January 14, 2021
03-20-0085

Kirk Kwan
Transportation Engineer
City of Edmonton

VIA E-MAIL: kirk.kwan@edmonton.ca

Dear Mr. Kwan:

Re: Windsor Terrace DC2 Amendment (City File No. 364459445-001)
Final Traffic Memo

City Council originally approved the rezoning (DC2 (895)) of Windsor Terrace on September 21, 2015 to accommodate a mixed-use development accommodating 121 du and 2,443 SF of commercial uses. A Traffic and Parking Impact Assessment was completed by Bunt & Associates in August 2015 (2015 TIA/PIA) to support the rezoning. A subsequent amendment to the DC2 was approved by Council on October 24, 2016 as Bylaw 17804 to increase the height and number of on-site parking spaces, to decrease the total number of residential units, and increase the commercial area.

Since completion of the 2015 TIA, the surrounding site context has changed nominally, including the removal of utility poles along the south side of the east-west alley abutting the subject site. The removal of the utility poles increases the effective width of the alley, making it easier for vehicles that meet in the alley to pass each other. In addition, school safety improvements were implemented in 2020 at Windsor Park School including a refresh of all marked crosswalks, replacement of yield signs with stop signs with red reflective sleeves, and installation of back-to-back crosswalk signs with white reflective sheets.

Select Engineering, on behalf of Pagnotta, is currently preparing a rezoning application to allow for an increase in density and height. The DC2 amendment proposes up to 160 residential dwelling units and 4,413 SF of commercial area. The proposed concept plan is attached for reference.

As part of the amendment process, Bunt & Associates has been retained to prepare a traffic memo to provide guidance on the anticipated net change in traffic volumes resulting from the amendment and determine whether further study is required.

1.1 Trip Generation

Trip generation rates are based on a combination of City of Edmonton recommended rates and trip generation rates published in the Institute of Transportation Engineers' (ITE) Trip Generations, 10th Edition. **Table 1** summarizes the assumed trip generation rates.

The commercial land uses are primarily anticipated to provide convenience and service commercial land uses for building residents, and residents, employees, and visitors surrounding the site. The trip generation rates for standalone convenience stores or restaurants within a suburban context would significantly over-estimate the vehicle trip making activity for the proposed commercial uses; therefore, average rates published for ITE LUC 820 – Shopping Centre from the Trip Generation Manual, 10th Edition were applied.

Table 1: Trip Generation Rates

LAND USE	SOURCE	AM PEAK HOUR	PM PEAK HOUR	DAILY
Apartments	City of Edmonton	0.34 trips/du 17% in/83% out	0.40 trips/du 63% in/37% out	5.81 trips/du 50% in/50% out
Commercial	ITE 820 Average Rate	0.94 trips/1,000 SF 62% in/38% out	3.81 trips/1,000 SF 48% in/52% out	37.75 trips/1,000 SF 50% in/50% out

Table 2 shows the projected two-way vehicle trips that are anticipated to be generated by the proposed development. As shown, the development is projected to generated in the order of 59 two-way trips during the AM peak hour, 81 two-way trips during the PM peak hour, and 1,096 two-way trips on a daily basis.

Table 2: Gross Trip Generation Estimates

LAND USE	UNITS	AM PEAK HOUR		PM PEAK HOUR		DAILY	
		IN	OUT	IN	OUT	IN	OUT
Apartments	160 du	9	45	40	24	465	465
Commercial	4,413 SF	3	2	8	9	83	83
TOTAL		12	47	48	33	548	548

1.1.1 Mode Split

Based on information contained within the 2016 Municipal Census, about 38% of residents within the Windsor Park neighbourhood use transit, walk, ride their bike, or use other non-auto modes to get to work. The City of Edmonton residential rates summarized in Table 1 were collected in primarily suburban areas with limited access to transit. It is anticipated that the rates summarized reflect areas with a mode split to transit in the order of 5% to a maximum of 10%. Therefore, a mode split to transit of 31% was applied to account for the potential increased use of alternate modes as compared to suburban conditions.

Table 3 summarizes the site generated traffic estimates upon application of the above mode split percentages to the residential trips. The plan area is anticipated to generate in the order of 42 external two-way trips in the AM peak hour, 62 two-way external trips in the PM peak hour, and 808 total two-way external trips on a typical weekday.

Table 3: Net External Trips

TRIP COMPONENT	AM PEAK HOUR		PM PEAK HOUR		DAILY	
	IN	OUT	IN	OUT	IN	OUT
Total Gross Trips	12	47	48	33	548	548
Mode Split	3	14	12	7	144	144
TOTAL EXTERNAL TRIPS	**9**	**33**	**36**	**26**	**404**	**404**

1.1.2 Comparison to 2015 TIA/PIA

Based on the 2015 TIA/PIA, the development was anticipated to generate in the order of 33 external two-way vehicle trips in the AM peak hour, 44 external two-way trips during the PM peak hour, and 644 external two-way trips on a daily basis. **Table 4** provides a summary of the net external trips for the proposed development as compared to the 2015 TIA/PIA.

Table 4: Net External Trips Comparison

TRIP COMPONENT	AM PEAK HOUR		PM PEAK HOUR		DAILY	
	IN	OUT	IN	OUT	IN	OUT
2015 TIA/PIA	6	27	26	18	322	322
Proposed	9	33	36	26	404	404
DIFFERENCE (PROPOSED – 2015 TIA/PIA)	**3**	**6**	**10**	**8**	**82**	**82**

As shown in Table 4, the proposed development is projected to generate 9 additional trips during the AM peak hour, 18 additional trips during the PM peak hour, and 164 additional trips on a daily basis as compared to the 2015 TIA/PIA.

The addition of up to 18 two-way trips during peak hours is not anticipated to significantly alter intersection operations as presented in the 2015 TIA/PIA. The existing roadway infrastructure in the immediate vicinity of the development site is anticipated to be capable of accommodating site generated traffic movements.

Based on the 2015 TIA/PIA, between 700 and 800 two-way daily trips were projected along the east-west alley between the parkade access and 118 Street. Therefore, daily traffic volumes are anticipated to be less than 1,000 vpd along the east-west alley with the addition of up to 164 daily trips. It should also be noted that the daily volumes projected within the 2015 TIA/PIA are anticipated to be conservative as it was assumed that all traffic associated with the proposed development used the east-west alley to/from 118 Street. No traffic was assigned to the north-south alley access to 87 Avenue.

1.2 Parkade Geometry Review

Access to the proposed parkade will be located at the northeast corner of the redevelopment site along the east-west alley. The parkade ramp access must be designed to meet City of Edmonton standards with respect to driveway grades. Consideration should also be given to sight lines for drivers accessing and egressing the parkade. Design features that may restrict the sight lines of drivers includes walls, landscaping, and parked vehicles. The access to the parkade should be designed such that vehicle sight lines are respected by minimizing the height of the adjacent walls at the point of entry and avoiding landscape features such as trees and hedges adjacent to the driveway in order to mitigate potential conflicts.

A swept-path analysis was completed to ensure that the design of the parkade could accommodate the design vehicle without conflict. For the purpose of this analysis, a typical passenger vehicle was selected as the design vehicle. **Exhibits 1** and **2** illustrate the anticipated entering and exiting movements associated with the parkade access.

As shown in Exhibit 1, movements to/from the east-west alley can be accommodated. Movements can also be accommodated from the north/south alley as shown in Exhibit 2. Movements to/from the north-south alley, south of the east-west alley, require a U-turn movement, which may be uncomfortable for drivers; however, alternate routes are available. Vehicles entering or exiting the parkade can use the east-west alley to/from 117 Street or 118 Street as opposed to the north-south alley.

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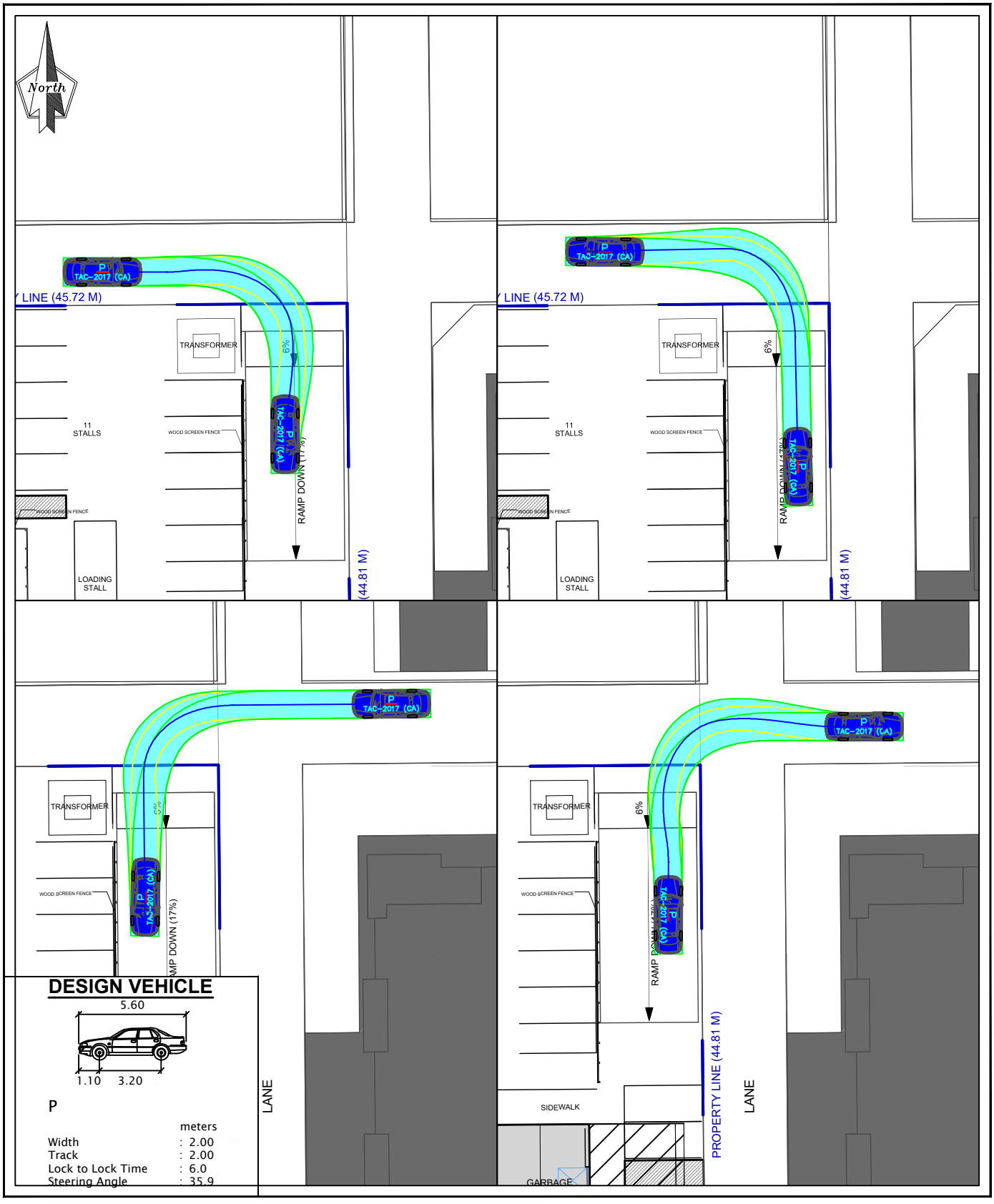

Exhibit 1

N.T.S.

Swept Path Analysis
East-west Lane

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Exhibit 2

N.T.S.

Swept Path Analysis
North-south Lane

1.3 Conclusion

Based on the above trip generation comparison, the completion of a TIA update is not anticipated to be required to support the proposed DC2 amendment, and the conclusions and recommendations of the 2015 TIA/PIA continue to be appropriate.

The access to the parkade should be designed such that vehicle sight lines for drivers accessing and egressing the parkade are respected. Based on the swept path analysis, vehicles entering and exiting the parkade are anticipated to be appropriately accommodated.

If you have any questions, comments, or require further study, please contact Janelle Willis at jwillis@bunteng.com or 780-732-5373 ext. 229.

Yours truly,
Bunt & Associates

Janelle Willis, P.Eng.
Associate

PERMIT TO PRACTICE
Bunt & Associates Engineering Ltd.
Signature
Date Jan. 14 2021
PERMIT NUMBER: P13898
The Association of Professional Engineers
Geologists and Geophysicists of Alberta

PROFESSIONAL ENGINEER ALBERTA
JANELLE B. WILLIS

January 14, 2021

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