

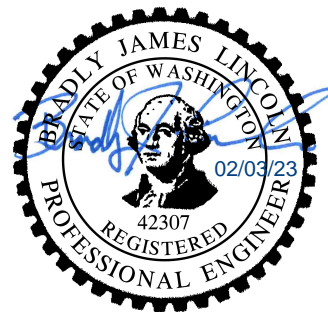
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Ray Townhomes Traffic Impact Analysis

Jurisdiction: City of Marysville

February 2023



090223019

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1. DEVELOPMENT IDENTIFICATION

Kimley-Horn and Associates, Inc. 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. 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.

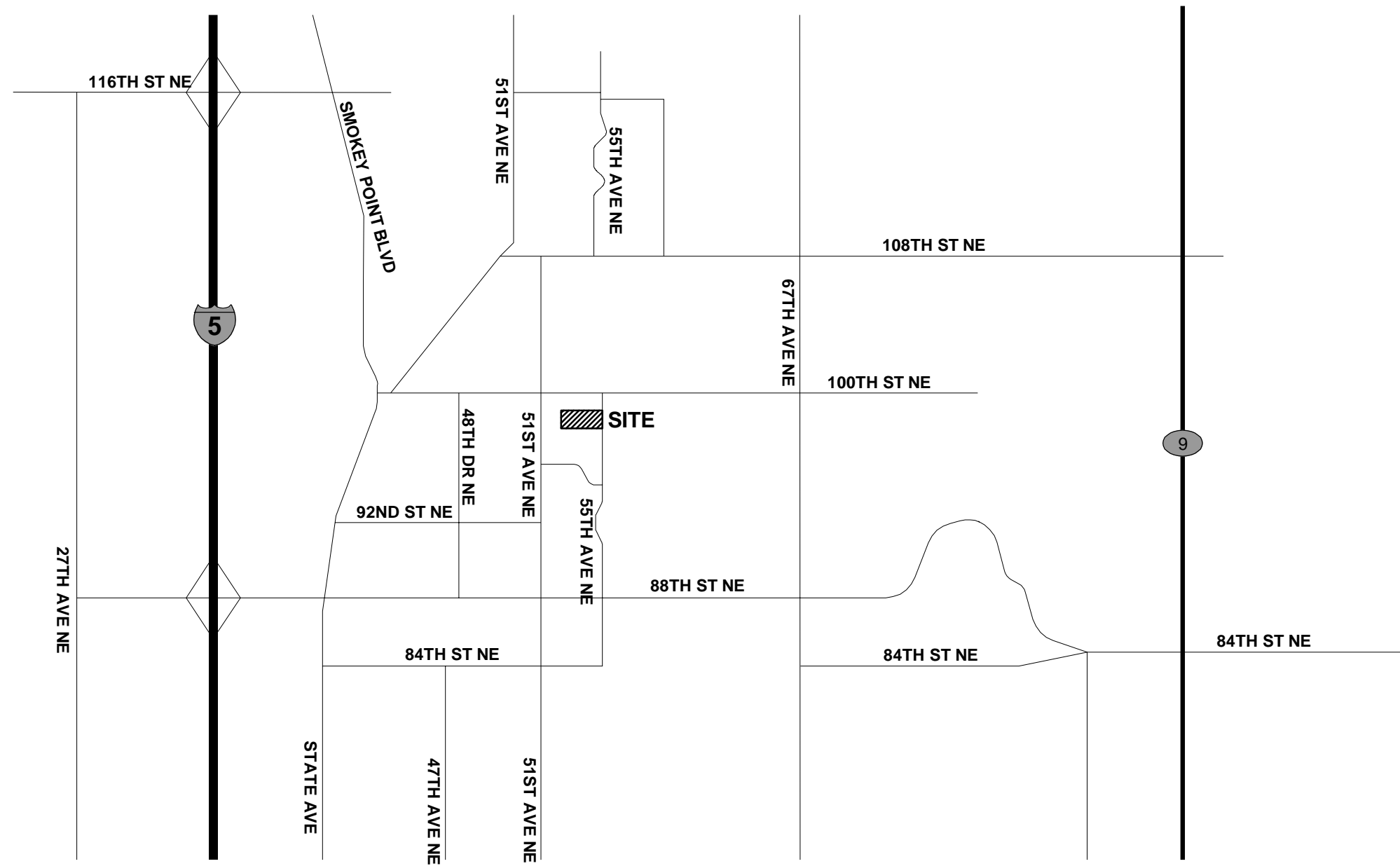
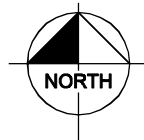
The Ray Townhomes development is a residential development that is proposed to consist of 20 new single-family attached units. There are two single-family detached units on the site that will remain with the development. The site is located along the west side of 55th Avenue NE, south of 100th Street 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, 11th Edition (2021)*. 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. The interlocal agreement between the City of Marysville and Snohomish County provides for traffic mitigation fees based on area averages or actual impacts

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, 11th Edition (2021)*. The average trip generation rates for ITE Land Use Code 215, Single-Family Attached Housing, have been used for the trip generation calculations of the 20 new units. The trip generation of the Ray Townhomes development is summarized in Table 1.



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TRAFFIC IMPACT STUDY
KH #090223019

RAY TOWNHOMES

LEGEND



DEVELOPMENT SITE

CITY OF MARYSVILLE

FIGURE 1
VICINITY MAP

Table 1: Trip Generation Summary

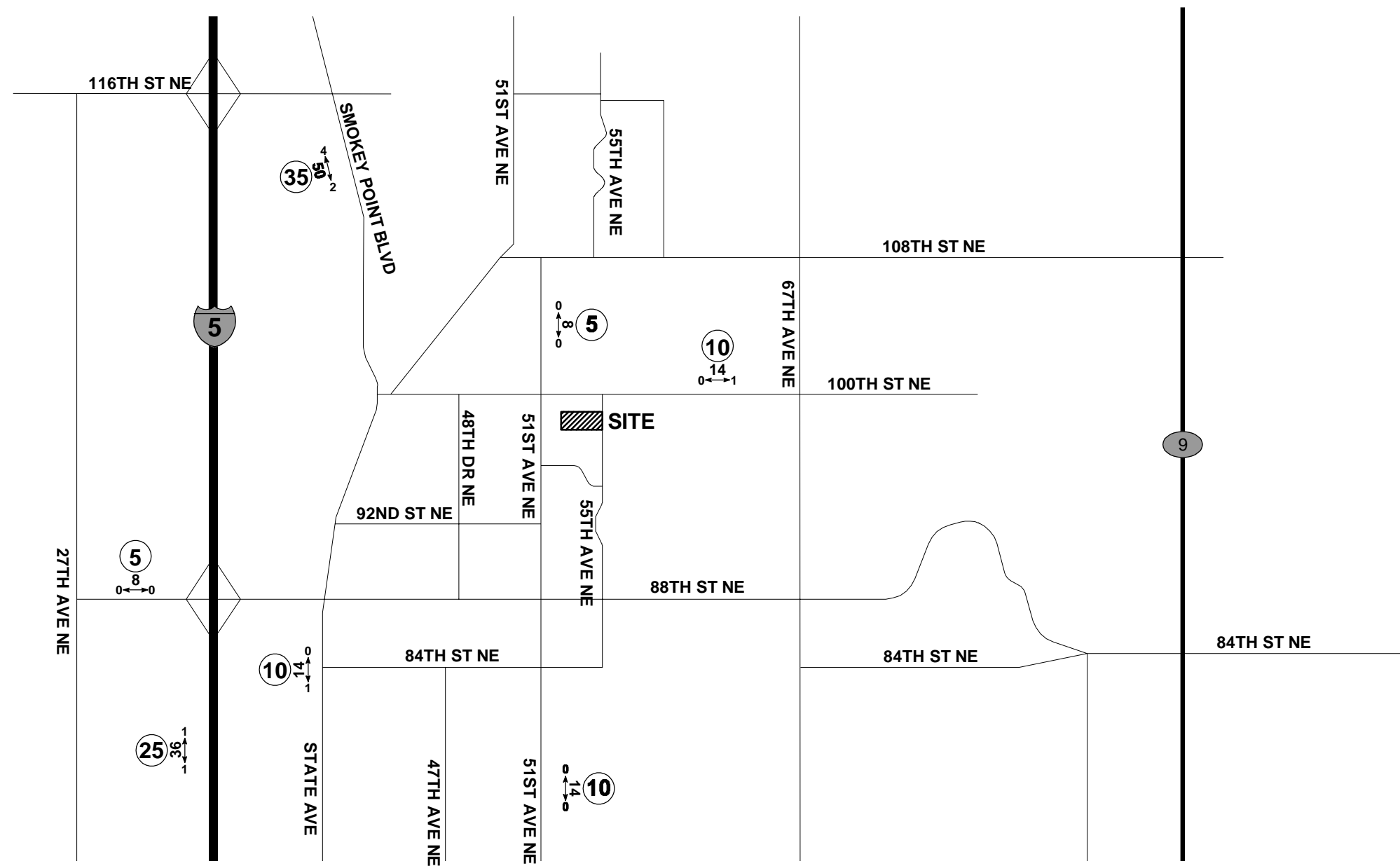
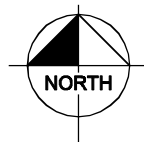
20 Units Single-Family Attached Units	Average Daily Trips			AM Peak-Hour Trips			PM Peak-Hour Trips		
	Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Generation Rate	7.20 trips per unit			0.48 trips per unit			0.57 trips per unit		
Splits	50%	50%	100%	25%	75%	100%	59%	41%	100%
Trips	72.00	72.00	144.00	2.40	7.20	9.60	6.73	4.67	11.40

The Ray Townhomes development is anticipated to generate approximately 144 new average daily trips with approximately 10 new AM peak-hour trips and approximately 11 new PM peak-hour trips.

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 (the majority of which are ultimately anticipated to travel to and from the interchange with Interstate-5) and five percent along 55th Avenue NE. Approximately 45% of the trips generated 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 generated by the development will be split between trips traveling 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. Additionally, it is not anticipated that any of the Snohomish County improvement projects in the site vicinity will be impacted by 3 directional PM peak-hour trips.



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RAY TOWNHOMES

LEGEND

AWDT
AM ↔ PEAK

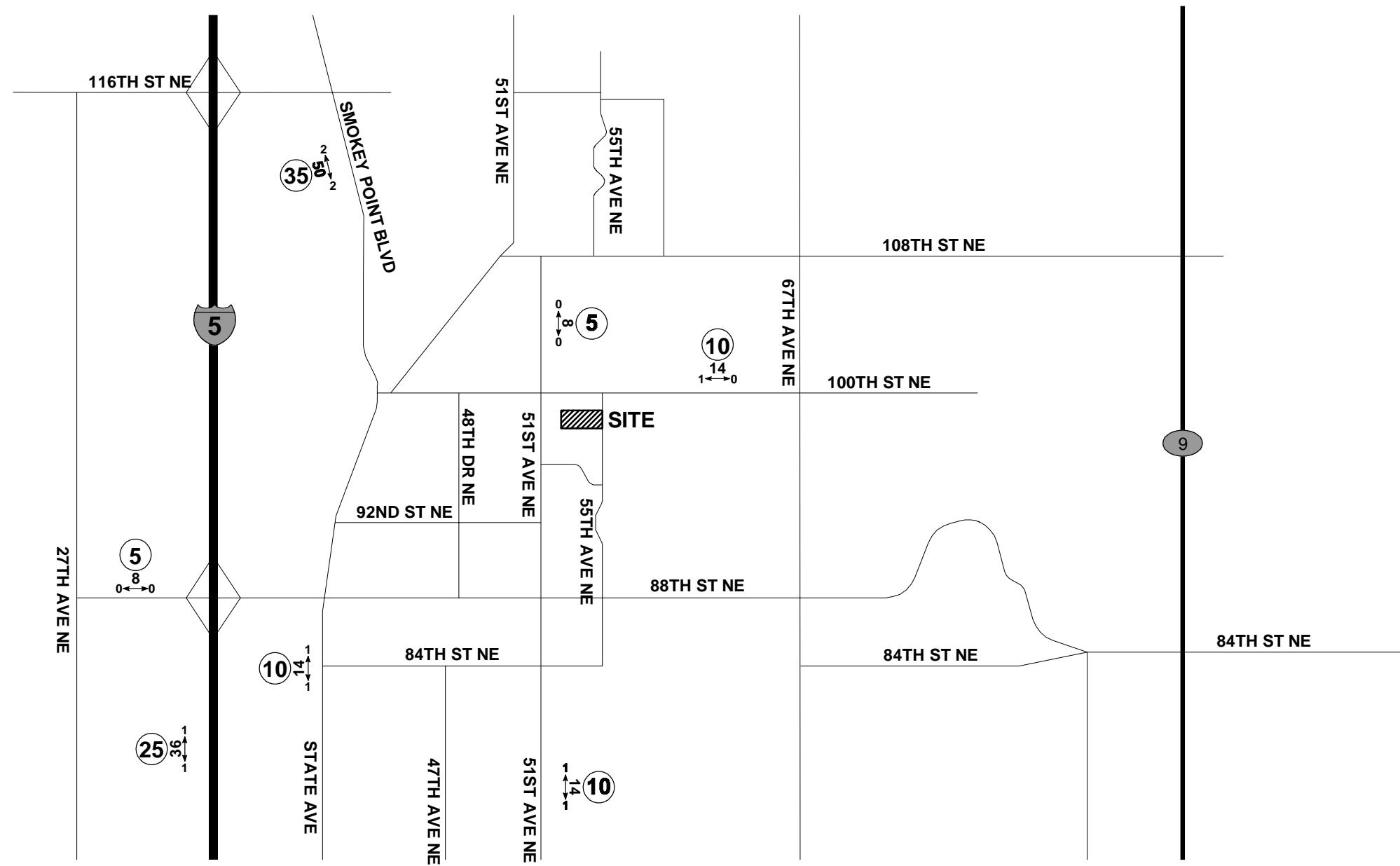
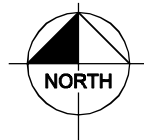
NEW DAILY TRAFFIC
NEW PEAK-HOUR TRIPS

(XX)

TRIP DISTRIBUTION %

CITY OF MARYSVILLE

FIGURE 2
DEVELOPMENT TRIP
DISTRIBUTION
AM PEAK-HOUR



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TRAFFIC IMPACT STUDY
KH #090223019

RAY TOWNHOMES

LEGEND

AWDT
PM ← → PEAK NEW DAILY TRAFFIC
NEW PEAK-HOUR TRIPS

XX TRIP DISTRIBUTION %

CITY OF MARYSVILLE

FIGURE 3
DEVELOPMENT TRIP
DISTRIBUTION
PM PEAK-HOUR

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 latest 5-year period, January 1, 2017 through December 31, 2022. The crash data shows a total of 5 crashes in the site vicinity. Four of the crashes are related to the intersection of 100th Street NE at 55th Avenue NE. The single other crash is related to a vehicle running into a tree within the 99th Place NE cul-de-sac. 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 PM peak-hour trip. The Ray Townhomes development is proposed to have 20 new single-family attached units that are anticipated to generate 11.40 new PM peak-hour trips. The City of Marysville traffic mitigation fees for the Ray Townhomes development is \$71,820.00. The fee is equivalent to \$3,591.00 for each of the new units that is proposed to be constructed.

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 generated the 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 20 single-family attached 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 144 new average daily trips with approximately 10 new AM peak-hour trips and approximately 11 new PM peak-hour trips. The City of Marysville traffic mitigation fees will total \$71,820.00, equivalent to \$3,591.00 for each of the proposed units. The trips generated by 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.

WSDOT Crash Data

PRIMARY TRAFFICWAY	INTERSECTING TRAFFICWAY/ REFERENCE POINT NAME	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# I N J	# F A T	# V E D H	# P E D S	# B I K E	JUNCTION RELATIONSHIP	FIRST COLLISION TYPE / OBJECT STRUCK	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)
55TH AVE NE	100TH ST NE	E787009	2018-04-06	4:39	No Apparent Injury	0	0	1	0	0	At Intersection and Related	Earth Bank or Ledge	Unknown Driver Distraction
100TH ST NE	55TH AVE NE	E930778	2019-06-16	11:40	Possible Injury	2	0	2	0	0	At Intersection and Related	From same direction - one left turn - one straight	Other Contributing Circ Not Listed
55TH AVE NE	100TH ST NE	EA01047	2020-01-09	15:46	No Apparent Injury	0	0	2	0	0	At Intersection and Related	From same direction - both going straight - one stopped - rear-end	Follow Too Closely
100TH ST NE	55TH AVE NE	EB99370	2021-12-12	04:46	No Apparent Injury	0	0	2	0	0	At Intersection and Related	Entering at angle	None
99TH PL NE	55TH AVE NE	EA22510	2020-03-10	22:58	No Apparent Injury	0	0	1	0	0	Not at Intersection and Not Related	Tree or Stump (stationary)	Under Influence of Alcohol

WSDOT Exhibit C List

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

County ID#	TSA	SR	MP1	MP2	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 Generated
DOT-11	D	5	186.42	186.42	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	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	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	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	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	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	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	2011	\$15.60	54,000	11,000	43,000	\$362.80	\$181.40	\$45.87	\$135.53
DOT-33	B	92	1.46	1.46	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	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	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	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	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	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	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%									