

Gibson Traffic Consultants
2813 Rockefeller Avenue
Suite B
Everett, WA 98201
425.339.8266

Ray Townhomes Traffic Impact Analysis

Jurisdiction: City of Marysville

April 2020

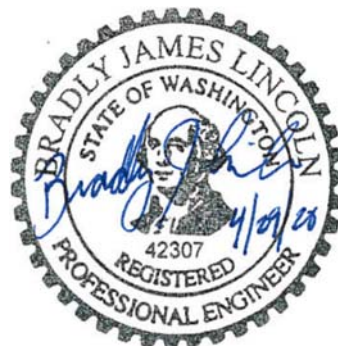


TABLE OF CONTENTS

1.	DEVELOPMENT IDENTIFICATION	2
2.	METHODOLOGY	2
3.	TRIP GENERATION.....	2
4.	TRIP DISTRIBUTION	4
5.	ACCESS ANALYSIS	7
6.	TRAFFIC MITIGATION FEES	7
6.1	City of Marysville	7
6.2	Snohomish County	8
6.3	Washington State Department of Transportation.....	8
7.	CONCLUSIONS	8

LIST OF FIGURES

Figure 1:	Site Vicinity Map	3
Figure 2:	Development Trip Distribution– AM Peak-Hour	5
Figure 3:	Development Trip Distribution– PM Peak-Hour	6

LIST OF TABLES

Table 1:	Trip Generation Summary	4
----------	-------------------------------	---

ATTACHMENTS

Trip Generation Calculations		A
WSDOT Crash Data		B
WSDOT Exhibit C List.....		C

1. DEVELOPMENT IDENTIFICATION

Gibson Traffic Consultants, Inc. (GTC) has been retained to provide a traffic impact analysis for the proposed Ray Townhomes development to address the City of Marysville, Snohomish County and Washington State Department of Transportation (WSDOT) traffic impacts. Additionally, this report addresses comments from the City of Marysville in the memorandum dated February 20, 2020. Brad Lincoln, responsible for this report and traffic analysis, is a licensed professional engineer (Civil) in the State of Washington and member of the Washington State section of ITE.

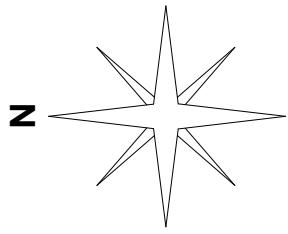
The Ray Townhomes development is a residential development that is proposed to consist of 21 new multifamily residential units. There are two units in duplex configuration and 19 units spread across four buildings with three or more units. There are also two existing single-family residential units on the site that will remain with the development. The site is located along the west side of 55th Avenue NE, south of 100th Street NE. The site is proposed to provide one access to 55th Avenue NE. A site vicinity map has been included in Figure 1.

2. METHODOLOGY

Trip generation calculations for the Ray Townhomes development have been performed utilizing average trip generation rates published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 10th Edition (2017)*. Section 4)b of the City of Marysville *Guidelines for the Preparation of Traffic Impact Analysis* has been utilized to determine which unit types are considered single-family units and which are multifamily units. The distribution of trips generated by the site is based on distributions provided by the City of Marysville. The City of Marysville typically only requires intersection analysis for intersections impacted with 25 or more PM peak-hour trips.

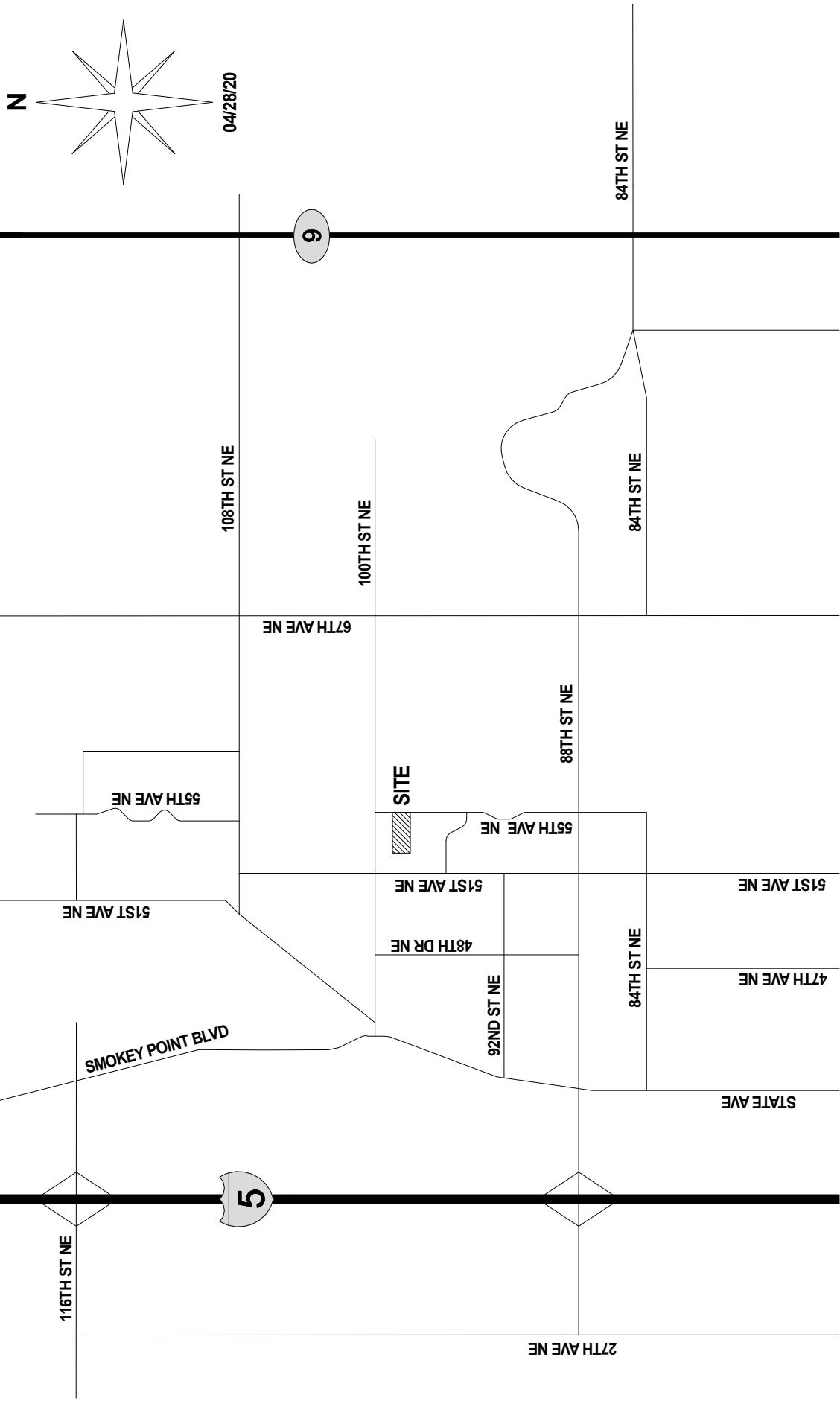
3. TRIP GENERATION

Trip generation calculations for the Ray Townhomes development have been performed utilizing data published in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition (2017)*. Section 4)b of the City of Marysville *Guidelines for the Preparation of Traffic Impact Analysis* identifies that multifamily units are considered for units in triplex and greater configuration. Therefore, the average trip generation rates for ITE Land Use Code 210, Single-Family Detached Housing, have been used for the duplex units (two total units in one building) and ITE Land Use Code 220, Multifamily Housing (Low-Rise), have been used for the triplex and greater units (19 units in four buildings). It is important to note that the two existing single-family residential units on the site will remain and are therefore not included in the trip generation calculations. The trip generation of the Ray Townhomes development is summarized in Table 1.



04/28/20

9



TRAFFIC IMPACT STUDY
GTC #19-168

GIBSON TRAFFIC CONSULTANTS

FIGURE 1
SITE VICINITY
MAP

LEGEND



DEVELOPMENT SITE

RAY TOWNHOMES

SNOHOMISH COUNTY

Table 1: Trip Generation Summary

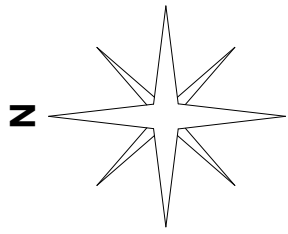
Use	Units	Average Daily Trips	AM Peak-Hour Trips			PM Peak-Hour Trips		
			Inbound	Outbound	Total	Inbound	Outbound	Total
Single-Family Detached Housing	2 units	19	0	1	1	1	1	2
Multifamily Housing (Low-Rise)	19 units	139	2	7	9	7	4	11
TOTAL		158	2	8	10	8	5	13

The Ray Townhomes development is anticipated to generate 158 new average daily trips with 10 new AM peak-hour trips and 13 new PM peak-hour trips. The trip generation calculations are included in the attachments.

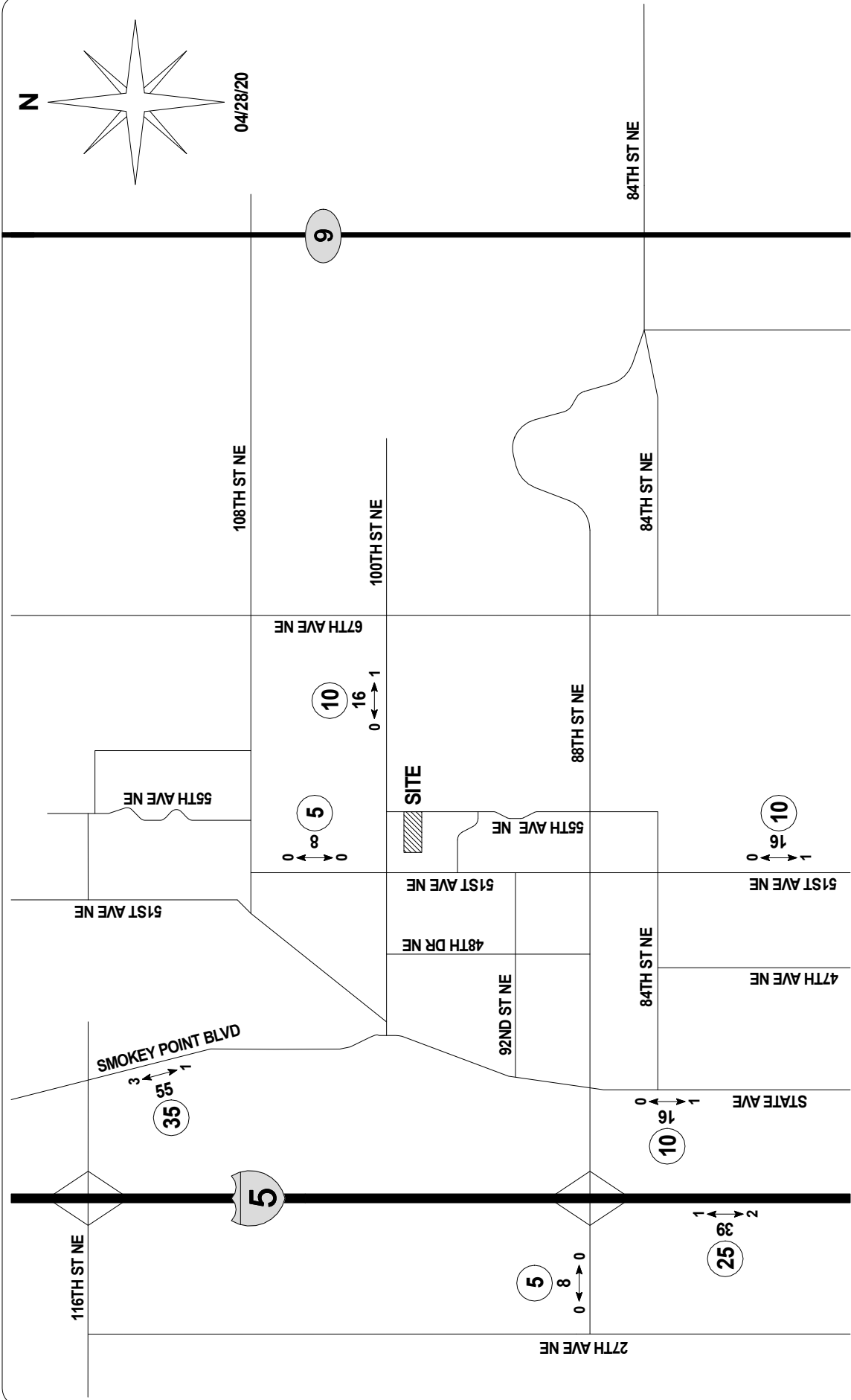
4. TRIP DISTRIBUTION

The distribution of trips generated by the Ray Townhomes development is based on trip distributions provided by the City of Marysville. It is estimated that 40% of the trips generated by the development will travel to and from the north, thirty-five percent along Smokey Point Boulevard and five percent along 55th Avenue NE. Approximately 45% of the trips generation by the development will travel to and from the south, twenty-five percent along Interstate-5, ten percent along State Avenue and ten percent along 51st Avenue NE. The remaining 15% of the trips generate by the development will be split between trips travel to and from the west along 88th Street NE west of Interstate-5 (five percent) and trips traveling to and from the east along 100th Street NE (ten percent). Detailed trip distributions are shown in Figure 2 for the AM peak-hour and Figure 3 for the PM peak-hour.

The interlocal agreement between the City of Marysville and Snohomish County requires detailed development trip turning movement data at Snohomish County Key Intersections impacted with three or more directional trips on an approach or departure. The development will not impact any Key Intersections during the AM and PM peak-hours.



04/28/20



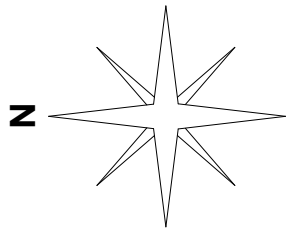
TRAFFIC IMPACT STUDY
GTC #19-168

GIBSON TRAFFIC CONSULTANTS

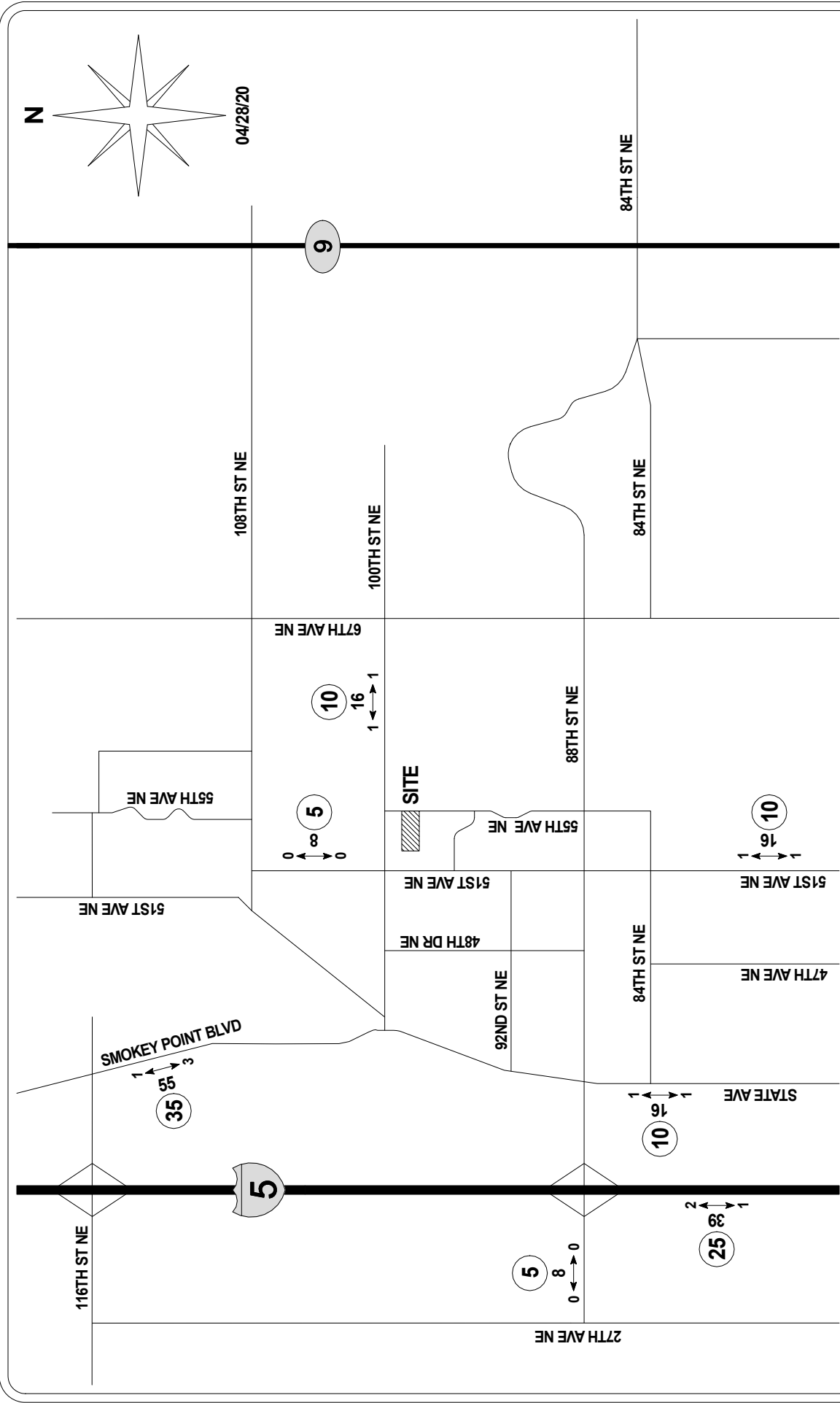
FIGURE 2
DEVELOPMENT
TRIP DISTRIBUTION
AM PEAK-HOUR

LEGEND
AWDT
AM ← → PEAK
NEW DAILY TRAFFIC
NEW AM PEAK-HOUR TRIPS
TRIP DISTRIBUTION %
XX

RAY TOWNHOMES
SNOHOMISH COUNTY



04/28/20



TRAFFIC IMPACT STUDY
GTC #19-168

GIBSON TRAFFIC CONSULTANTS

FIGURE 3
DEVELOPMENT
TRIP DISTRIBUTION
PM PEAK-HOUR

LEGEND
AWDT
PM ← → PEAK
NEW DAILY TRAFFIC
NEW PM PEAK-HOUR TRIPS
TRIP DISTRIBUTION %
XX

RAY TOWNHOMES

SNOHOMISH COUNTY

5. ACCESS ANALYSIS

The Ray Townhomes development is proposed to have one access to 55th Avenue NE. The access will be more than 150 feet south of 99th Place NE, north of the site access. The posted speed along 55th Avenue NE is 30 mph, which requires 200 feet of stopping sight distance and 375 feet of entering sight distance. There will be clear sight distance to the 100th Street NE intersection to the north and at least 400 feet of sight distance to the south, satisfying the required stopping and entering sight distances.

The crash data in the vicinity of the site access has also been analyzed. Crash data was obtained from WSDOT for the 5-year period, January 1, 2014 through December 31, 2018. The crash data shows a total of 5 crashes in the site vicinity. Three of the crashes are related to the intersection of 100th Street NE at 55th Avenue NE. The other two crashes are related to vehicles running off the roadway, one into a ditch and one into a utility pole. None of these crashes involved a fatality. The Ray Townhomes development is not anticipated to significantly affect the crash history in the site vicinity.

6. TRAFFIC MITIGATION FEES

The City of Marysville has an interlocal agreement with Snohomish County that provides for the payment of traffic mitigation fees to Snohomish County for City of Marysville developments. The City of Marysville also has an understanding with WSDOT for the payment of traffic mitigation fees.

6.1 City of Marysville

The City of Marysville traffic mitigation fees have been calculated using the residential rates of \$6,300 per single-family unit and \$3,910 per multifamily unit. The Ray Townhomes development is proposed to have 2 units in duplex configuration, which are considered single-family units, and 19 multifamily units. The City of Marysville traffic mitigation fees for the Ray Townhomes development are:

- 2 new single-family units (duplex units) - \$12,600
- 19 new multifamily units - \$74,290

The total traffic mitigation fee for the Ray Townhomes development is \$86,890.00.

6.2 Snohomish County

The City of Marysville and Snohomish County have an interlocal agreement that provides for the payment of traffic mitigation for impacts to Snohomish County roadways by City of Marysville developments. Traffic mitigation fees are based on predetermined area impacts or impacts to actual improvement projects. The only Snohomish County improvement project in the area is along 88th Street NE, from approximately 44th Drive NE to 66th Drive NE. This improvement project is not anticipated to be impacted by 3 directional PM peak-hour trips from the Ray Townhomes development. Snohomish County traffic mitigation fees should therefore not be required for the Ray Townhomes development.

6.3 Washington State Department of Transportation

The trip distribution shows that the Ray Townhomes development will not impact any WSDOT collection projects. The Ray Townhomes development should therefore not be required to pay for impacts to WSDOT intersections.

7. CONCLUSIONS

The Ray Townhomes development is proposed to consist of 2 units in duplex configuration, which are evaluated as single-family detached units, and 19 multifamily housing units. There are two existing single-family detached units on the site that will remain with the development. The development is anticipated to generate approximately 158 new average daily trips with 10 new AM peak-hour trips and 13 new PM peak-hour trips. The City of Marysville traffic mitigation fees will total \$86,890.00. The trips from the development will not significantly impact any Snohomish County or WSDOT collection projects and therefore neither Snohomish County nor WSDOT traffic mitigation fees should be a condition of the Ray Townhomes development.

Trip Generation Calculations

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

LAND USES	VARIABLE	ITE LU code	Gross Trips				Internal Crossover			NET EXTERNAL TRIPS BY TYPE						
			Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	IN BOTH DIRECTIONS		DIRECTIONAL ASSIGNMENTS					
									TOTAL	PASS-BY	NEW	PASS-BY	NEW			
								In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out	In	Out		
Single-Family Detached Res.	2 Units	210	9.44	50%	50%	19	0%	0	0	0	0	19	0	0	10	9
Multifamily Residential (Low-Rise)	19 Units	220	7.32	50%	50%	139	0%	0	0	0	0	139	0	0	70	69
Total						158		0	0	0	0	158	0	0	80	78

Ray Townhome Development
 GTC #19-168

**Trip Generation for: Development Peak Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 7 and 9 AM
 (a.k.a.): Weekday AM Peak Hour**

LAND USES	VARIABLE	ITE LU code	Gross Trips				Internal Crossover			NET EXTERNAL TRIPS BY TYPE				
			Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	IN BOTH DIRECTIONS		DIRECTIONAL ASSIGNMENTS			
									TOTAL	PASS-BY	NEW	PASS-BY	NEW	
							In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out	In	Out	
Single-Family Detached Res.	2 Units	210	0.74	25%	75%	1	0%	0	0	0	0	0	0	1
Multifamily Residential (Low-Rise)	19 Units	220	0.46	23%	77%	9	0%	0	0	0	0	0	0	7
Total						10		0	0	0	0	0	0	8

Ray Townhome Development
 GTC #19-168

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

LAND USES	VARIABLE	ITE LU code	Gross Trips				Internal Crossover			NET EXTERNAL TRIPS BY TYPE					
			Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	IN BOTH DIRECTIONS		DIRECTIONAL ASSIGNMENTS				
									TOTAL	PASS-BY	NEW	PASS-BY	NEW		
Single-Family Detached Res.	2 Units	210	0.99	63%	37%	2	0%	0	0	0	0	2	0	0	1
Multifamily Residential (Low-Rise)	19 Units	220	0.56	63%	37%	11	0%	0	0	0	0	11	0	0	7
Total						13		0	0	0	0	13	0	0	8

WSDOT Crash Data

PRIMARY TRAFFICWAY	INTERSECTING TRAFFICWAY/ POINT NAME	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# I	# F	# N	# J	# P	# V	# E	# K	# B	# S	FIRST COLLISION TYPE / OBJECT STRUCK
100TH ST NE	55TH AVE NE	E495001	2015-12-17	18:03	Suspected Minor Injury	1	0	3	0	0	0	0	0	0	0	From opposite direction - one left turn - one straight
55TH AVE NE	99TH PL NE	E477020	2015-10-31	16:16	No Apparent Injury	0	0	1	0	0	0	0	0	0	0	Utility Pole
100TH ST NE	55TH AVE NE	E601865	2016-10-27	18:53	No Apparent Injury	0	0	2	0	0	0	0	0	0	0	Entering at angle
55TH AVE NE	100TH ST NE	E506204	2016-01-16	04:16	Suspected Minor Injury	1	0	1	0	0	0	0	0	0	0	Roadway Ditch
55TH AVE NE	100TH ST NE	E787009	2018-04-06	4:39	No Apparent Injury	0	0	1	0	0	0	0	0	0	0	Earth Bank or Ledge

WSDOT Exhibit C List

LIST OF PROGRAMMED
WSDOT PROJECTS IN
SNOHOMISH COUNTY
AS OF Nov. 2008

County ID#	TSA SR	MP1	MP2	Title/Description	Design/Construction year	Total Cost (M)	TOTAL CAPACITY (ADT)	PRESENT VOLUME	RESERVE CAPACITY (ADT)	TRUE CONTRI-BUTION PER ADT	50% TRIP END DEDUCTION	TAX DEDUCTION	Proportionate Share Per Developed ADT
DOT-11	D 5	186.42	186.42	128th ST SW Interchange - Construct Loop Ramps / HOV Bypass	2014	\$13.30	99,000	65,000	34,000	\$391.18	\$195.15	\$40.98	\$154.17
DOT-01	A 5	205.85	205.85	172nd Street NE (SR 531) Interchange improvements, SB loop ramp, bridge widening	2009	\$41.00	90,000	34,900	55,100	\$744.10	\$372.05	\$63.25	\$308.80
DOT-30	E 9	1.66	4.04	212th Street SE to 176th Street SE, widen to 5 lanes	2011	\$80.80	54,000	21,000	33,000	2,448.48	\$1,224.24	\$183.64	\$1,040.60
DOT-56	B 9	16.48	17.49	Lundeen Parkway to SR-92, Widen to 4 lanes & RT-LT lanes	2009	\$38.90	54,000	24,000	30,000	\$1,296.67	\$648.34	\$123.18	\$525.16
DOT-37	B 9	17.96	17.96	SR-9 at 60th Street NE, add LT & RT lanes at Tee intersection	2011	\$2.95	54,000	36,000	18,000	\$163.89	\$81.95	\$13.91	\$67.94
DOT-22	A 9	18.88	19.46	SR 9/SR 528 Intersection improvements, Signal & Channelization	2010	\$17.13	54,000	36,000	18,000	\$951.67	\$475.83	\$80.89	\$394.94
DOT-57	A 9	20.51	20.59	SR-9/84th Street NE Intersection improvements, LT & RT lanes	2011	\$17.13	54,000	12,000	42,000	\$407.88	\$203.93	\$55.06	\$148.87
DOT-58	A 9	26.00	26.09	SR-9/SR-531/172nd St. NE Intersection improvement, Roundabout	2011	\$15.60	54,000	11,000	43,000	\$362.80	\$181.40	\$45.87	\$135.55
DOT-33	B 92	1.46	1.46	SR-92 at 113th Avenue NE, Roundabout	2009	\$2.36	54,000	19,600	34,000	\$68.60	\$34.30	\$6.52	\$27.78
DOT-31	B 92	1.73	1.73	SR-92 at Callow/Grade Road, turn lanes to SR-92	2009	\$1.90	54,000	19,600	34,400	\$55.24	\$27.62	\$5.25	\$22.37
DOT-46	C 203	22.36	22.38	SR-203 at North High Road/Tualco Roads, Re-align cross street for I/S and add LT & RT lanes on SR-203	2009	\$3.34	18,000	13,000	5,000	\$688.00	\$344.00	\$73.48	\$270.52
DOT-36	C 203	23.01	23.01	Ben Howard Rd channelization, LT lanes on SR-203	2009	\$1.07	54,000	13,000	41,000	\$26.10	\$13.05	\$2.87	\$10.18
DOT-16	E 522	13.82	16.61	Paradise Lake Road I/C, Stage 3, new interchange	2010	\$27.95	81,000	48,000	33,000	\$847.03	\$423.52	\$63.53	\$359.99
DOT-17	E 522	16.80	20.41	Paradise Lake Road to Snohomish River, Bridge, Stage 2, widen to 4 lanes	2009	\$33.48	80,000	21,900	58,100	\$576.25	\$288.13	\$43.22	\$244.91
DOT-28	C 522	20.50	24.68	Snohomish River Bridge to SR 2, widen to 4 lanes	2010	\$171.98	80,000	20,000	60,000	\$2,866.33	\$1,433.17	\$315.30	\$1,117.87

LIST OF PROGRAMMED
WSDOT PROJECTS IN
SNOHOMISH COUNTY
AS OF Nov. 2008

County ID#	TSA SR	MP1	MP2 Title/Description	Design/ Construction year	Total Cost (M)	TOTAL CAPACITY (ADT)	PRESENT VOLUME	RESERVE CAPACITY (ADT)	TRUE CONTRIBUTION PER ADT	50% TRIP END DEDUCTION	TAX DEDUCTION	Proportionate Share Per Development Generated ADT		
DOT-19	F	524	5.87	9.50	24th Avenue SE to I-405, widen to 5 Lanes	2012	\$33.34	54,000	15,300	38,700	\$861.50	\$430.75	\$77.54	\$363.21
DOT-20	F	524	5.87	9.50	I-405 to Royal Ann Road, widen to 5 Lanes	2011	\$71.06	54,000	15,300	38,700	\$1,836.18	\$918.09	\$165.26	\$752.83
DOT-60	E	524	6.79	6.79	Larch Way intersection, LT lanes, signal	2009	\$2.59	54,000	15,300	38,700	\$86.93	\$33.47	\$5.02	\$28.45
DOT-59	D	525	6.25	6.25	SR-525/88th St. SW intersection improvements, NBRT, NBLT & SBLT	2011	\$3.70	25,700	17,000	8,700	\$425.29	\$212.64	\$89.31	\$123.33
DOT-49	A	530	17.30	17.30	SR-530 at Old 99, Roundabout	2011	\$8.00	18,000	10,000	8,000	\$1,000.00	\$500.00	\$85.00	\$415.00
DOT-62	A	530	19.71	19.71	211th Place NE, Intersection Roundabout	2011	\$6.10	24,000	15,000	9,000	\$677.78	\$338.89	\$57.61	\$281.28
DOT-52	A	531	1.95	2.25	SR-531/Jct. Freestad Road Intersection, LT lanes	2011	\$1.55	18,000	7,900	10,100	\$140.14	\$70.07	\$11.92	\$58.15
DOT-05	A	531	7.00	8.59	43rd Ave. NE to 67th Ave. NE, NE, Widen to 5 lanes (Arlington)	2014	\$20.78	54,000	11,000	43,000	\$483.14	\$241.57	\$41.07	\$200.50
DOT-53	A	532	5.25	5.90	270th St. NW Vic. To 72nd Ave. NW, EB Climbing Lane, intersection improvements & signal.	2009	\$19.00	54,000	16,000	38,000	500	\$250.00	\$28.75	\$221.25
DOT-54	A	532	6.45	9.79	64th Ave. NW to 12th Ave. NW, Climbing lane & LT Lanes	2010	\$22.40	54,000	17,000	37,000	\$605.41	\$302.70	\$33.75	\$268.95
					TAX DEDUCTIONS									
					TSA A = 17%									
					TSA B = 19%									
					TSA C = 22%									
					TSA D = 21%									
					TSA E = 15%									
					TSA F = 18%									