

MEMORANDUM

Date:	May 28, 2024	TG:	1.23117.00
To:	Jesse L. Hannahs, PE and Jesse Birchman, PE, PTOE – City of Marysville		
From:	Kassi Leingang, PE – Transpo Group		
cc:	Glenna Mahar – Barghausen Consulting Engineers, Inc.		
Subject:	PA 23-021 – White Barn - Brown Bear Carwash – Response to Comments		

The following memorandum responds to the comment received from City of Marysville staff dated February 8, 2024 for the proposed Brown Bear Carwash, located in the larger White Barn development. The comment was provided in reference to the Traffic Impact Analysis dated August 2023, prepared by Transpo Group. The comment and response are provided below.

Comment:

- 1) *Traffic Impact Fees and Traffic Impact Analysis shall be per Initial White Barn TIA. Any alterations to original TIA Trip Generation assumptions, at a minimum, shall require a TIA Memo to provide understanding of the updated proposed site uses.*
 - a. *Provide TIA memo comparing original accepted TIA trip generation for entire White Barn Development to currently proposed site land uses.*

Response: The original accepted TIA trip generation for the entire White Barn development¹ identified an overall trip generation for the development of up 342 weekday PM peak hour trips (143 inbound and 199 outbound). This analysis had made general assumptions regarding development of the lots as actual land uses and sizes were not known at the time of the initial study. Additionally, the initial study did not account for any reductions for to internal capture on the site. Although not assumed in the original study, it is expected that some level of reduction for internal capture would occur with the site uses and should be accounted for in the updated calculation of site's trip generation forecasts.

Since completion of the original study, the development for many of the lots has been approved by the City. As coordinated with City staff, development that has been submitted to date (in order of submittal) includes the following:

1. Medical Office: 33,748 square feet (sf)
2. Gas Station: 12 vehicle fueling positions (vfp)
3. Day Care Center: 12,100 sf
4. Medical Office: 10,000 sf
5. Fast Food Restaurant: 5,773 sf
6. Automated Car Wash and Touchless Car Wash (*Brown Bear, Proposed Project*)

With the known development, a trip generation analysis for the approved development to date has been completed, inclusive of reductions for internal capture. This approach was coordinated with City staff. The internal capture reduction was calculated per the methodology as defined in ITE's *Trip Generation Handbook* (3rd edition). With the approved uses and the ITE methodology, the analysis estimates an overall internal capture rate of 26% for the overall development.

Note that an internal capture reduction was applied to the day care use. The most appropriate category for this use was reviewed. Land uses other than those already on site (retail, restaurant,

¹ *White Barn Development Traffic Impact Analysis* (Gibson Traffic Consultants, Inc., February 2021). Referred to as the Original White Barn TIA.

and office) were considered as day care is likely to result in internal capture at each of these uses. The residential land use is anticipated to have similar behaviors (daily destination); however, this resulted in an internal capture rate of 61% for this use and an overall internal capture rate for the development of 37% which may overstate the capture rates. Alternatively, the entertainment land use category resulted in a reasonable internal capture rate of 21% for the day care use and 26% for the overall development, such that the entertainment land use category was assumed in the analysis.

The resulting new project trips for the development submitted to date is summarized in Table 1. The detailed trip generation calculations are provided in Attachment A.

Table 1. Estimated Weekday PM Peak Hour Vehicle Trip Generation

Land Use	Weekday PM Peak Hour Trips		
	In	Out	Total
<i>White Barn Development to date</i>			
Medical Office: 33,748 sf	28	66	94
Gas Station: 12 vfp	23	39	62
Day Care Center: 12,100 sf	9	17	26
Medical Office: 10,000 sf	18	14	32
Fast Food Restaurant: 5,773 sf	34	15	49
<i>Automated Car Wash and Touchless Car Wash (Brown Bear, Proposed Project)</i>	<u>31</u>	<u>37</u>	<u>68</u>
Total	143	188	331
White Barn TIA¹ - Total Trip Generation Approved	143	199	342
<i>White Barn remaining trips (Original Study less development to date)</i>	0	11	11

Note: sf = square feet, vfp = vehicle fueling positions

1. Per the *White Barn Development Traffic Impact Analysis* (Gibson Traffic Consultants, Inc., February 2021).

Based on the current development submitted to date and with inclusion of internal capture, the resulting new trip generation for the development is 331 weekday PM peak hour trips (143 in, 188 out) which is 11 trips fewer than the original White Barn weekday PM peak hour approval of 342 trips. Note that these calculations do not account for the two undeveloped parcels. Depending on the uses that occupy the final two parcels, those developments may exceed the original trip generation estimated for the White Barn project.

Additionally, as shown in Table 1, the Brown Bear development is anticipated to generate a total of 68 trips. The previous TIA prepared for the project, *Brown Bear (White Barn Development Lots 3 and 4) Traffic Impact Analysis* (Transpo Group, August 2023), estimated the project to generate a total of 86 trips, such that the revised estimate inclusive of internal capture results in a reduced estimate in trips and the analysis as completed in the *Brown Bear TIA* (Transpo Group, August 2023) reflects a conservative estimate of project impacts.

Note that impact fees for the project should be calculated reflecting the reduced estimate of 68 weekday PM peak hour trips. As identified in the *Brown Bear TIA* (Transpo Group, August 2023), the project would pay traffic impact fees to the City of Marysville. The City has identified a traffic impact fee of \$2,220 per PM peak hour trip for commercial development.² Based on the estimated trip generation above resulting in 68 new weekday PM peak hour trips, this equates to an estimated traffic impact fee of \$150,960. The City will calculate the final fee at time of permit issuance. The fee will be based on the impact fee rates in effect at the time of building permit issuance.

² Revised fee schedule dated February 26, 2024.

Attachment A:

Detailed Trip Generation Calculations

White Barn PM Peak Hour Trip Generation Calculation

Lot (Submittal)	Project						Gross Trips			Internal Trips ²				External Trips			Pass-By Trips			Primary Trips				
		Land Use	Setting	Size	Units	Rate ¹	Inbound %	Inbound	Outbound	Subtotal	In	Out	Total	%	In	Out	Total	%	In	Out	Total	Inbound	Outbound	Total
Lot 9 (Submittal 1)	Everett Clinic	Medical Office (720) PM Peak Hour	General Urban/Suburban	33,748 sf		3.46	28%	33	84	117	5	18	23	20%	28	66	94	-	-	-	28	66	94	
Lot 2 (Submittal 2)	Gas Station	Gas Station (945) PM Peak Hour	General Urban/Suburban	12 vfp		26.90	50%	161	162	323	45	30	75	23%	116	132	248	75%	93	93	186	23	39	62
Lot 8 (Submittal 3)	Kids N Us	Day Care Center (565) PM Peak Hour	General Urban/Suburban	12,100 sf		11.12	47%	63	72	135	16	13	29	21%	47	59	106	75%	38	42	80	9	17	26
Lot 6 (Submittal 4)	Medical Office	Medical Office (720) PM Peak Hour	General Urban/Suburban	10,000 sf		3.93	57%	22	17	39	4	3	7	19%	18	14	32	-	-	-	18	14	32	
Lots 1 & 7 (Submittal 5)	Chick Fil A	Fast Food Restaurant PM Peak Hour	General Urban/Suburban	5,773 sf		33.03	52%	99	92	191	34	48	82	43%	65	44	109	55%	31	29	60	34	15	49
Lots 3 & 4 (Submittal 6)	Brown Bear	Automated Car Wash (948) PM Peak Hour	General Urban/Suburban	1 tunnels		77.50	50%	39	39	78	11	7	18	23%	28	32	60	40%	12	12	24	16	20	36
		Touchless Car Wash PM Peak Hour	General Urban/Suburban	5 bays		13.68	51%	35	33	68	10	6	16	24%	25	27	52	40%	10	10	20	15	17	32
Future	Future	TBD PM Peak Hour	General Urban/Suburban	0 sf				0	0	0	0	0	0		0	0	0					0	0	0
Future	Future	TBD PM Peak Hour	General Urban/Suburban	0 sf				0	0	0	0	0	0		0	0	0					0	0	0
		Subtotal PM Peak Hour						452	499	951	125	125	250	26%	327	374	701		184	186	370	143	188	331

Original Approval	143	199	342
difference:	0	-11	-11

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation Manual* (11th Edition).
2. Internal Capture per ITE's *Trip Generation Handbook* (3rd Ed).
3. Pass-by rates per ITE's *Trip Generation Manual* (11th Ed).

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	White Barn	Organization:	Transpo Group
Project Location:	Marysville	Performed By:	
Scenario Description:	Development submitted to date	Date:	7-May
Analysis Year:		Checked By:	
Analysis Period:	PM Street Peak Hour	Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				156.3	55	101.3
Retail				468.8	235	233.8
Restaurant				190.68219	99	91.68219
Cinema/Entertainment				135	63	72
Residential				0	0	0
Hotel				0	0	0
All Other Land Uses ²				0	0	0
Total				950.78219	452	498.78219

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		19	2	0	0	0
Retail	5		29	9	0	0
Restaurant	3	38		7	0	0
Cinema/Entertainment	1	9	3		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	951	452	499
Internal Capture Percentage	26%	28%	25%
External Vehicle-Trips ³	701	327	374
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	16%	21%
Retail	28%	18%
Restaurant	34%	52%
Cinema/Entertainment	25%	18%
Residential	N/A	N/A
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	White Barn
Analysis Period:	PM Street Peak Hour

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	55	55	1.00	101.3	101
Retail	1.00	235	235	1.00	233.8	234
Restaurant	1.00	99	99	1.00	91.68219	92
Cinema/Entertainment	1.00	63	63	1.00	72	72
Residential	1.00	0	0	1.00	0	0
Hotel	1.00	0	0	1.00	0	0

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		20	4	0	2	0
Retail	5		68	9	61	12
Restaurant	3	38		7	17	6
Cinema/Entertainment	1	15	22		6	1
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		19	2	1	0	0
Retail	17		29	16	0	0
Restaurant	17	118		20	0	0
Cinema/Entertainment	3	9	3		0	0
Residential	31	24	14	0		0
Hotel	0	5	5	0	0	

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	9	46	55	46	0	0
Retail	66	169	235	169	0	0
Restaurant	34	65	99	65	0	0
Cinema/Entertainment	16	47	63	47	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	21	80	101	80	0	0
Retail	43	191	234	191	0	0
Restaurant	48	44	92	44	0	0
Cinema/Entertainment	13	59	72	59	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P
²Person-Trips
³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator
*Indicates computation that has been rounded to the nearest whole number.