



DREXEL BARRELL & Co.
Engineers - Surveyors

MEMORANDUM

TO: **El Paso County Planning and Community Development**
2880 International Circle, Suite 110
Colorado Springs, CO 80910

FROM: Derek Schuler, P.E., PTOE

DATE: April 11, 2022

RE: Traffic Memorandum for 6550 Chief Road Brewery
El Paso County, Colorado

Traffic Engineer's Statement

The attached traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.

4-11-2022

Derek Schuler, Colorado P.E. #40125
DSchuler@drexelbarrell.com

Date



Developer's Statement

I, the Developer, have read and will comply with all commitments made on my behalf within this report.

Joseph Prue, Owner
1118 E. Dale Street
Colorado Springs, CO

Date

This memorandum serves to summarize the land use, probable trip generation, and vehicular access to the proposed brewery. The site is located in the northwest corner of Falcon Hwy and Chief Road in unincorporated El Paso county. See associated site plan for site layout. The existing 13.4-acre site currently contains a barn, and other minor related structures. A 2,400 SF brewery and parking lot is proposed. This site is zoned as A-5 and is generally surrounded by rural residential uses plus a church. The proposed site will contain 24 parking spaces including 2 handicap accessible spaces. There is one proposed access point to Chief Road and the existing access onto Falcon Hwy will be closed.

Land Use & Trip Generation

The proposed land use will be the brewery for a portion of the property with the remaining property to remain with the farm use. A residential house is expected to be constructed in the future and included in this analysis. The brewery’s hours of operation are Monday-Thursday 4-9pm, and Friday-Sunday 12-9pm. **Table 1** below shows the trip generation values for both proposed and future uses. The table shows the number of expected trips using the latest ITE trip rates. This manual is currently in its 10th edition and is an industry accepted informational report published by the Institute of Transportation Engineers. Land use #935 – Drinking Place, is the best match for the proposed brewery use. Land use #210 covers the future single house. Using the ITE rates, the proposed site is expected to generate about 129 daily trips, 1 trips (0 in/1 out) in the morning peak hour and 29 trips (20 in/9 out) in the evening peak hour.

Table 1 - Trip Generation Estimate for 6550 Chief Road Brewery, Falcon, CO																
ITE Code / Land Use	Size	Trip Generation Rates ¹			Average Weekday Trips	Trips Generated										
		Avg. Weekday ²	AM PEAK	PM PEAK		AM Peak-Hour (7 - 9)			PM Peak-Hour (4 - 6)							
						Inbound % Trips	Trips	Outbound % Trips	Trips	Total	Inbound % Trips	Trips	Outbound % Trips	Trips	Total	
#935 Drinking Place	2.4 KSF	50	0	114	120	0%	-	0%	-	-	68%	19	32%	9	28	
#210 SF Detached House	1.0 DU	9.4	0.7	1.0	9	25%	0	75%	1	1	63%	1	37%	0	1	
Total Trips					129	0			1			20			9	29

¹Source: "Trip Generation" Institute of Transportation Engineers, 10th Edition, 2017.

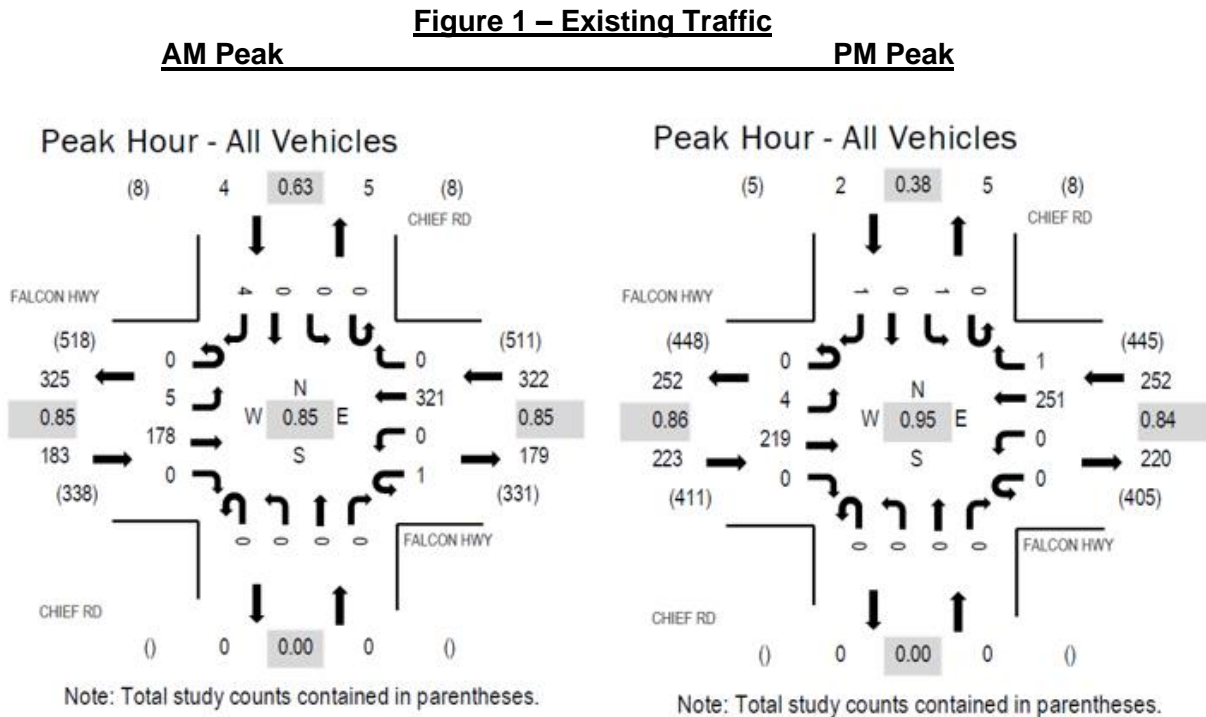
²E estimated for code #935. Based on late afternoon/evening hours of operation.
KSF = 1000 Gross Floor Area, DU = Dwelling Unit

Existing Roads & Distribution

Falcon Hwy, in front of the subject site, is classified as a minor arterial per the county’s 2040 Functional Classification Map. This roadway contains two lanes with no turn lanes in the surrounding area. Chief Road is classified as local and has stop controlled access to Falcon Hwy. Site access is proposed only from Chief Road roughly 900 feet from the intersection with Falcon Hwy with more than adequate sight distance along a local street. The anticipated distribution of site traffic is 100% onto Falcon Hwy via Chief Road. Then 90% to/from the west and 10% to/from the east.

The existing roadway signing/stripping is typical for this rural area. Falcon Hwy has rural centerline striping with passing areas designated as appropriate. There is a stop/street name sign at the intersection with Chief Road. There are no existing bicycle or pedestrian facilities in the surrounding area. The site plan does propose privacy fencing (6’ height) along 3 sides of the brewery area to block views from the surrounding residential and church properties. The proposed hours of operation are outside of school hours except for Friday afternoon. Otherwise, there are no known neighborhood/public issues.

Peak hour traffic counts at Falcon Hwy/Chief Rd were collected on Tuesday, April 5, 2022. The morning peak hour was 7-8am and the evening peak hour was 4-5pm. The results are summarized in **Figure 1** below and full data is in the Appendix.



The site generated traffic is analyzed for the PM peak only as the AM peak only has 1 trip. As shown previously in **Table 1**, there are 20 and 9 inbound and outbound trips, respectively. Using the 90/10 split in trip distribution, the following site traffic movements are determined in **Table 2** below. These are added to the existing traffic movements to determine the total traffic for these movements shown in **Table 3**.

Table 2 – PM Peak Site Generated Traffic

Movement	EBLT	WBRT	SBRT	SBLT
PM Site Trips	16	4	8	1

Table 3 – PM Peak Total Traffic (impacted movements)

Movement	EBLT	WBRT	SBRT	SBLT
PM Site Trips	20	5	9	2

Level of Service

The site buildout opening year is expected to be 2023 and an associated Synchro V9 Traffic Software Model (synchro) was created. Trip generation/distribution from the site was added to this model, see **Figure 2** below. The resulting intersection Level of Service (LOS) values are in **Table 4** below. The full synchro report sheets are included in the Appendix. The Falcon

Hwy/Chief Rd intersection will operate with LOS A in both existing and buildout conditions. Due to very low traffic on Chief Road, the site access will also operate at LOS A.

Figure 2 – Total Traffic (at site buildout)

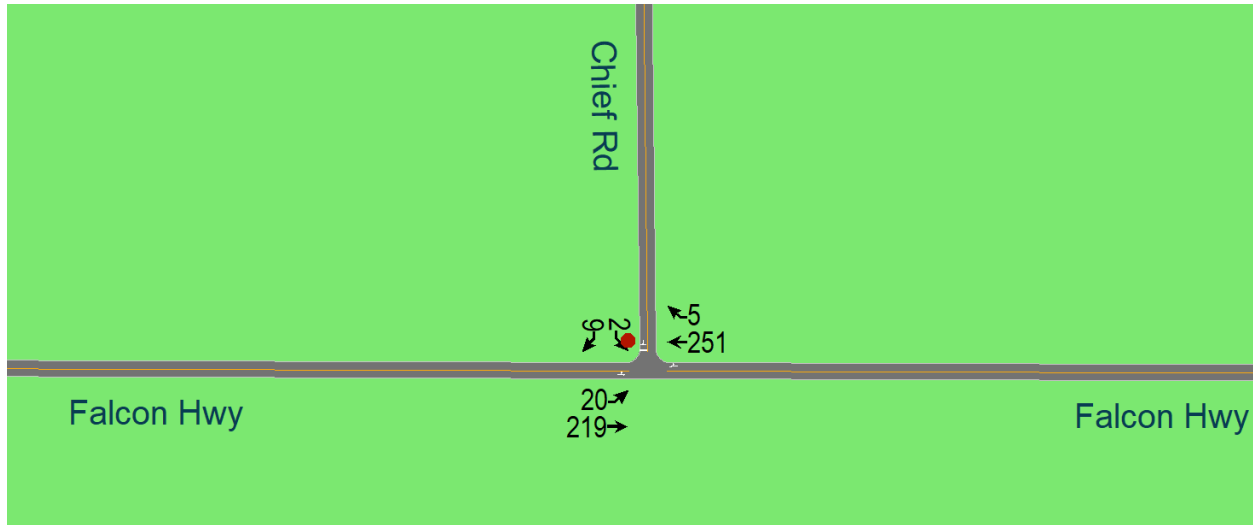


Table 4 Level of Service Analysis / Average Delay in Seconds				
Intersection	Movement	Traffic Control	2022	2023
			Existing Traffic	Total Traffic
			PM	PM
Falcon Hwy/ Chief Rd	Intersection	Stop	A	A
	EB		A/0.2	A/0.8
	WB		A/0.0	A/0.0
	SB		B/10.9	B/10.3

Access Analysis

Falcon Hwy contains two lanes with no turn lanes in the surrounding area. The intersection with Chief Rd is existing and is at least 830 feet from the nearest intersection. Based on the LOS results, the addition of turn lanes is not needed. Chief Road is a local road and the proposed site access is appropriate, located roughly 900 feet from Falcon Hwy.

Road Impact Fee

This site is subject to a county road impact fee. The drinking place land use falls under the General Commercial category. The fee is calculated as $2.4 \text{ KSF} \times \$4,958/\text{KSF} = \$11,899.20$. The future single-family house is replacing a previous house that has been demolished. And There are no fee credits associated with this development.

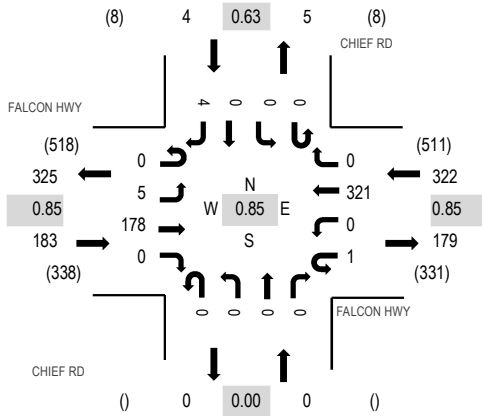
Conclusion

Vehicular traffic is adequately accommodated by the surrounding roadway network. The site access is appropriately located on Chief Rd. The adjacent Falcon Hwy/Chief Road intersection operates acceptably with the site improvements. If you have any questions or would like to discuss my analysis further, please don't hesitate to contact me.

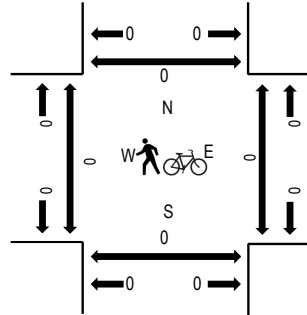
Appendix

Traffic Counts
Synchro Reports

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles on Crosswalk

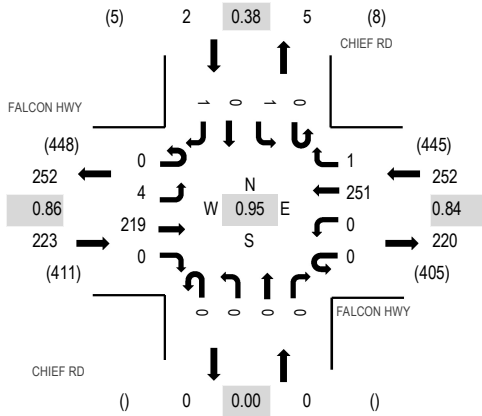


Note: Total study counts contained in parentheses.

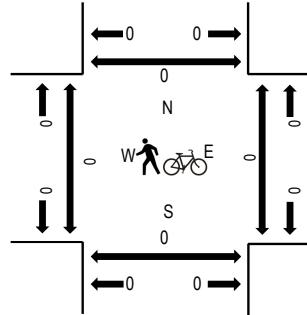
Traffic Counts

Interval Start Time	FALCON HWY Eastbound				FALCON HWY Westbound				CHIEF RD Northbound			CHIEF RD Southbound				Total	Rolling Hour	Pedestrian Crossings				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru			Right	West	East	South	North
7:00 AM	0	1	40	0	0	0	84	0	0	0	0	0	0	0	0	3	128	509	0	0	0	0
7:15 AM	0	0	46	0	1	0	88	0	0	0	0	0	0	0	0	0	135	471	0	0	0	0
7:30 AM	0	0	54	0	0	0	95	0	0	0	0	0	0	0	0	0	149	445	0	0	0	0
7:45 AM	0	4	38	0	0	0	54	0	0	0	0	0	0	0	0	1	97	382	0	0	0	0
8:00 AM	0	2	39	0	0	0	47	0	0	0	0	0	0	0	0	2	90	348	0	0	0	0
8:15 AM	0	1	45	0	0	0	61	0	0	0	0	0	0	0	0	2	109		0	0	0	0
8:30 AM	0	0	45	0	0	0	41	0	0	0	0	0	0	0	0	0	86		0	0	0	0
8:45 AM	0	0	23	0	0	0	40	0	0	0	0	0	0	0	0	0	63		0	0	0	0
Count Total	0	8	330	0	1	0	510	0	0	0	0	0	0	0	0	8	857		0	0	0	0
Peak Hour	0	5	178	0	1	0	321	0	0	0	0	0	0	0	0	4	509		0	0	0	0

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

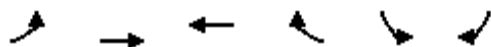
Traffic Counts

Interval Start Time	FALCON HWY Eastbound				FALCON HWY Westbound				CHIEF RD Northbound			CHIEF RD Southbound				Total	Rolling Hour	Pedestrian Crossings				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru			Right	West	East	South	North
4:00 PM	0	1	64	0	0	0	45	0	0	0	0	0	0	0	0	0	110	477	0	0	0	0
4:15 PM	0	2	55	0	0	0	60	0	0	0	0	0	0	0	0	0	117	476	0	0	0	0
4:30 PM	0	1	43	0	0	0	78	0	0	0	0	0	0	1	0	1	124	455	0	0	0	0
4:45 PM	0	0	57	0	0	0	68	1	0	0	0	0	0	0	0	0	126	420	0	0	0	0
5:00 PM	0	1	52	0	0	0	56	0	0	0	0	0	0	0	0	0	109	384	0	0	0	0
5:15 PM	0	0	43	0	0	0	52	0	0	0	0	0	0	0	0	1	96		0	0	0	0
5:30 PM	0	0	44	0	0	0	45	0	0	0	0	0	0	0	0	0	89		0	0	0	0
5:45 PM	0	2	46	0	0	0	40	0	0	0	0	0	0	0	0	2	90		0	0	0	0
Count Total	0	7	404	0	0	0	444	1	0	0	0	0	0	1	0	4	861		0	0	0	0
Peak Hour	0	4	219	0	0	0	251	1	0	0	0	0	0	1	0	1	477		0	0	0	0

HCM Unsignalized Intersection Capacity Analysis

3: Falcon Hwy & Chief Rd

Existing PM
04/11/2022

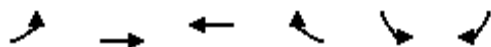


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	4	219	251	1	1	1
Future Volume (Veh/h)	4	219	251	1	1	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	238	273	1	1	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	274				520	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	274				520	274
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1289				515	765
Direction, Lane #						
	EB 1	WB 1	SB 1			
Volume Total	242	274	2			
Volume Left	4	0	1			
Volume Right	0	1	1			
cSH	1289	1700	616			
Volume to Capacity	0.00	0.16	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.2	0.0	10.9			
Lane LOS	A		B			
Approach Delay (s)	0.2	0.0	10.9			
Approach LOS			B			
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			24.7%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

3: Falcon Hwy & Chief Rd

Total Traffic PM
04/11/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	20	219	251	5	2	9
Future Volume (Veh/h)	20	219	251	5	2	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	238	273	5	2	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	278				558	276
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	278				558	276
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				100	99
cM capacity (veh/h)	1285				483	763
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	260	278	12			
Volume Left	22	0	2			
Volume Right	0	5	10			
cSH	1285	1700	696			
Volume to Capacity	0.02	0.16	0.02			
Queue Length 95th (ft)	1	0	1			
Control Delay (s)	0.8	0.0	10.3			
Lane LOS	A		B			
Approach Delay (s)	0.8	0.0	10.3			
Approach LOS			B			
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization		38.1%		ICU Level of Service		A
Analysis Period (min)		15				