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GTC Gibson Traffic Consultants, Inc.
Transportation Planners and Traffic Engineers

MEMORANDUM

To: Laura Brent, Brent Planning Solutions
From: Matthew Palmer, P.E. MJP
Subject: Rezone Analysis for Mid-rise Apartments
Date: July 12, 2018
Project: Monroe School District Rezone, GTC #18-166

Gibson Traffic Consultants, Inc. (GTC) has been retained to provide a rezone volume analysis for 296 multi-family units in 3-story buildings located north of Columbia Street between S Kelsey Street and Dickinson Road in the City of Monroe. The purpose of this memorandum is to document the preliminary trip generation and to compare the total entering volume of 19 study intersections to the 2035 volumes identified in the City's Appendix A: Traffic Operations Level of Service of the Transportation Plan.

ASSUMPTIONS

The existing volumes collected in the Transportation Plan are from 2014; therefore, to grow them to the baseline 2023 volumes a growth factor of 15% was utilized. This was calculated by using 2% growth per year from 2014 to 2020 and then 1% per year from 2020 to 2023. This is consistent with State growth on US-2 in the site vicinity and city forecasting. For the two intersections that were counted by Traffic Data Gathering (TDG) in June 2018 a growth factor of 7% was utilized; 2% growth per year from 2018 to 2020 and then 1% per year from 2020 to 2023.

The year 2023 was utilized as the baseline year as it's when the apartment buildings could be built and fully occupied. The development would create a connecting roadway that would parallel Columbia Street with access to Kelsey Street approximately 170 feet north of Columbia Street and connecting to Columbia Street opposite Dickinson Road.

TRIP GENERATION

Traffic generation for the development is based on national research data contained in the Institute of Transportation Engineers (ITE) *Trip Generation, 10th Edition* (2017). ITE Land Use Code 223, mid-rise apartment, is utilized for the proposed use. There will be a total of 296 apartment units under a 3-story scenario. This would generate 1,610 ADT and 130 PM peak-hour trips. The trip generation is summarized on Table 1.

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Trip generation calculations in the attachments also shows the trip generation for a low-rise apartment scenario, but this would have a lower number of units which leads to fewer trips being generated. Therefore, the mid-rise trip generation was utilized as the highest potential use for the volume analysis. No credit/reduction has been taken for existing uses on the site therefore this is a conservatively high analysis of new trip generation.

Table 1: Trip Generation Summary

Monroe School District Rezone		PM Peak-Hour Trips		
		Inbound	Outbound	Total
Mid-rise Apartments 296 Units	Rate	0.44 per Unit		
	Splits	61%	39%	100%
	Trips	79	51	130
TOTAL		79	51	130

The trips have been distributed through the 19 study intersections per the distribution shown in Figure 1 which is based on other residential distributions in the City of Monroe. Traffic heading to the west of the development using Columbia Street could continue west to 182nd Avenue SE bypassing the intersection of King Street and Blueberry Lane/154th Street SE (Intersection #40); however, as a worst case the westbound traffic was routed onto King Street impacting the study intersection.

CONCLUSIONS

The potential rezone would add vehicle trips to several City intersections that are projected to operate at level of service E or F in 2035. However, the city has established a corridor level of service for its concurrency evaluation. Based on the concurrency corridor analysis contained in the City's operational level of service appendix of the City's Transportation Plan the future 2035 level of service of the corridors are all expected to operate at acceptable level of service D or better with the highest corridor delay being on W Main Street East corridor that has a projected delay of 50 second per entering vehicle. The four intersections that the rezone adds any measurable trips to are:

- Main Street/Frylands Blvd (Int #9)
- Main Street Ramps with SR-522 (Int #10, 11)
- Main Street/179th Street (Int #29)

Table 2 shows that the proposed rezone would add between 0.4% to 1.55% increase in volume to those corridor intersections or an average of less than 1% increase to the highest delay concurrency corridor. The plan shows that W Main Street East corridor has a projected delay in 2035 of 50 seconds (without school rezone) while 55 seconds appears to be the threshold for LOS E i.e. a delay increase capacity of approximately 10% before LOS E is likely to be reached.

The rezone has the highest increase in trips % to the intersection of King Street and Blueberry Lane/154th Street SE i.e. 6.06% (Comp Plan Int #40) that is within the 154th Street SE concurrency corridor. The other intersections in that corridor experience a 2-3% increase in intersection volumes or approximately a 3-4% corridor increase. The intersection of King Street and Blueberry Lane is forecast in the city plan to operate at LOS B and the corridor a LOS C with 33 seconds of delay i.e. over 40% delay increase capacity before reaching corridor threshold.

All corridors are projected to be operating approximately 10-45% within the capacity of the 2035 capital facilities plan level of service projections. Therefore, GTC concludes that the City concurrency corridors with just a 1-4% average increase in volumes from school traffic would still operate at acceptable level of service with the proposed rezone.

Table 2: Volume Comparison

Intersection			Weekday PM Peak Hour Traffic Operations						
			Existing	Baseline (2023)	School Rezone PM Peak Trips	With School Project (2023)	Preferred Alternative (2035) with Capital Plan	Preferred Alternative (2035) with Capital Plan	% Increase With School (2035)
Int Letter	Int No.	Int Name	Existing TEV	Baseline TEV		With School TEV	Preferred TEV	LOS	
o	8	154th St SE & 179th Ave SE	1,184	1362	39	1401	1,614	E	2.36%
n	9	W Main St & Fryelands Blvd	1,150	1323	7	1330	1,736	B	0.40%
l	10	W Main St & East SR 522 RAB	1,322	1520	17	1537	2,157	B	0.78%
m	11	W Main St & West SR 522 RAB	1,743	2004	33	2037	3,048	F	1.07%
i	13	W Main St & Kelsey St	1,562	1796	28	1824	2,405	B	1.15%
j	15	Main St & Lewis St	1,870	2151	9	2160	2,285	F	0.39%
t	16	SR 2 & E Main St	2,587	2975	15	2990	3,981	C	0.38%
r	17	N Lewis St & SR 2	3,602	4142	6	4148	5,355	E	0.11%
u	18	Chain Lake Rd & Tjerne Pl SE	1,127	1296	0	1296	2,798	D	0.00%
g	19	Tjerne Pl SE & N Kelsey St	1,401	1611	13	1624	2,447	B	0.53%
h	20	N Kelsey St & Chain Lake Rd	1,037	1193	0	1193	2,120	C	0.00%
e	24	Blueberry Ln & N Kelsey	1,086	1249	33	1282	1,342	F	2.40%
f	25	SR 2 & Kelsey St	4,178	4805	33	4838	6,274	D	0.52%
q	28	SR 2 & 179th Ave SE	2,615	3007	40	3047	3,671	C	1.08%
k	29	W Main St & 179th Ave SE	1,425	1639	39	1678	2,476	D	1.55%
d	40	King St & 154th St/Blueberry	528	607	39	646	605	B	6.06%
p	41	179th Ave SE & 147th St SE	965	1110	33	1143	1,346	A	2.39%
a		Columbia St & Kelsey St	631	675	28	703	---	---	---
c		W Main St & Dickinson Rd	1041	1114	39	1153	---	---	---

Trip Generation

Monroe School District Rezone
GTC #18-166

Trip Generation for: Weekday
(a.k.a.): Average Weekday Daily Trips (AWDT)

									NET EXTERNAL TRIPS BY TYPE											
									IN BOTH DIRECTIONS						DIRECTIONAL ASSIGNMENTS					
			Gross Trips				Internal Crossover		TOTAL	PASS-BY		DIVERTED LINK		NEW	PASS-BY		DIVERTED LINK		NEW	
LAND USES	VARIABLE	ITE LU code	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	In+Out (Total)	% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In+Out (Total)	In	Out	In	Out	In	Out
Multi-Family (Mid-Rise)	296 units	221	5.44	50%	50%	1610.00	0%	0.00	1610.00	0%	0.00	0%	0.00	1610	0.00	0.00	0.00	0.00	805	805
Multi-Family (Low-Rise)	225 units	220	7.32	50%	50%	1647.00	0%	0.00	1647.00	0%	0.00	0%	0.00	1647	0.00	0.00	0.00	0.00	824	823

Monroe School District Rezone
GTC #18-166

Trip Generation for: **Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 4 and 6 PM**
(a.k.a.): **Weekday PM Peak Hour**

									NET EXTERNAL TRIPS BY TYPE											
									IN BOTH DIRECTIONS						DIRECTIONAL ASSIGNMENTS					
			Gross Trips				Internal Crossover		TOTAL	PASS-BY		DIVERTED LINK		NEW	PASS-BY		DIVERTED LINK		NEW	
LAND USES	VARIABLE	ITE LU code	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	In+Out (Total)	% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In+Out (Total)	In	Out	In	Out	In	Out
Multi-Family (Mid-Rise)	296 units	221	0.44	61%	39%	130.00	0%	0.00	130.00	0%	0.00	0%	0.00	130	0.00	0.00	0.00	0.00	79	51
Multi-Family (Low-Rise)	225 units	220	0.56	63%	37%	126.00	0%	0.00	126.00	0%	0.00	0%	0.00	126	0.00	0.00	0.00	0.00	79	47

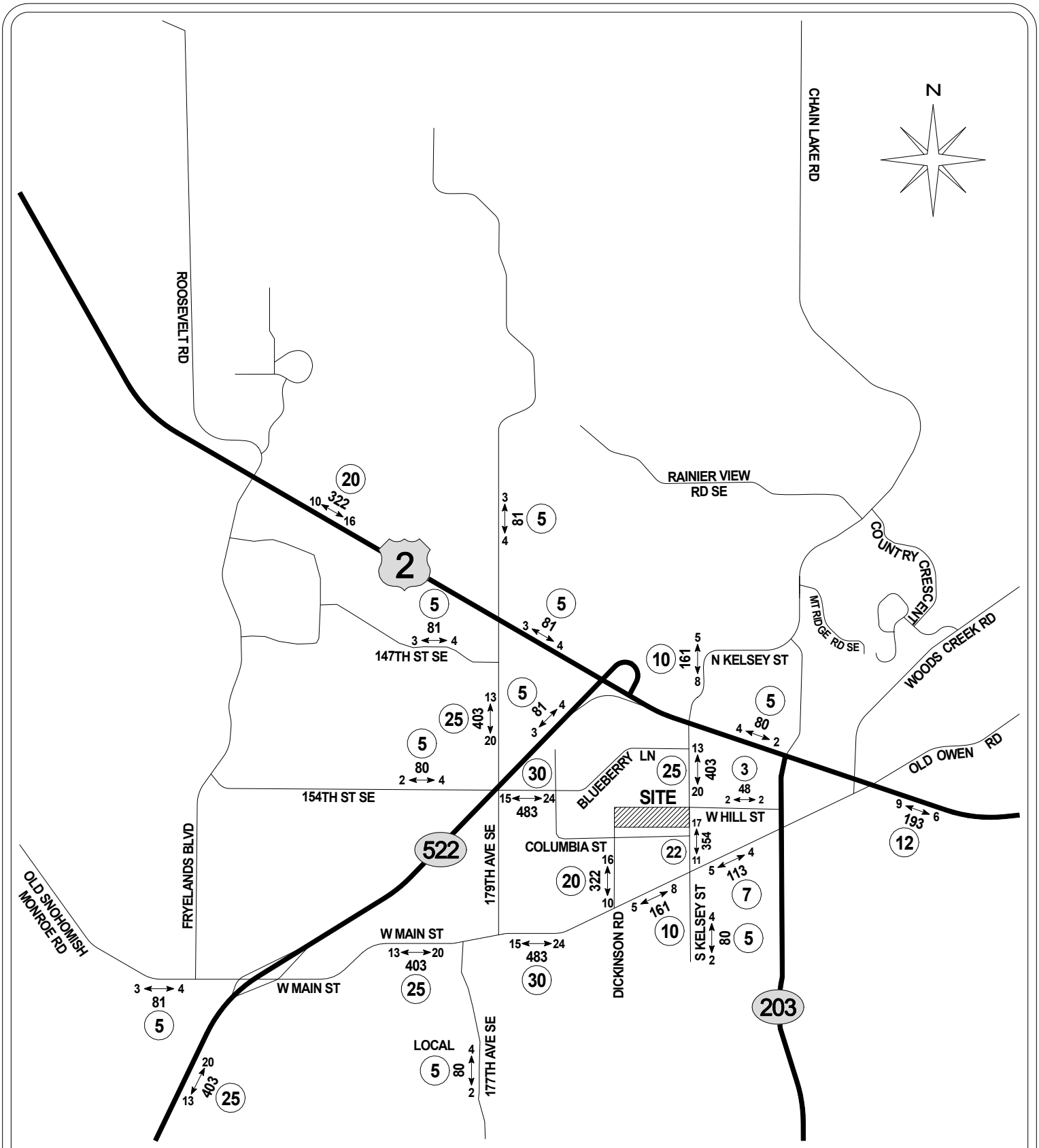
Monroe School District Rezone
GTC #18-166

Mid-Rise Apartments

PM Peak-Hour

%	New ADT	New PM Peak Hour Trips			%	New ADT	New PM Peak Hour Trips		
		In	Out	Total			In	Out	Total
100%	1610	79	51	130.00	100%	1610	79	51	130
1%	16.10	0.79	0.51	1.30	51%	821.10	40.29	26.01	66.30
2%	32.20	1.58	1.02	2.60	52%	837.20	41.08	26.52	67.60
3%	48.30	2.37	1.53	3.90	53%	853.30	41.87	27.03	68.90
4%	64.40	3.16	2.04	5.20	54%	869.40	42.66	27.54	70.20
5%	**80.50**	**3.95**	**2.55**	**6.50**	**55%**	**885.50**	**43.45**	**28.05**	**71.50**
6%	96.60	4.74	3.06	7.80	56%	901.60	44.24	28.56	72.80
7%	112.70	5.53	3.57	9.10	57%	917.70	45.03	29.07	74.10
8%	128.80	6.32	4.08	10.40	58%	933.80	45.82	29.58	75.40
9%	144.90	7.11	4.59	11.70	59%	949.90	46.61	30.09	76.70
10%	**161.00**	**7.90**	**5.10**	**13.00**	**60%**	**966.00**	**47.40**	**30.60**	**78.00**
11%	177.10	8.69	5.61	14.30	61%	982.10	48.19	31.11	79.30
12%	193.20	9.48	6.12	15.60	62%	998.20	48.98	31.62	80.60
13%	209.30	10.27	6.63	16.90	63%	1014.30	49.77	32.13	81.90
14%	225.40	11.06	7.14	18.20	64%	1030.40	50.56	32.64	83.20
15%	**241.50**	**11.85**	**7.65**	**19.50**	**65%**	**1046.50**	**51.35**	**33.15**	**84.50**
16%	257.60	12.64	8.16	20.80	66%	1062.60	52.14	33.66	85.80
17%	273.70	13.43	8.67	22.10	67%	1078.70	52.93	34.17	87.10
18%	289.80	14.22	9.18	23.40	68%	1094.80	53.72	34.68	88.40
19%	305.90	15.01	9.69	24.70	69%	1110.90	54.51	35.19	89.70
20%	**322.00**	**15.80**	**10.20**	**26.00**	**70%**	**1127.00**	**55.30**	**35.70**	**91.00**
21%	338.10	16.59	10.71	27.30	71%	1143.10	56.09	36.21	92.30
22%	354.20	17.38	11.22	28.60	72%	1159.20	56.88	36.72	93.60
23%	370.30	18.17	11.73	29.90	73%	1175.30	57.67	37.23	94.90
24%	386.40	18.96	12.24	31.20	74%	1191.40	58.46	37.74	96.20
25%	**402.50**	**19.75**	**12.75**	**32.50**	**75%**	**1207.50**	**59.25**	**38.25**	**97.50**
26%	418.60	20.54	13.26	33.80	76%	1223.60	60.04	38.76	98.80
27%	434.70	21.33	13.77	35.10	77%	1239.70	60.83	39.27	100.10
28%	450.80	22.12	14.28	36.40	78%	1255.80	61.62	39.78	101.40
29%	466.90	22.91	14.79	37.70	79%	1271.90	62.41	40.29	102.70
30%	**483.00**	**23.70**	**15.30**	**39.00**	**80%**	**1288.00**	**63.20**	**40.80**	**104.00**
31%	499.10	24.49	15.81	40.30	81%	1304.10	63.99	41.31	105.30
32%	515.20	25.28	16.32	41.60	82%	1320.20	64.78	41.82	106.60
33%	531.30	26.07	16.83	42.90	83%	1336.30	65.57	42.33	107.90
34%	547.40	26.86	17.34	44.20	84%	1352.40	66.36	42.84	109.20
35%	**563.50**	**27.65**	**17.85**	**45.50**	**85%**	**1368.50**	**67.15**	**43.35**	**110.50**
36%	579.60	28.44	18.36	46.80	86%	1384.60	67.94	43.86	111.80
37%	595.70	29.23	18.87	48.10	87%	1400.70	68.73	44.37	113.10
38%	611.80	30.02	19.38	49.40	88%	1416.80	69.52	44.88	114.40
39%	627.90	30.81	19.89	50.70	89%	1432.90	70.31	45.39	115.70
40%	**644.00**	**31.60**	**20.40**	**52.00**	**90%**	**1449.00**	**71.10**	**45.90**	**117.00**
41%	660.10	32.39	20.91	53.30	91%	1465.10	71.89	46.41	118.30
42%	676.20	33.18	21.42	54.60	92%	1481.20	72.68	46.92	119.60
43%	692.30	33.97	21.93	55.90	93%	1497.30	73.47	47.43	120.90
44%	708.40	34.76	22.44	57.20	94%	1513.40	74.26	47.94	122.20
45%	**724.50**	**35.55**	**22.95**	**58.50**	**95%**	**1529.50**	**75.05**	**48.45**	**123.50**
46%	740.60	36.34	23.46	59.80	96%	1545.60	75.84	48.96	124.80
47%	756.70	37.13	23.97	61.10	97%	1561.70	76.63	49.47	126.10
48%	772.80	37.92	24.48	62.40	98%	1577.80	77.42	49.98	127.40
49%	788.90	38.71	24.99	63.70	99%	1593.90	78.21	50.49	128.70
50%	**805.00**	**39.50**	**25.50**	**65.00**	**100%**	**1610.00**	**79.00**	**51.00**	**130.00**

Figure 1 – PM Trip Distribution



GIBSON TRAFFIC CONSULTANTS

TRAFFIC IMPACT STUDY
GTC #18-166

MONROE SCHOOL DISTRICT
REZONE ANALYSIS
296 MID-RISE APARTMENTS

CITY OF MONROE

LEGEND

AWDT
PM ⟷ PEAK — NEW SITE TRAFFIC (DAILY/PEAK-HOUR)

XX — TRIP DISTRIBUTION %

FIGURE 1

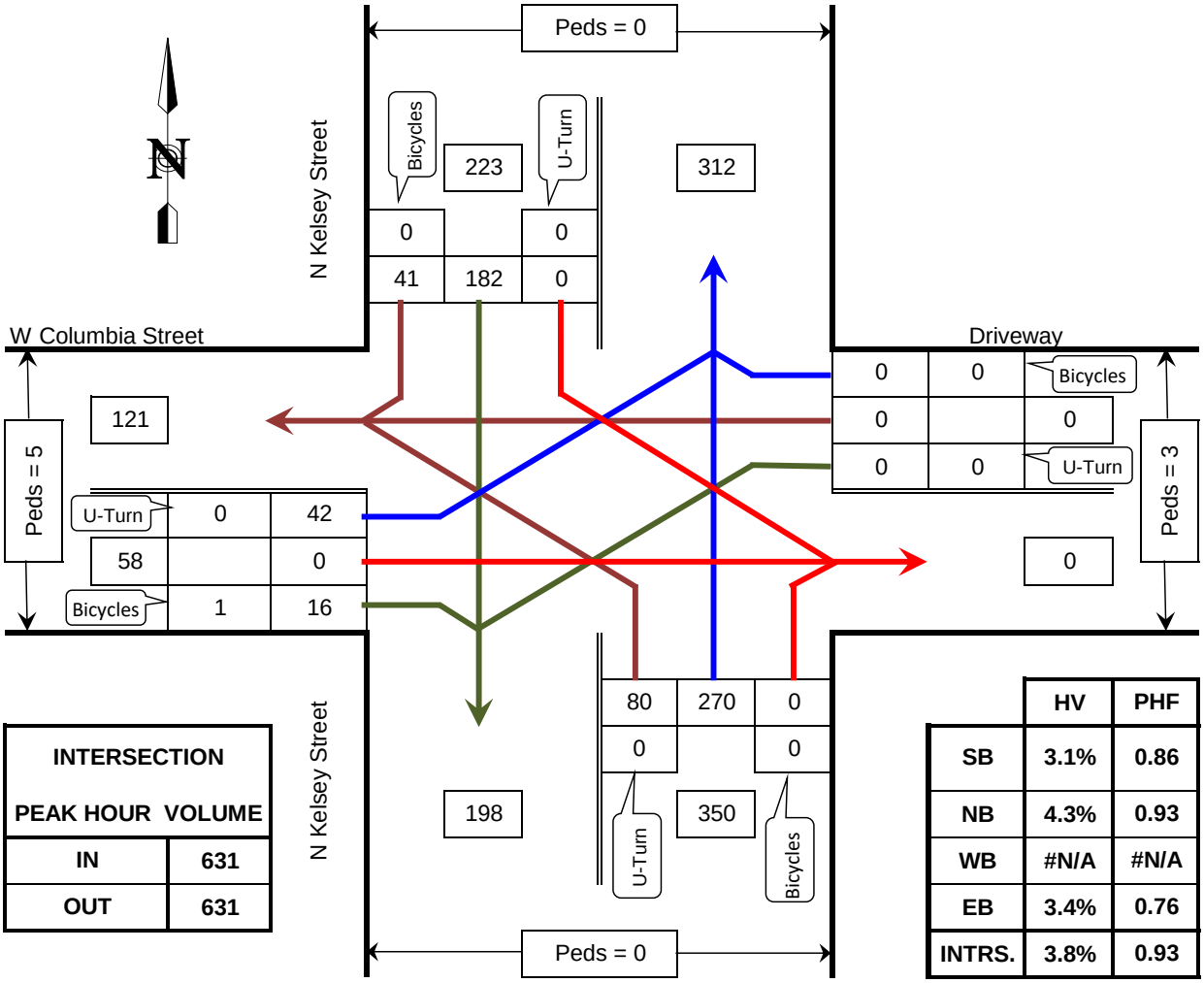
DEVELOPMENT TRIP DISTRIBUTION PM PEAK-HOUR

Counts

TRAFFIC DATA GATHERING

TURNING MOVEMENTS DIAGRAM

4:00 PM - 6:00 PM PEAK HOUR: 4:45 PM TO 5:45 PM



INTERSECTION PEAK HOUR VOLUME	
IN	631
OUT	631

	HV	PHF
SB	3.1%	0.86
NB	4.3%	0.93
WB	#N/A	#N/A
EB	3.4%	0.76
INTRS.	3.8%	0.93

PHF = Peak Hour Factor
HV = Heavy Vehicle

W Columbia Street @ N Kelsey Street

Woodinville, WA

COUNTED BY: TDG

DATE OF COUNT: Wed. 6/13/18

REDUCTION DATE: Wed. 6/13/18

TIME OF COUNT: 4:00 PM - 6:00 PM

TRAFFIC DATA GATHERING

INTERSECTION TURNING MOVEMENTS REDUCTION SHEET

LOCATION: W Columbia Street @ N Kelsey Street
Woodinville, WA

DATE OF COUNT: Wed. 6/13/18
TIME OF COUNT: 4:00 PM - 6:00 PM

COUNTED BY: TDG
DATE OF REDUCTION: 6/13/2018

TIME INTERVAL ENDING AT	FROM NORTH ON N Kelsey Street							FROM SOUTH ON N Kelsey Street							FROM EAST ON Driveway							FROM WEST ON W Columbia Street							INTERVAL TOTALS
	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	1	0	0	45	6	0	0	1	0	15	48	0	0	0	0	0	0	0	0	1	0	0	0	11	0	5	130
04:30 PM	0	0	1	0	0	36	9	0	0	0	0	25	45	0	1	0	0	0	0	0	0	0	0	0	0	8	0	6	129
04:45 PM	0	0	3	0	0	42	5	0	0	3	0	17	54	0	0	0	0	0	0	0	0	0	0	0	0	15	0	11	144
05:00 PM	0	0	1	0	0	37	13	0	0	2	0	24	65	0	2	0	0	0	0	0	0	0	1	0	0	10	0	3	152
05:15 PM	0	0	1	0	0	39	10	0	0	2	0	11	74	0	1	0	0	0	0	0	0	0	0	1	0	10	0	6	150
05:30 PM	0	0	2	0	0	49	10	0	0	7	0	25	57	0	0	0	0	0	0	0	0	1	0	1	0	14	0	5	160
05:45 PM	0	0	3	0	0	57	8	0	0	4	0	20	74	0	0	0	0	0	0	0	0	4	0	0	0	8	0	2	169
06:00 PM	0	0	1	0	0	33	14	0	0	1	0	15	53	0	1	0	0	0	0	0	0	0	0	0	0	5	0	3	123
PEAK HOUR TOTALS	0	0	7	0	0	182	41	0	0	15	0	80	270	0	3	0	0	0	0	0	0	5	1	2	0	42	0	16	INTERSECTION
ALL MOVEMENTS				223							350							0							58				631
% HV			3.1%							4.3%							#N/A							3.4%					3.8%
PEAK HOUR FACTOR				0.86							0.93							#N/A							0.76				0.93

HV = Heavy Vehicle
PHF = Peak Hour Factor

4:00 PM - 6:00 PM PEAK HOUR: 4:45 PM TO 5:45 PM

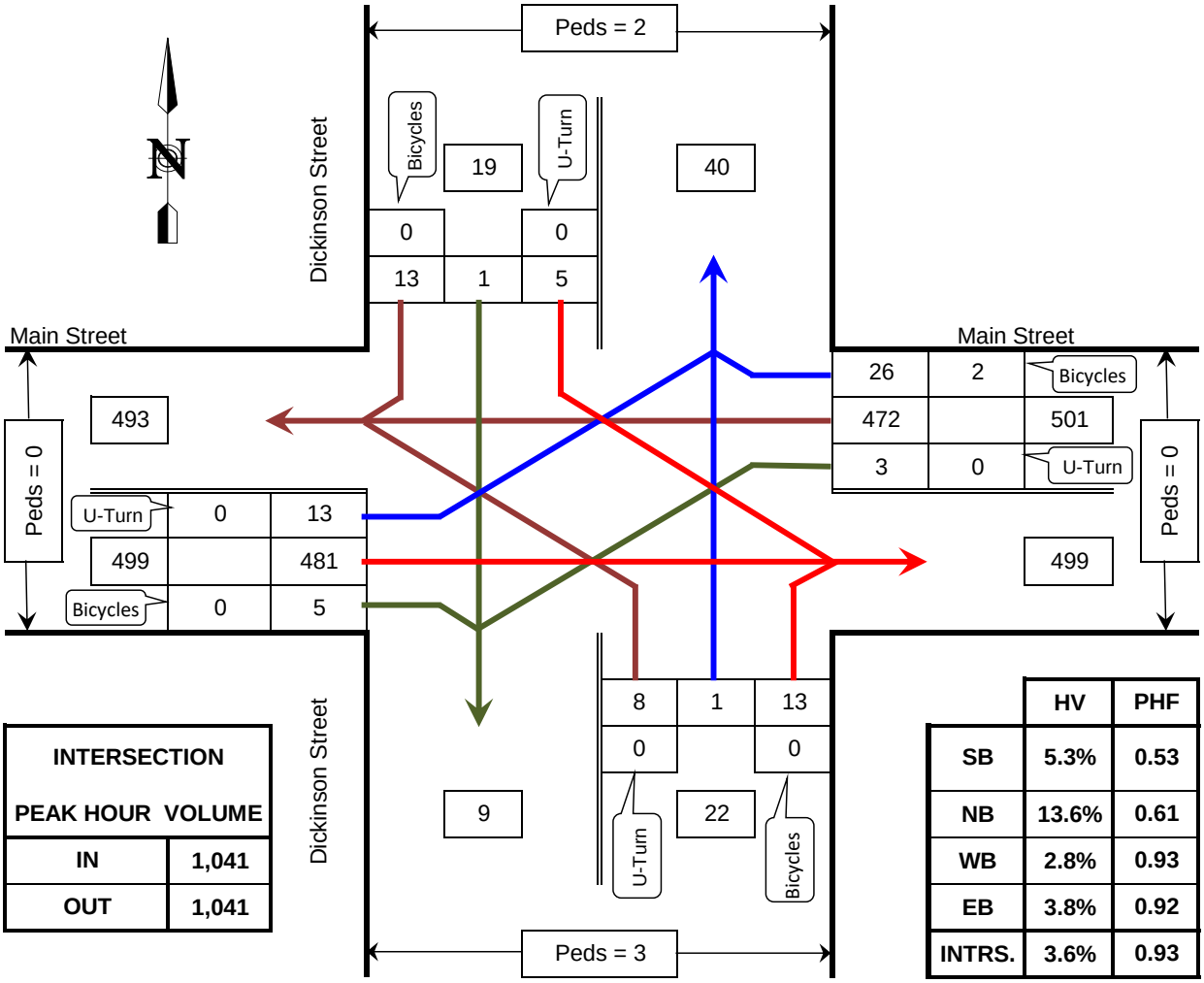
ROLLING HOUR COUNT

TIME INTERVAL	FROM NORTH ON N Kelsey Street							FROM SOUTH ON N Kelsey Street							FROM EAST ON Driveway							FROM WEST ON W Columbia Street							INTERVAL TOTALS
	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	
2:00 PM - 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM - 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM - 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM - 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM - 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 5:00 PM	0	0	6	0	0	160	33	0	0	6	0	81	212	0	3	0	0	0	0	0	0	1	1	0	0	44	0	25	555
4:15 PM - 5:15 PM	0	0	6	0	0	154	37	0	0	7	0	77	238	0	4	0	0	0	0	0	0	0	1	1	0	43	0	26	575
4:30 PM - 5:30 PM	0	0	7	0	0	167	38	0	0	14	0	77	250	0	3	0	0	0	0	0	0	1	1	2	0	49	0	25	606
4:45 PM - 5:45 PM	0	0	7	0	0	182	41	0	0	15	0	80	270	0	3	0	0	0	0	0	0	5	1	2	0	42	0	16	631
5:00 PM - 6:00 PM	0	0	7	0	0	178	42	0	0	14	0	71	258	0	2	0	0	0	0	0	0	5	0	2	0	37	0	16	602
4:00 PM - 6:00 PM Total:	0	0	13	0	0	338	75	0	0	20	0	152	470	0	5	0	0	0	0	0	0	6	1	2	0	81	0	41	1157

TRAFFIC DATA GATHERING

TURNING MOVEMENTS DIAGRAM

4:00 PM - 6:00 PM PEAK HOUR: 4:30 PM TO 5:30 PM



INTERSECTION PEAK HOUR VOLUME	
IN	1,041
OUT	1,041

	HV	PHF
SB	5.3%	0.53
NB	13.6%	0.61
WB	2.8%	0.93
EB	3.8%	0.92
INTRS.	3.6%	0.93

PHF = Peak Hour Factor
HV = Heavy Vehicle

Main Street @ Dickinson Street

Woodinville, WA

COUNTED BY: TDG

DATE OF COUNT: Wed. 6/13/18

REDUCTION DATE: Wed. 6/13/18

TIME OF COUNT: 4:00 PM - 6:00 PM

TRAFFIC DATA GATHERING

INTERSECTION TURNING MOVEMENTS REDUCTION SHEET

LOCATION: Main Street @ Dickinson Street
Woodinville, WA

DATE OF COUNT: Wed. 6/13/18
TIME OF COUNT: 4:00 PM - 6:00 PM

COUNTED BY: TDG
DATE OF REDUCTION: 6/13/2018

TIME INTERVAL ENDING AT	FROM NORTH ON Dickinson Street							FROM SOUTH ON Dickinson Street							FROM EAST ON Main Street							FROM WEST ON Main Street							INTERVAL TOTALS
	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
04:15 PM	2	0	3	0	0	0	7	3	0	2	0	0	0	5	0	0	5	0	0	95	10	0	0	2	0	6	114	0	**237**
04:30 PM	0	0	0	0	2	0	3	3	0	0	0	0	0	2	0	0	11	0	1	109	2	0	0	4	0	2	114	0	**235**
04:45 PM	1	0	0	0	3	0	6	0	0	2	0	3	0	6	0	0	8	0	2	124	6	0	0	8	0	2	114	1	**267**
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	2	0	2	0	0	1	0	1	119	6	0	0	3	0	2	112	3	**248**
05:15 PM	1	0	0	0	2	0	2	3	0	0	0	3	1	2	0	1	2	0	0	126	8	0	0	4	0	4	132	0	**280**
05:30 PM	0	0	1	0	0	1	4	0	0	0	0	0	0	3	0	1	3	0	0	103	6	0	0	4	0	5	123	1	**246**
05:45 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	2	0	0	2	0	1	111	5	0	0	2	0	4	95	0	**221**
06:00 PM	0	0	0	0	2	0	5	0	0	0	0	3	0	1	0	0	4	0	0	93	2	0	0	2	0	3	85	2	**196**
PEAK HOUR TOTALS	**2**	**0**	**1**	**0**	**5**	**1**	**13**	**3**	**0**	**3**	**0**	**8**	**1**	**13**	**0**	**2**	**14**	**0**	**3**	**472**	**26**	**0**	**0**	**19**	**0**	**13**	**481**	**5**	**INTERSECTION**
ALL MOVEMENTS				**19**							**22**							**501**							**499**				**1041**
% HV			**5.3%**							**13.6%**							**2.8%**							**3.8%**				**3.6%**
PEAK HOUR FACTOR				**0.53**							**0.61**							**0.93**							**0.92**				**0.93**

HV = Heavy Vehicle
PHF = Peak Hour Factor

4:00 PM - 6:00 PM PEAK HOUR: 4:30 PM TO 5:30 PM

ROLLING HOUR COUNT

	FROM NORTH ON Dickinson Street							FROM SOUTH ON Dickinson Street							FROM EAST ON Main Street							FROM WEST ON Main Street							INTERVAL TOTALS
TIME INTERVAL	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	Peds	Bicycle	HV	U-Turn	Left	Thru	Right	
2:00 PM - 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM - 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM - 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM - 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM - 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM - 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 5:00 PM	3	0	3	0	5	0	17	6	0	5	0	5	0	15	0	0	25	0	4	447	24	0	0	17	0	12	454	4	987
4:15 PM - 5:15 PM	2	0	0	0	7	0	12	6	0	3	0	8	1	12	0	1	22	0	4	478	22	0	0	19	0	10	472	4	1030
4:30 PM - 5:30 PM	2	0	1	0	5	1	13	3	0	3	0	8	1	13	0	2	14	0	3	472	26	0	0	19	0	13	481	5	1041
4:45 PM - 5:45 PM	1	0	1	0	2	1	10	3	0	1	0	5	1	9	0	2	8	0	2	459	25	0	0	13	0	15	462	4	995
5:00 PM - 6:00 PM	1	0	1	0	4	1	14	3	0	0	0	6	1	8	0	2	11	0	1	433	21	0	0	12	0	16	435	3	943
4:00 PM - 6:00 PM Total:	4	0	4	0	9	1	31	9	0	5	0	11	1	23	0	2	36	0	5	880	45	0	0	29	0	28	889	7	1930

Corridor/ Subarea	Intersection	Weekday PM Peak Hour Traffic Operations								
		Existing (2014)			Preferred Alternative (2035)			Preferred Alternative (2035) with Capital Plan		
		TEV[1]	Delay	LOS[2]	TEV[1]	Delay	LOS	TEV[1]	Delay	LOS
1	**Fryelands Blvd SE**									
1	Foothills Rd & Roosevelt Rd	379	11	B	715	16	C	715	16	C
2	SR 2 & Fryelands Blvd	2,583	35	D	3,263	41	D	3,263	41	D
3	Fryelands Blvd & Tye St	952	20	C	1,174	34	D	1,174	34	D
4	Fryelands Blvd & 146th St SE	812	17	C	1,001	28	D	1,001	28	D
5	Fryelands Blvd & Wales St	761	9	A	989	10	A	989	10	A
6	Fryelands Blvd & 154th St SE	910	13	B	1,167	15	B	1,167	15	B
9	W Main St & Fryelands Blvd	1,150	19	C	1,736	47	E	1,736	14	B
	Weighted Average		**22**	**C**		**32**	**C**		**26**	**C**
2-1	**US 2 West**									
2	SR 2 & Fryelands Blvd	2,583	35	D	3,263	41	D	3,263	41	D
28	SR 2 & 179th Ave SE	2,615	44	D	3,671	141	F	3,671	33	C
	Weighted Average		**39**	**D**		**94**	**F**		**36**	**D**
2-2	**US 2 East**									
26	SR 522 off and on ramps to US 2	2,713	17	B	4,302	40	D	4,302	40	D
25	SR 2 & Kelsey St	4,178	22	C	6,274	54	D	6,274	54	D
17	N Lewis St & SR 2	3,602	53	D	5,355	58	E	5,355	58	E
16	SR 2 & E Main St	2,587	27	C	3,981	31	C	3,981	31	C
	Weighted Average		**30**	**C**		**47**	**D**		**47**	**D**
3-1	**Chain Lake Rd North**									
39	Chain Lake Rd & Brown Rd	576	13	B	822	18	C	822	18	C
22	Chain Lake Rd & Country Crescent Blvd	738	15	B	1,095	25	C	1,095	25	C
21	Chain Lake Rd & Rainier View Rd	886	21	B	1,478	67	F	1,478	29	D
	Weighted Average		**17**	**B**		**41**	**D**		**25**	**C**
3-2	**Chain Lake Rd South**									
20	N Kelsey St & Chain Lake Rd[3]	1,037	13	B	2,120	21	C	2,120	21	C
18	Chain Lake Rd & Tjerne Pl SE	1,127	28	C	2,798	39	D	2,798	39	D
17	N Lewis St & SR 2	3,602	53	D	5,355	58	E	5,355	58	E
	Weighted Average		**41**	**D**		**45**	**D**		**45**	**D**
3-3	**S Lewis St**									
37	Hill St & Lewis St	1,246	29	D	2,127	168	F	2,127	24	C
15	Main St & Lewis St	1,870	27	C	2,285	115	F	2,285	115	F
34	S Lewis St & McDougall St	1,222	26	D	1,552	50	E	1,552	50	E
33	S Lewis St & Powell St	1,208	13	B	1,460	19	C	1,460	19	C
30	S Lewis St & Sumac Dr	1,357	15	B	1,702	23	C	1,702	23	C

Corridor/ Subarea	Intersection	Weekday PM Peak Hour Traffic Operations								
		Existing (2014)			Preferred Alternative (2035)			Preferred Alternative (2035) with Capital Plan		
		TEV[1]	Delay	LOS[2]	TEV[1]	Delay	LOS	TEV[1]	Delay	LOS
	Weighted Average		**22**	**C**		**84**	**F**		**50**	**D**
4-1	**N Kelsey St North**									
20	N Kelsey St & Chain Lake Rd[3]	1,037	13	B	2,120	21	C	2,120	21	C
38	N Kelsey St & Galaxy Way	719	13	B	1,403	27	D	1,403	27	D
19	Tjerne Pl SE & N Kelsey St	1,401	8	A	2,447	10	B	2,447	10	B
25	SR 2 & Kelsey St	4,178	22	C	6,274	54	D	6,274	54	D
	Weighted Average		**17**	**B**		**36**	**D**		**36**	**D**
4-2	**N Kelsey St South**									
24	Blueberry Ln & N Kelsey	1,086	26	D	1,342	61	F	1,342	61	F
36	N Kelsey St & W Hill St	777	14	B	952	17	C	952	17	C
13	W Main St & Kelsey St	1,562	9	A	2,405	20	B	2,405	20	B
	Weighted Average		**15**	**B**		**31**	**C**		**31**	**C**
5	**154th St SE**									
6	Fryelands Blvd & 154th St SE	910	13	B	1,167	15	B	1,167	15	B
7	154th St SE & Currie St	479	12	B	538	13	B	538	13	B
8	154th St SE & 179th Ave SE	1,184	16	C	1,614	39	E	1,614	39	E
40	King St & 154th St/Blueberry Ln	528	12	B	605	13	B	605	13	B
24	Blueberry Ln & N Kelsey	1,086	26	D	1,342	61	F	1,342	61	F
	Weighted Average		**17**	**B**		**33**	**C**		**33**	**C**
6	**179th Ave SE**									
28	SR 2 & 179th Ave SE	2,615	44	D	3,671	141	F	3,671	33	C
41	179th Ave SE & 147th St SE	965	31	D	1,346	309	F	1,346	9	A
32	179th Ave SE & 149th St SE	752	18	C	1,241	49	E	1,241	49	E
8	154th St SE & 179th Ave SE	1,184	16	C	1,614	39	E	1,614	39	E
29	W Main St & 179th Ave SE	1,425	13	B	2,476	44	D	2,476	44	D
	Weighted Average		**28**	**C**		**113**	**F**		**35**	**C**
7-1	**W Main St West**									
9	W Main St & Fryelands Blvd	1,150	19	C	1,736	47	E	1,736	14	B
10	W Main St on and off ramp from 522[3]	1,322	28	D	2,157	13	B	2,157	13	B
11	W Main St roundabout at NB SR 522	1,743	15	B	3,048	94	F	3,048	94	F
12	W Main St & 177th Ave SE	1,138	17	C	2,133	60	F	2,133	60	E
29	W Main St & 179th Ave SE	1,425	13	B	2,476	44	D	2,476	44	D
	Weighted Average		**18**	**B**		**55**	**D**		**50**	**D**
7-2	**W Main St East**									
13	W Main St & Kelsey St	1,562	9	A	2,405	20	B	2,405	20	B
42	W Main St & S Madison St[4]	971	19	C	1,654	72	F	1,654	24	C

Corridor/ Subarea	Intersection	Weekday PM Peak Hour Traffic Operations								
		Existing (2014)			Preferred Alternative (2035)			Preferred Alternative (2035) with Capital Plan		
		TEV[1]	Delay	LOS[2]	TEV[1]	Delay	LOS	TEV[1]	Delay	LOS
14	W Main St & Fremont St[4]	966	17	C	1,609	96	F	1,609	24	C
15	Main St & Lewis St	1,870	27	C	2,285	115	F	2,285	115	F
16	SR 2 & E Main St	2,587	27	C	3,981	31	C	3,981	31	C
	Weighted Average		**21**	**C**		**59**	**E**		**43**	**D**
8	**Woods Creek Rd**									
23	Woods Creek Rd & Ingraham Rd	628	9	A	1,177	39	E	1,177	39	E
31	Woods Creek Rd & Country Crescent Blvd	732	13	B	1,323	40	E	1,323	40	E
43	Woods Creek Rd & Tjerne Pl SE[5]	-	-	-	1,499	22	C	1,499	22	C
	Weighted Average		**11**	**B**		**33**	**C**		**33**	**C**
INT	**Intersections Not Part of a Corridor**									
35	Columbia Street & King Street	210	10	B	274	10	B	274	10	B

1 TEV = Total Entering Volume (PM peak hour)
2 LOS = Level of Service
3 Currently being converted to roundabout
4 Mitigation assumes conversion to roundabout as part of Main Street Gateway project. Alternately, the final redesign of these intersections could also include the installation of a traffic signal. A traffic signal would operate at LOS A/B for each intersection.
5 New signalized intersection with Tjerne Pl SE extension from Chain Lake Rd to Woods Creek Rd