



August 10, 2018

Anita McNamara, AICP, CFM Planner III Development Services  
City of Missoula  
435 RYMAN  
MISSOULA, MT 59802 – 4297

RE: Panera Bread Traffic Impact Study Addendum - Second Sufficiency Review

Dear Anita, thank you for providing the review comments for the June 2018 Panera Bread Traffic Impact Study for the Panera Bread Restaurant in Missoula. Based on your comments we have developed the following additional information for the study review. Your comments and the detailed responses are as follows:

**a. Justification for use of 51% pass-by reduction (City would want ITE low value of 25%).**

The pass-by rate of 51% used on the report was based on the information from the Draft Panera Bread Site Impact Analysis memo from March 2018, which took the average pass-by rate from the 9<sup>th</sup> Edition of the ITE trip generation manual for land use 934 (Fast Food with Drive Through). The most recent 10<sup>th</sup> Edition of the Trip Generation manual provides an average pass-by rate of 50% from Table E.32 with a range of 25% to 71% (see attached). While we see no specific reason to use the lowest value instead of the average value in this instance, changing the pass-by rate for this report to 25% would be acceptable. However, this change would not be significant for the overall analysis. Using the lower pass-by rate would change the overall traffic volumes at the Palmer/West Entrance intersection by 10-14 total peak-hour through vehicles, or 1.4-2.3% of the total volume. A review of the LOS analysis indicates that this change in overall traffic volume would alter the LOS results by less than 0.1 seconds per vehicle at the area intersections and therefore is not considered significant to the overall analysis.

**b. Explanation of Palmer Street vehicle reduction taken after pass-by reduction.**

The pass-by reduction was taken only once in the model and was only applied to select through-traffic volumes at intersections on Palmer Street and Highway 93 totaling a maximum reduction of 27 vehicles per hour (4.5% decrease). No other diverted trip or internal capture reductions were included in the traffic model.

**c. East entrance “thru” counts - were these visually tracked?**

Southbound “thru” counts were visually tracked from the south entrance at Target to the north entrance to the Northgate Plaza, even though these intersection are slightly off-set. This tracking was done from a video count performed along Palmer Street. The proximity of these intersections (85 feet) makes them function somewhat like both a regular four-way intersection and separate T intersections. The intersections are off-set

in a manner which does not create thru movement conflicts. Drivers exiting from both approaches turn left onto Palmer and then immediately turn right into the off-set approach and do not conflict with thru traffic on Palmer Street. The total traffic flow between these two approaches was low (~10 VPH). Due to the proximity, configuration, and traffic volume patterns at this intersection, the overall operational attributes would be the same for these approaches if they were analyzed separately or together.

**d. Missing discussion on weekend verses weekday levels.**

Generally only peak weekday traffic volumes are analyzed on major roadways unless specific conditions exist which may create large weekend peaks that exceed weekday peak volumes. While weekend traffic around commercial areas can be more consistent than weekday traffic, peak traffic volumes at the area intersection are generally lower on weekends. Information from the MDT permanent traffic counters in Missoula was analyzed to determine how weekday and weekend traffic volumes compare throughout the City. MDT Sites A-37 (Orange St Bridge, Missoula, RP 1.48, South end of bridge), A-67 (Van Buren Street, Missoula, RP 0.11, SW of Poplar St), and A-68 (Beckwith Ave, Missoula, RP 2.29, E of Hilda Ave) suggest that weekend traffic on Missoula roadways are 60% to 80% of weekday traffic volumes. A specific analysis of the peak-hour traffic volumes at these locations also suggests that weekend traffic is consistently lower. Noon peaks at these three locations were 51% to 98% of weekday traffic and PM peaks were 45% to 60% of weekday traffic. For this reason, no specific weekend analysis was performed for this traffic study and is not necessary for evaluating overall intersection operations. The ATR data from MDT is attached.

**e. Missing discussion on effects to west entrance (peak hour more than doubles).**

While it is true that the peak-hour traffic volume at the west entrance will more than double with the project, the measurable operations impacts at the intersection will be small. Intersection operations analysis relates more to the intersection capacity and the LOS, which in this instance is not changed significantly with the extra traffic from the proposed project. Even with doubling the traffic on the approach the peak-hour delays are projected to increase by 1-2 seconds per vehicle and the LOS changes will be negligible. The overall intersection operations do not change significantly due to the existing reserve capacity at the intersection.

**f. Missing discussion on “thru traffic” from west entrance (proposes more peak hour traffic crosses to Taco Bell access than goes to Great Northern intersection).**

There is currently a significant amount of cross traffic using the west entrance from the Target shopping center to the area around Taco bell in the Northgate shopping Center. The field counts suggested that more than half of the existing traffic at the intersection crosses Palmer Street between the two commercial areas. This is likely due to drivers using this route as an alternative road connection between all of the different commercial properties in this area. While collectively there is significant amount of traffic crossing between the commercial areas, the trip distribution pattern for each individual land use

will have fewer of these cross-connecting trips. The Panera Bread traffic model only suggested 25% of the traffic from this project would go south to the Northgate Shopping Center and the remaining 75% would go west or east on Palmer Street. Based on the existing overall traffic patterns in the area, this is likely a reasonable trip distribution for the project.

**g. Missing complete discussion on summaries of “no effect” to existing intersections.**

Overall the Panera Bread project creates small overall traffic volume increases at the area intersections. While some specific vehicle movements may increase, the overall traffic volumes at these intersections will increase by only 1-5% with the project. The Level of Service (LOS) and volume/capacity ratios (V/C) at these intersections are more important than total traffic volume increases on specific traffic movements. The proposed project does not significantly change the LOS at the area intersections and the V/C ratios will be well within acceptable limits (0.2-0.6). While the project will add traffic to the area, there is no operational impact from the project that would require any special roadway mitigation measures.

If you have any additional comments or questions regarding the traffic impact study or these responses please feel free to contact me at 406-459-1443.

Sincerely,

A handwritten signature in black ink, appearing to read 'Bob Abelin', written in a cursive style.

Bob Abelin, P.E. PTOE  
Abelin Traffic Services, Inc.

**Table E.32 Pass-By and Non-Pass-By Trips Weekday, PM Peak Period  
Land Use Code 934—Fast-Food Restaurant with Drive-Through Window**

SEATS	SIZE (1,000 SQ. FT. GFA)	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PASS- BY TRIP (%)	NON-PASS-BY TRIPS (%)			ADJ. STREET PEAK HOUR VOLUME	SOURCE
							PRIMARY	DIVERTED	TOTAL		
—	~2.6	Minn-St. Paul, MN	1987	50	3:00–7:00 p.m.	25	27	48	75	—	—
—	<5.0	Chicago suburbs, IL	1987	80	3:00–6:00 p.m.	38	—	—	62	—	Kenig, O'Hara, Humes, Flock
—	<5.0	Chicago suburbs, IL	1987	100	3:00–6:00 p.m.	55	—	—	45	—	Kenig, O'Hara, Humes, Flock
—	<5.0	Chicago suburbs, IL	1987	159	3:00–6:00 p.m.	56	—	—	44	—	Kenig, O'Hara, Humes, Flock
—	<5.0	Chicago suburbs, IL	1987	225	3:00–6:00 p.m.	48	—	—	52	—	Kenig, O'Hara, Humes, Flock
—	<5.0	Chicago suburbs, IL	1987	88	3:00–6:00 p.m.	35	—	—	65	—	Kenig, O'Hara, Humes, Flock
—	<5.0	Chicago suburbs, IL	1987	84	3:00–6:00 p.m.	44	—	—	56	—	Kenig, O'Hara, Humes, Flock
88	1.3	Louisville area, KY	1993	—	4:00–6:00 p.m.	68	22	10	32	2,055	Barton- Aschman Assoc.
120	1.9	Louisville area, KY	1993	33	4:00–6:00 p.m.	67	24	9	33	2,447	Barton- Aschman Assoc.
87	4.2	New Albany, IN	1993	—	4:00–6:00 p.m.	56	25	19	44	1,632	Barton- Aschman Assoc.
150	3.0	Louisville area, KY	1993	—	4:00–6:00 p.m.	31	31	38	69	4,250	Barton- Aschman Assoc.
—	3.1	Kissimmee, FL	1995	28	2:00–6:00 p.m.	71	—	—	29	—	TPD Inc.
—	3.1	Apopka, FL	1996	29	2:00–6:00 p.m.	38	—	—	62	—	TPD Inc.
—	2.8	Winter Springs, FL	1995	47	2:00–6:00 p.m.	66	—	—	34	—	TPD Inc.
—	4.3	Longwood, FL	1994	304	2:00–6:00 p.m.	62	—	—	38	—	TPD Inc.
—	3.2	Altamonte Springs, FL	1996	202	2:00–6:00 p.m.	40	39	21	60	—	TPD Inc.
—	2.9	Winter Park, FL	1996	271	2:00–6:00 p.m.	41	41	18	59	—	TPD Inc.
—	3.3*	several	1996	varies	4:00–6:00 p.m.	62	—	—	38	—	Oracle Engineering

\*Average of several combined studies.

Average Pass-By Trip Percentage: 50

“—” means no data were provided



# Yearly ATR Profile

For Year: 2017

County: MISSOULA

Station: A-037

At Road: S of Orange St Bridge

Ascending Direction: North

Location Id: 32-3A-210

Functional Class: Principal Arterial - Other Urban

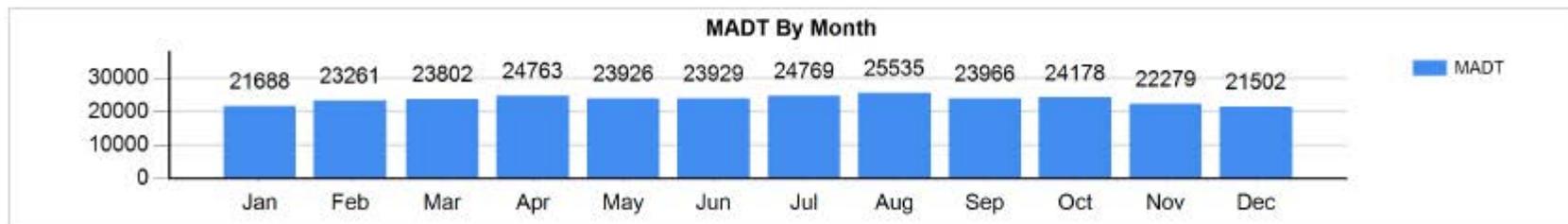
Traffic Factor Group: UPA

Located On: Orange St Bridge, Missoula, RP 1.48, South end of bridge (C008107)

Traffic Mix: Pass: 98.10% SU: 1.68% CU: 0.22%

Directional Split: SB 51.17% / NB 48.83%

	Average Daily Number of Vehicles							Avg. Day Day (Mon-Sun)	Avg. Day as % of Year Avg.	Avg. Weekday (Mon-Thu)	Avg. Day as % of Avg. Weekday (Mon-Thu)	Avg. Weekday (Mon-Fri)	Avg. Day as % of Avg. Weekday (Mon-Fri)
	Sun	Mon	Tue	Wed	Thu	Fri	Sat						
JAN	13,464	21,129	24,529	24,976	25,219	26,176	16,331	21,688	91.77%	23,963	90.51%	24,406	88.86%
FEB	14,595	24,112	26,491	26,034	26,334	27,393	17,871	23,261	98.43%	25,743	90.36%	26,073	89.22%
MAR	15,182	24,999	26,090	26,703	26,748	27,970	18,924	23,802	100.71%	26,135	91.07%	26,502	89.81%
APR	15,735	25,706	27,150	27,400	27,685	29,148	20,524	24,763	104.78%	26,985	91.76%	27,418	90.32%
MAY	16,201	23,920	26,337	26,161	26,543	28,099	20,224	23,926	101.24%	25,740	92.95%	26,212	91.28%
JUN	16,258	24,839	25,571	26,740	26,705	28,021	19,372	23,929	101.25%	25,964	92.16%	26,375	90.73%
JUL	17,907	25,955	24,619	27,689	28,136	28,742	20,344	24,769	104.81%	26,600	93.12%	27,028	91.64%
AUG	16,942	26,736	29,093	28,410	28,606	28,848	20,119	25,535	108.05%	28,211	90.51%	28,339	90.11%
SEP	16,917	21,508	26,862	26,951	27,168	28,311	20,047	23,966	101.41%	25,622	93.54%	26,160	91.61%
OCT	15,796	24,921	26,336	26,887	27,265	28,052	19,992	24,178	102.31%	26,352	91.75%	26,692	90.58%
NOV	14,349	24,942	25,984	26,048	23,305	24,251	17,077	22,279	94.27%	25,070	88.87%	24,906	89.45%
DEC	13,940	20,745	23,893	24,846	25,091	24,870	17,134	21,502	90.98%	23,644	90.94%	23,889	90.01%
Year	15,607	24,126	26,080	26,570	26,567	27,490	18,997	23,633		25,836	91.47%	26,167	90.32%



NOTE: VALUES ARE ROUNDED; TOTALS AND PERCENTS MAY NOT ADD UP.

**Notes**

N/A



# Yearly ATR Profile

For Year: 2017

County: MISSOULA

Station: A-067

At Road: N of I-90

Ascending Direction: North

Location Id: 32-3A-232

Functional Class: Minor Arterial Urban

Traffic Factor Group: UMA

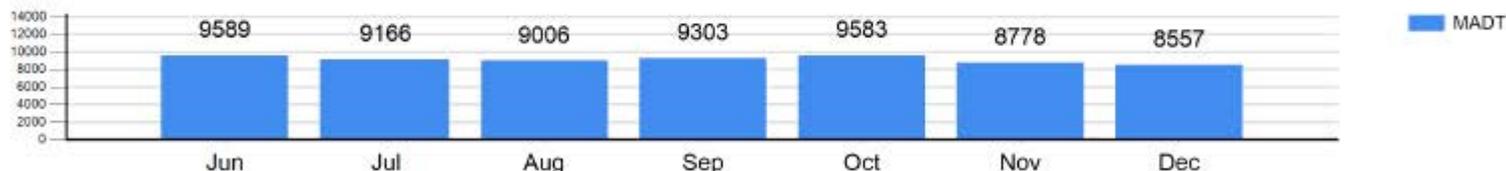
Located On: Van Buren Street, Missoula, RP 0.11, SW of Poplar St (C008115)

Traffic Mix: Pass: 97.27% SU: 2.30% CU: 0.43%

Directional Split: SB 50.04% / NB 49.96%

	Average Daily Number of Vehicles							Avg. Day Day (Mon-Sun)	Avg. Day as % of Year Avg.	Avg. Weekday (Mon-Thu)	Avg. Day as % of Avg. Weekday (Mon-Thu)	Avg. Weekday (Mon-Fri)	Avg. Day as % of Avg. Weekday (Mon-Fri)
	Sun	Mon	Tue	Wed	Thu	Fri	Sat						
JAN													
FEB													
MAR													
APR													
MAY													
JUN	8,013	9,804	9,974	10,282	10,268	10,268	8,523	9,589	104.91%	10,082	95.11%	10,119	94.76%
JUL	7,664	9,351	9,251	9,904	10,146	9,806	8,044	9,166	100.28%	9,663	94.86%	9,692	94.58%
AUG	7,297	9,414	9,564	9,630	9,796	9,533	7,815	9,006	98.53%	9,601	93.80%	9,587	93.94%
SEP	7,640	8,786	9,988	10,093	10,106	10,209	8,309	9,303	101.78%	9,743	95.48%	9,836	94.58%
OCT	7,606	9,929	10,664	10,198	10,216	10,264	8,211	9,583	104.84%	10,252	93.48%	10,254	93.45%
NOV	7,041	9,491	9,806	9,576	9,030	9,022	7,485	8,778	96.04%	9,476	92.64%	9,385	93.53%
DEC	7,297	8,196	9,064	9,184	9,399	9,002	7,764	8,557	93.62%	8,961	95.49%	8,969	95.41%
Year	7,508	9,282	9,759	9,838	9,852	9,729	8,022	9,140		9,683	94.40%	9,692	94.31%

MADT By Month



NOTE: VALUES ARE ROUNDED; TOTALS AND PERCENTS MAY NOT ADD UP.

Notes

N/A



# Yearly ATR Profile

For Year: 2017

County: MISSOULA

Station: A-068

At Road: Btwn Ronald & Hilda Avs

Ascending Direction: East

Location Id: 32-3A-258

Functional Class: Major Collector Urban

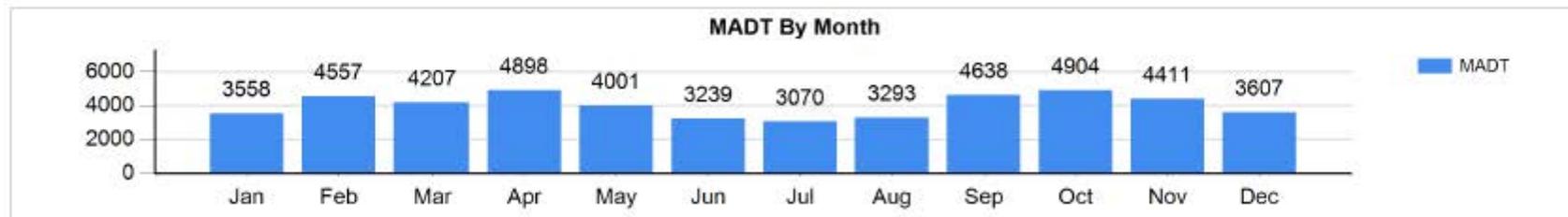
Traffic Factor Group: UC

Located On: Beckwith Ave, Missoula, RP 2.29, E of Hilda Ave (C008116)

Traffic Mix: Pass: 99.50% SU: 0.45% CU: 0.05%

Directional Split: WB 50.47% / EB 49.53%

	Average Daily Number of Vehicles							Avg. Day (Mon-Sun)	Avg. Day as % of Year Avg.	Avg. Weekday (Mon-Thu)	Avg. Day as % of Avg. Weekday (Mon-Thu)	Avg. Weekday (Mon-Fri)	Avg. Day as % of Avg. Weekday (Mon-Fri)
	Sun	Mon	Tue	Wed	Thu	Fri	Sat						
JAN	2,110	3,812	4,255	4,101	4,445	3,887	2,304	3,558	88.25%	4,153	85.67%	4,100	86.78%
FEB	2,619	4,599	5,302	5,418	5,472	5,210	3,282	4,557	113.02%	5,198	87.67%	5,200	87.63%
MAR	2,386	4,659	4,729	5,183	4,885	4,704	2,911	4,207	104.34%	4,864	86.49%	4,832	87.07%
APR	3,126	5,362	5,469	5,631	5,706	5,493	3,502	4,898	121.48%	5,542	88.38%	5,532	88.54%
MAY	2,389	3,953	4,478	4,536	4,765	4,651	3,241	4,001	99.23%	4,433	90.25%	4,477	89.38%
JUN	1,955	3,633	3,702	3,874	3,784	3,482	2,245	3,239	80.33%	3,748	86.41%	3,695	87.66%
JUL	2,048	3,365	3,232	3,690	3,704	3,331	2,127	3,070	76.14%	3,498	87.77%	3,464	88.62%
AUG	2,220	3,700	3,770	3,876	3,874	3,414	2,200	3,293	81.67%	3,805	86.54%	3,727	88.36%
SEP	2,948	4,455	5,299	5,496	5,229	5,157	3,887	4,638	115.03%	5,120	90.59%	5,127	90.46%
OCT	2,982	5,303	5,485	5,680	5,640	5,253	3,992	4,904	121.63%	5,527	88.73%	5,472	89.62%
NOV	2,870		5,130	5,410	5,324	4,297	3,442	4,411	109.40%	5,288	83.42%	5,040	87.52%
DEC	2,625	4,011	4,241	3,715	4,088	3,986	2,590	3,607	89.46%	4,014	89.87%	4,008	89.99%
Year	2,523	4,259	4,591	4,718	4,743	4,405	2,977	4,032		4,599	87.67%	4,556	88.49%



NOTE: VALUES ARE ROUNDED; TOTALS AND PERCENTS MAY NOT ADD UP.

Notes
N/A