2021 AM Peak Hour
Automobile Volumes

TTC SP 26-06-2006 DRG. No. 11843e

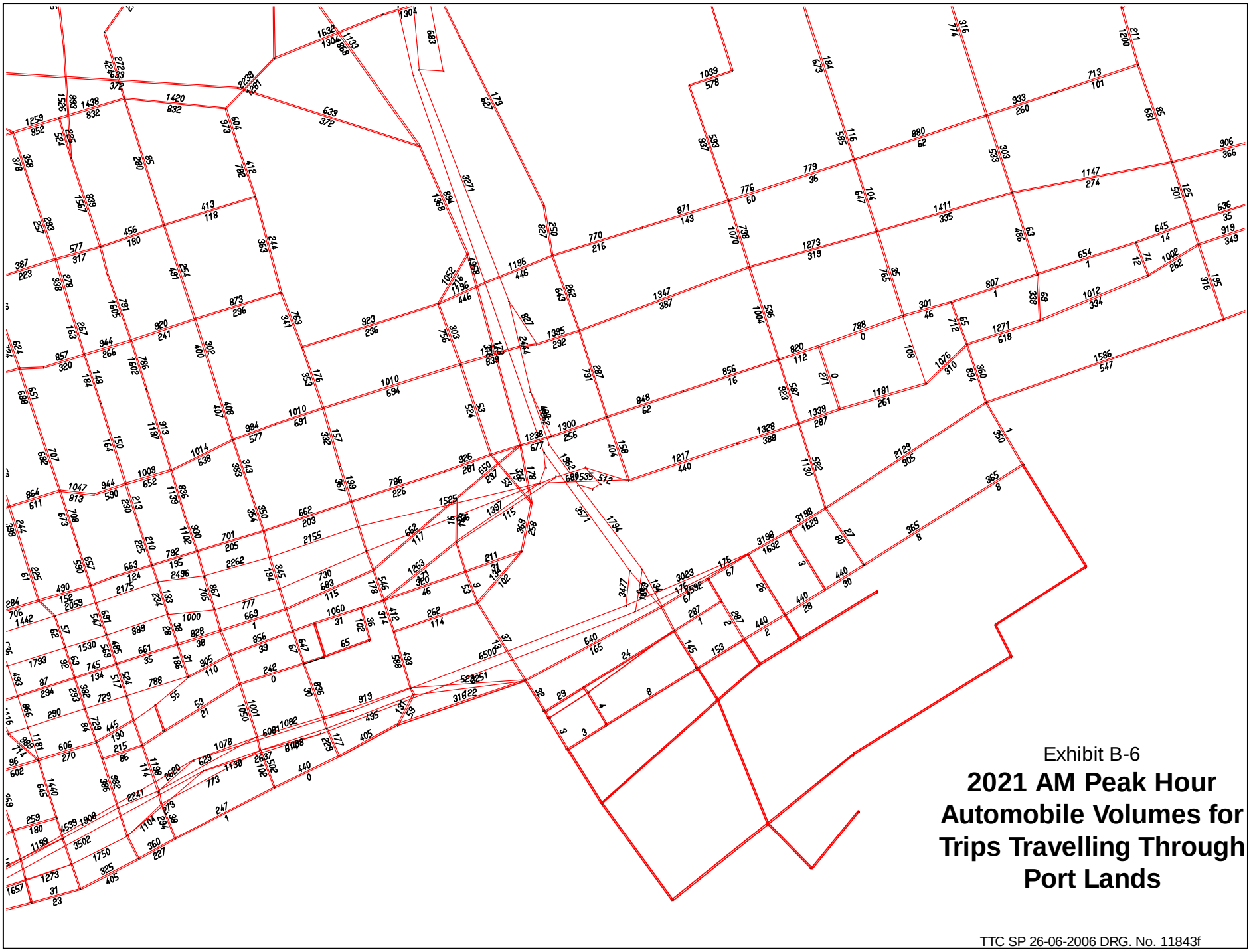


Exhibit B-6

2021 AM Peak Hour Automobile Volumes for Trips Travelling Through Port Lands

TTC SP 26-06-2006 DRG. No. 11843f


Exhibit B-7a
2021 AM Peak Hour Transit Link Volumes
Trips to/from the Port Lands Precinct
12.4kph streetcar speed on King St. E.
0
0.5
1
kilometres

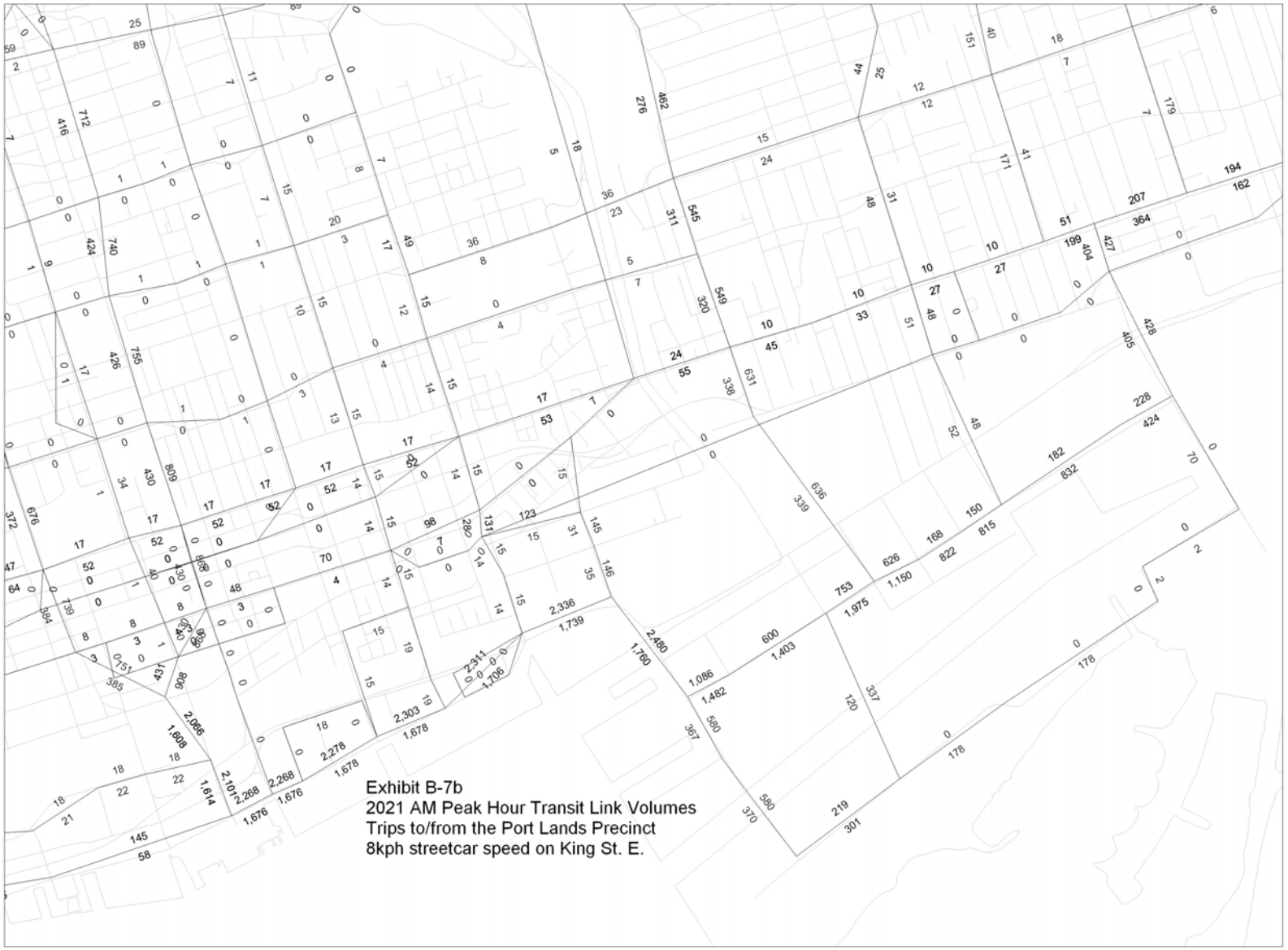


Exhibit B-7b
2021 AM Peak Hour Transit Link Volumes
Trips to/from the Port Lands Precinct
8kph streetcar speed on King St. E.

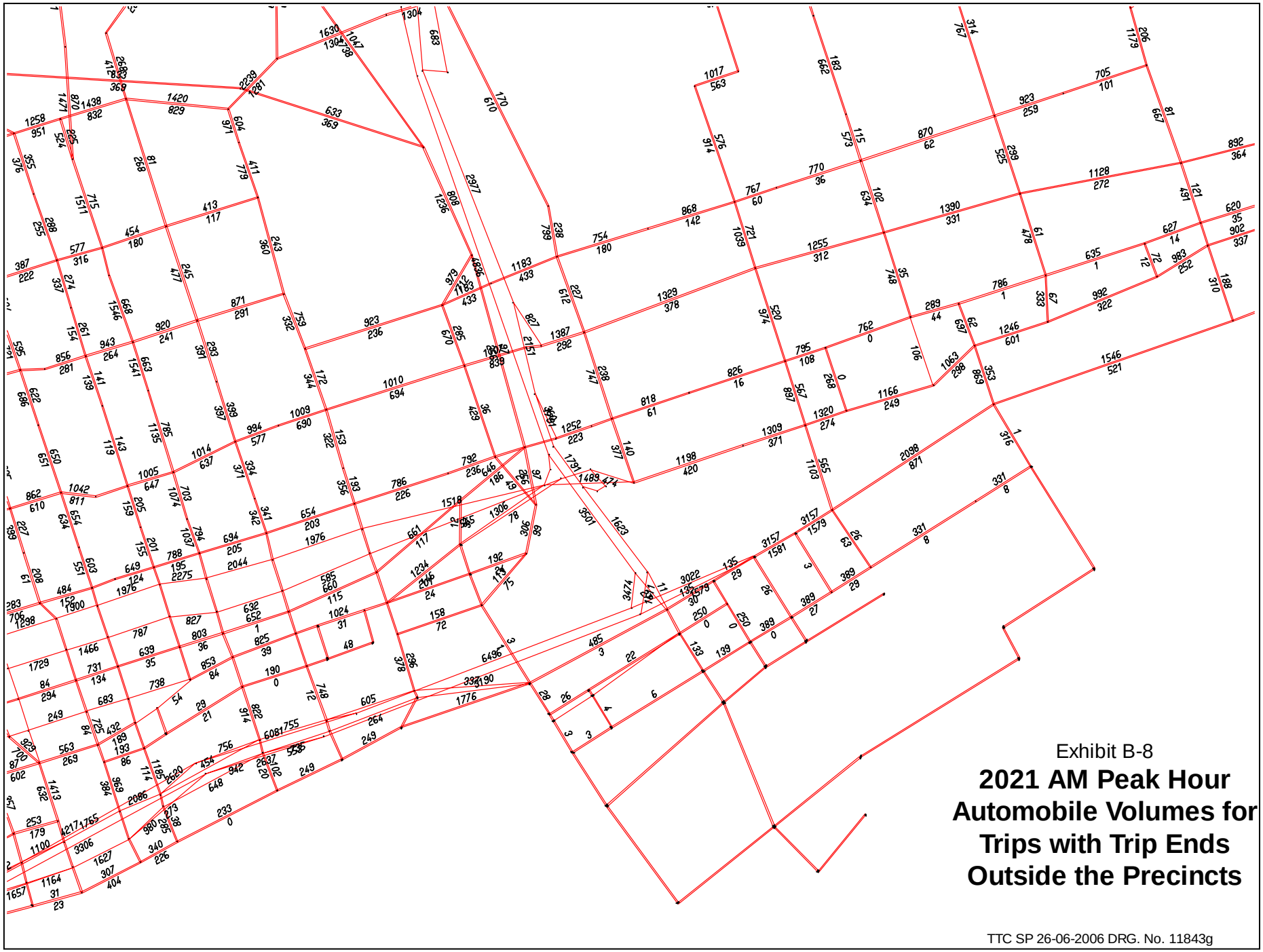


Exhibit B-8

2021 AM Peak Hour Automobile Volumes for Trips with Trip Ends Outside the Precincts

TTC SP 26-06-2006 DRG. No. 11843g


Exhibit B-9a
AM Peak Hour Transit Link Volumes
2021 Waterfront Network with 2021 Ultimate Demand
Trips with Trip Ends Outside the Precincts
12.4kph streetcar speed on King St. E.
0
0.5
1
kilometres


Exhibit B-9b
2021 AM Peak Hour Transit Link Volumes
Trips with Trip Ends Outside the Precincts
8kph streetcar speed on King St. E.

Appendix C – Notes on Assumptions on Toronto's Future Land Use

Small-area population projections were constructed to estimate the anticipated number of households and their dwellings within 1996 Traffic Zones. The projections are background information to the City's Official Plan. The projections were based on a GTA regional forecast, the Census and occupancy rates of households by structural type of dwelling and tenure. The GTA regional forecast was prepared by the former Provincial Office of the GTA, the City of Toronto and the Regions of the GTA and published in March 2000. Toronto City Planning constructed population projections by age, sex within the envelope of the regional forecasts. The citywide projections take into account trends in births and deaths and in migration and mobility. These were converted into households using Census household occupancy rates.

The projected households were allocated to Traffic Zones in order to assess the impact of the central policies of the Official Plan. A conservative estimate of housing supply was assembled from a variety of sources in order to accurately estimate the short, medium and long-term potential housing yield in order to accommodate the projected population. These sources include residential development applications within the approvals process, opportunities for redevelopment of significant pieces of land, intensification along the Avenues well-served by public transit, and vacant and underutilized sites within the Downtown. It was determined that only approximately one-third of the available potential was required to house the anticipated population growth. The overall trajectory of the population projections to date corresponds to the pace of housing starts and completions over the past five years and has been shown to be generally on track versus the 2001 Census. Please see "Flashforward: Projecting Population and Employment to 2031 in a Mature Urban Area", available at http://www.toronto.ca/torontoplan/flashforward.htm.

With respect to the Central Waterfront, the estimates of housing supply include the residential development applications filed as of year-end 2001 and the population projections developed (by Toronto City Planning - Transportation, South District) for the Central Waterfront Part II Plan and its 37 sub-areas, scheduled into the short, medium and long terms. For the short term, the estimated implementation of the residential development proposals on hand were slotted into the three five-year periods between 1996 and 2011 based on their date of application, size and progress through the approvals process. For the medium and long term, the sub-area projections were divided between the subsequent decades, 2011-21 and 2021-31.

The Minister of Municipal Affairs and Housing inserted a population target into the Official Plan which reflects the forecasted population in 2031 based on the 2000 forecast. As part of the development of the Growth Plan for the Greater Golden Horseshoe (GGH), the regional population forecasts were updated. The forecasted population for Toronto in 2031 is slightly higher under the new 2005 forecast (3,080,000) than the 2000 forecast (3,000,000). Thus, Toronto's citywide population projections and small-area allocations predate the adoption of the Growth Plan but are consistent with it.