



MEMORANDUM

Date: June 12, 2024

To: Travis Johnson, PE
PLS Engineering
604 West Evergreen Blvd
Vancouver WA 98660

From: Frank Charbonneau, PE, PTOE

Subject: Response to City Traffic Comments FL2442
NE 13th Street Site Plan Development (Gas Station)
Camas

The City of Camas recently furnished a review of the Charbonneau Engineering traffic study for the NE 13th Street Site Plan (gas station) in Camas. The review memo dated 5/1/24 was prepared by Global Engineering (Dana Beckwith, PE) and listed several issues related to the traffic analysis and site operations.

The proposed gas station is not unique in terms of location and how it will operate. The site is situated at an intersection corner of two moderately busy streets experiencing less than 1,170 total entering vehicles in each of the peak hours. Most often fueling station ownerships prefer an intersection corner location to take advantage of the exposure and accessibility, and typically experience many years of safe operation.

Only one access (NE 13th Street) is permitted to serve the property as no connection is allowed to NE Friberg-Strunk Street. This in itself is unusual for a commercial property use, however, fortunately any potential traffic impacts will be confined to a single driveway location.

To minimize the impacts associated with fueling trucks, deliveries will avoid the peak traffic periods by restricting arrivals and departures to the hours between 7:00PM to 7:00AM. Additionally, the fueling truck operators will be directed to make right turns from/to NE 13th Street when entering and exiting the site. The truck operators will be experienced professional drivers accustomed to accessing similar types of facilities.

Pertaining to comments about the truck turning movements it is recommend that PLS Engineering prepare an illustration showing the wheel paths for trucks entering, maneuvering on-site, and leaving the property. This will demonstrate what infringement (if any) the vehicles may have on the adjacent lanes on the NE 13th Street frontage.

Frontage improvements on NE 13th Street will include a westbound left turn lane for traffic turning into the site. The Charbonneau Engineering memo dated 4/9/24 supports the City's recommendation to install the turn lane as a safety benefit even though the original traffic report noted that the left turn lane was not warranted.

Another set of AM & PM peak hour traffic counts were recently performed at the intersection of NE 13th Avenue/202nd Avenue/NW Friberg-Strunk Street/Goodwin Road. The counts were recorded on Thursday May 16, 2024 when Union High School was in session. The counts used in the original traffic study were taken on August 1, 2023 when school was on summer break. However, to compensate for this condition the school trips were modeled using trip rates from the ITE Trip Generation manual. Listed below are the volume results, including a comparison of the previous traffic study's modeled volumes and those recorded when school was in session. The volumes represent the total entering vehicles (TEV) at NE 13th St/Friberg-Strunk Street intersection.

Peak Hour Count Summary

Data Collected	NE 13th St/Goodwin Rd and NE 202nd Ave/Friberg-Strunk St.	
	AM Peak TEV ¹	PM Peak TEV ¹
Adjusted August 2023 counts ²	1,062	1,129
May 2024 counts	1,057	1,136
Percent Difference ³	-0.47%	+0.62%

¹ Total entering vehicles.

² The August 2023 counts were adjusted to include modeled Union High School traffic.

³ Percent Difference = May 2024 TEV / Adjusted August 2023 counts

During the AM peak hour with school in session the volume recorded in May decreased by five vehicles or -0.47% compared to the modeled data used in the year 2023 traffic analysis. In the PM peak hour with school in session the TEV was seven vehicles higher +0.62% compared to the modeled data. These results confirm that using the modeled school trips in the original traffic analysis was accurate and there is no need to perform additional intersection studies. The year 2023 volumes are represented on Figure 3 in the original traffic report. The May 2024 volumes are documented in the traffic count data attached to this memorandum.

A traffic queuing survey was performed on the NE 13th Street eastbound approach to the signal at Friberg-Strunk Street to assess the vehicle stacking length. The output documents if the eastbound queues are currently extending far enough to interfere or block the future gas station access. The surveys were conducted in the AM & PM peak hours with the queues recorded at two-minute intervals. The data is included in the appendix.

The 40-foot-wide site access will be located at a distance of 202 feet from the signalized intersection's eastbound stop bar. For analysis purposes any eastbound queue extending beyond 180 feet from the stop bar would impact the proposed driveway and block left turn traffic entering and leaving the site. During the two-hour period from 7-9AM there were two instances when traffic extended beyond 180 feet (220 feet & 200 feet). During the two-hour

period from 4-6PM there was one instance when traffic extended beyond 180 feet (230 feet). The low blockage frequency is not considered problematic for traffic to safely enter and exit the site throughout the day. Additionally, when the fueling trucks arrive during the off-peak hours no blockages of the access are anticipated.

Based on the results of the follow-up study it is recommended that the City of Camas support the proposed site plan with one 40-foot-wide access on NE 13th Street.

If you should have any questions, please contact Frank Charbonneau, PE, PTOE at 971.322.8003 or email Frank@CharbonneauEngineer.com.

Attachments

- May 2024 Traffic Count Data
- May 2024 Queuing Survey Results



ALL TRAFFIC DATA SERVICES

(303) 216-2439

www.alltrafficdata.net

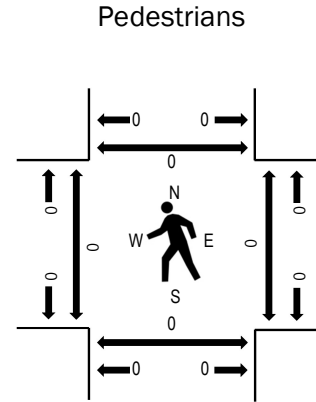
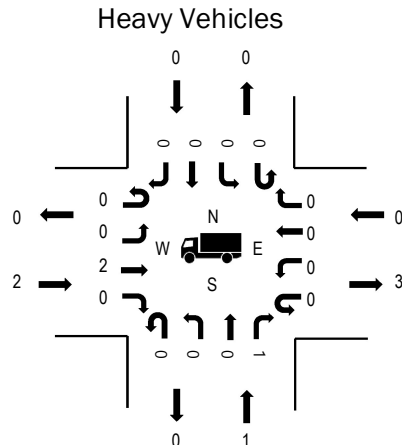
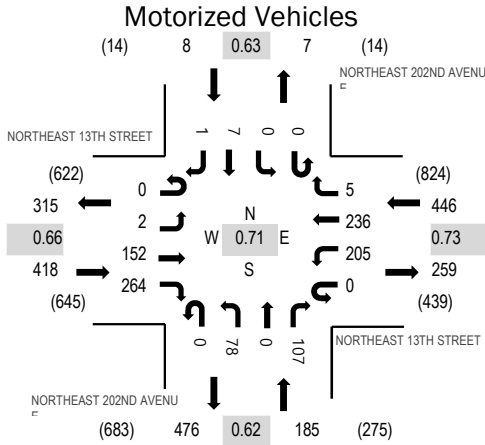
Location: 1 NORTHEAST 202ND AVENUE & NORTHEAST 13TH STREET AM

Date: Thursday, May 16, 2024

Peak Hour: 07:50 AM - 08:50 AM

Peak 15-Minutes: 08:25 AM - 08:40 AM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.5%	0.66
WB	0.0%	0.73
NB	0.5%	0.62
SB	0.0%	0.63
All	0.3%	0.71

Traffic Counts - Motorized Vehicles

Interval Start Time	NORTHEAST 13TH STREET Eastbound				NORTHEAST 13TH STREET Westbound				NORTHEAST 202ND AVENUE Northbound				NORTHEAST 202ND AVENUE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	14	4	0	10	20	0	0	1	0	3	0	0	0	0	52	720
7:05 AM	0	0	13	9	0	9	17	0	0	7	0	4	0	0	0	0	59	729
7:10 AM	0	0	13	4	0	3	17	0	0	4	0	5	0	0	0	0	46	732
7:15 AM	0	0	9	9	0	13	27	0	0	5	0	2	0	0	0	0	65	763
7:20 AM	0	0	12	6	0	5	20	0	0	1	0	5	0	1	0	0	50	765
7:25 AM	0	0	10	18	0	7	17	0	0	5	0	1	0	0	0	1	59	826
7:30 AM	0	1	6	3	0	15	31	0	0	4	1	5	0	0	0	0	66	876
7:35 AM	0	0	13	4	0	5	25	0	0	0	0	2	0	0	0	0	49	950
7:40 AM	0	1	8	8	0	13	30	0	0	4	0	4	0	0	1	0	69	1,023
7:45 AM	0	0	17	10	0	11	24	0	0	7	0	4	0	0	1	0	74	1,050
7:50 AM	0	1	18	9	0	15	16	0	0	5	0	12	0	0	0	0	76	1,057
7:55 AM	0	0	18	8	0	9	12	0	0	1	0	7	0	0	0	0	55	1,044
8:00 AM	0	1	12	8	0	7	23	0	0	3	0	6	0	0	1	0	61	1,038
8:05 AM	0	0	11	13	0	15	16	0	0	3	0	4	0	0	0	0	62	
8:10 AM	0	0	18	13	0	16	17	0	0	3	0	10	0	0	0	0	77	
8:15 AM	0	0	8	15	0	16	16	0	0	8	0	3	0	0	1	0	67	
8:20 AM	0	0	12	34	0	28	22	0	0	7	0	5	0	0	3	0	111	
8:25 AM	0	0	8	38	0	26	22	0	0	8	0	7	0	0	0	0	109	
8:30 AM	0	0	13	50	0	34	21	3	0	5	0	13	0	0	1	0	140	
8:35 AM	0	0	8	44	0	18	21	1	0	9	0	19	0	0	1	1	122	
8:40 AM	0	0	12	24	0	12	18	1	0	16	0	13	0	0	0	0	96	
8:45 AM	0	0	14	8	0	9	32	0	0	10	0	8	0	0	0	0	81	
8:50 AM	0	2	12	8	0	12	19	0	0	3	0	5	0	0	2	0	63	
8:55 AM	0	0	8	5	0	12	16	0	0	2	2	4	0	0	0	0	49	
Count Total	0	6	287	352	0	320	499	5	0	121	3	151	0	1	11	2	1,758	
Peak Hour	0	2	152	264	0	205	236	5	0	78	0	107	0	0	7	1	1,057	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	1	0	0	0	1	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	1	0	0	0	1	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0	7:20 AM	0	1	0	0	1
7:25 AM	1	0	0	0	1	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	0	0	0	0	0	7:35 AM	1	0	0	0	1	7:35 AM	0	0	0	0	0
7:40 AM	1	0	0	0	1	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	0	0	0	0	0	7:55 AM	2	0	0	0	2	7:55 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	0	1	0	0	1	8:05 AM	1	0	0	0	1	8:05 AM	0	0	0	0	0
8:10 AM	1	0	0	0	1	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	1	0	0	0	1	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	1	0	0	0	1	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	7	1	0	0	8	Count Total	4	0	0	4	Count Total	0	1	0	0	1	
Peak Hour	2	1	0	0	3	Peak Hour	3	0	0	3	Peak Hour	0	0	0	0	0	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	1	0	0	1	4:00 PM	0	0	0	0	0
4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	0	0	0	0	4:10 PM	0	0	1	0	1	4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0	4:30 PM	0	0	1	0	1	4:30 PM	0	2	0	0	2
4:35 PM	0	0	0	0	0	4:35 PM	0	1	0	0	1	4:35 PM	0	2	0	0	2
4:40 PM	0	0	0	0	0	4:40 PM	0	0	1	0	1	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	1	0	1	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	1	0	1	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM	0	0	1	0	1	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	1	0	0	0	1	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	0	0	0	0	0	Count Total	1	2	6	0	9	Count Total	0	4	0	0	4
Peak Hour	0	0	0	0	0	Peak Hour	0	1	2	0	3	Peak Hour	0	4	0	0	4

32041-Camas TMC**1. Northeast 13th Street & Northeast 202nd Avenue**

AM Peak Hour: 7:50-8:50 AM

PM Peak Hour: 4:15-5:15 PM

EB Movement

TIME	QUEUE BY FEET	ACCESS BLOCKED?
7:00 AM	20	
7:02 AM	90	
7:04 AM	0	
7:06 AM	90	
7:08 AM	90	
7:10 AM	90	
7:12 AM	0	
7:14 AM	125	
7:16 AM	75	
7:18 AM	20	
7:20 AM	0	
7:22 AM	40	
7:24 AM	0	
7:26 AM	20	
7:28 AM	90	
7:30 AM	0	
7:32 AM	40	
7:34 AM	20	
7:36 AM	0	
7:38 AM	0	
7:40 AM	165	
7:42 AM	20	
7:44 AM	65	
7:46 AM	90	
7:48 AM	40	
7:50 AM	30	
7:52 AM	40	
7:54 AM	90	
7:56 AM	150	
7:58 AM	20	
8:00 AM	20	
8:02 AM	25	
8:04 AM	40	
8:06 AM	20	
8:08 AM	30	
8:10 AM	45	
8:12 AM	90	
8:14 AM	90	
8:16 AM	65	
8:18 AM	95	

32041-Camas TMC**1. Northeast 13th Street & Northeast 202nd Avenue**

AM Peak Hour: 7:50-8:50 AM

PM Peak Hour: 4:15-5:15 PM

EB Movement

TIME	QUEUE BY FEET	ACCESS BLOCKED?
8:20 AM	220	YES
8:22 AM	175	
8:24 AM	35	
8:26 AM	150	
8:28 AM	20	
8:30 AM	175	
8:32 AM	200	YES
8:34 AM	40	
8:36 AM	20	
8:38 AM	65	
8:40 AM	90	
8:42 AM	90	
8:44 AM	70	
8:46 AM	95	
8:48 AM	100	
8:50 AM	130	
8:52 AM	90	
8:54 AM	50	
8:56 AM	40	
8:58 AM	20	
4:00 PM	95	
4:02 PM	45	
4:04 PM	20	
4:06 PM	20	
4:08 PM	130	
4:10 PM	160	
4:12 PM	75	
4:14 PM	80	
4:16 PM	65	
4:18 PM	40	
4:20 PM	100	
4:22 PM	90	
4:24 PM	230	YES
4:26 PM	85	
4:28 PM	175	
4:30 PM	110	
4:32 PM	175	
4:34 PM	30	
4:36 PM	95	
4:38 PM	80	

32041-Camas TMC**1. Northeast 13th Street & Northeast 202nd Avenue**

AM Peak Hour: 7:50-8:50 AM

PM Peak Hour: 4:15-5:15 PM

EB Movement

TIME	QUEUE BY FEET	ACCESS BLOCKED?
4:40 PM	40	
4:42 PM	105	
4:44 PM	20	
4:46 PM	80	
4:48 PM	50	
4:50 PM	65	
4:52 PM	20	
4:54 PM	45	
4:56 PM	60	
4:58 PM	60	
5:00 PM	20	
5:02 PM	140	
5:04 PM	20	
5:06 PM	95	
5:08 PM	90	
5:10 PM	180	YES
5:12 PM	40	
5:14 PM	130	
5:16 PM	110	
5:18 PM	40	
5:20 PM	85	
5:22 PM	90	
5:24 PM	95	
5:26 PM	20	
5:28 PM	110	
5:30 PM	35	
5:32 PM	90	
5:34 PM	110	
5:36 PM	160	
5:38 PM	90	
5:40 PM	90	
5:42 PM	90	
5:44 PM	90	
5:46 PM	130	
5:48 PM	40	
5:50 PM	40	
5:52 PM	20	
5:54 PM	40	
5:56 PM	20	
5:58 PM	90	