

RIVERTOWN TOWNHOMES

JURISDICTION: CITY OF ARLINGTON

Prepared for:
Rivertown Homes, LLC
PO Box 1125
Snohomish, WA 98291

Prepared by:
Kimley»Horn

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TRAFFIC IMPACT ANALYSIS

FOR

RIVERTOWN TOWNHOMES

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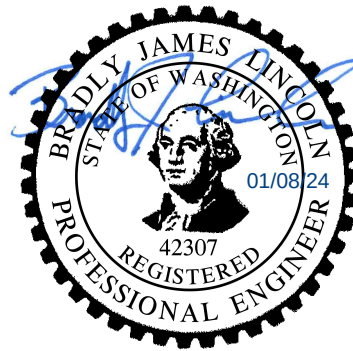
Kimley-Horn and Associates, Inc.

2828 Colby Avenue

Suite 200

Everett, Washington 98201

(425) 708-8275



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1. DEVELOPMENT IDENTIFICATION

Kimley-Horn and Associates, Inc. has been retained to analyze the traffic impacts of the proposed Rivertown Townhomes Development (Development). This report is intended to provide the City of Arlington (City) with the necessary traffic generation, trip distribution, and mitigation fee determination to facilitate their review of the Development. 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 Institute of Transportation Engineers (ITE).

The Development is proposed to include 12 single-family detached residential units. The site consists of two parcels, each parcel has an existing single-family residential unit on site that will be removed. The Development is located on the south side of E Gilman Avenue between N Manhattan Avenue and N Talcott Street. A site vicinity map is included in **Figure 1**. The Development proposes to have an access driveway for each residential unit along the alley to the south of the site. A site plan has been provided in **Appendix A**.

2. METHODOLOGY

2.1 General

Trip generation calculations for the Development have been performed using data contained in the ITE's *Trip Generation Manual, 11th Edition (2021)*. The distribution of trips generated by the site is based on a previously approved trip distribution for a similar development in the area. The City has an interlocal agreement with Snohomish County (County) that provides for reciprocal mitigation fees. County mitigation fees can be calculated based on the default percentage in the interlocal agreement, which is 70%, or based on actual impacts. The City also has an interlocal agreement with the Washington State Department of Transportation (WSDOT) that provides for mitigation fees to WSDOT for impacts to WSDOT improvement projects. WSDOT improvement projects and their associated fees are based on the most recent Exhibit C list. City developments are required to pay for any WSDOT improvement project on the Exhibit C list impacted with three or more directional PM peak-hour trips or based on the area wide mitigation fee.

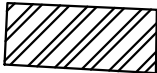
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RIVERTOWN TOWNHOMES

CITY OF ARLINGTON

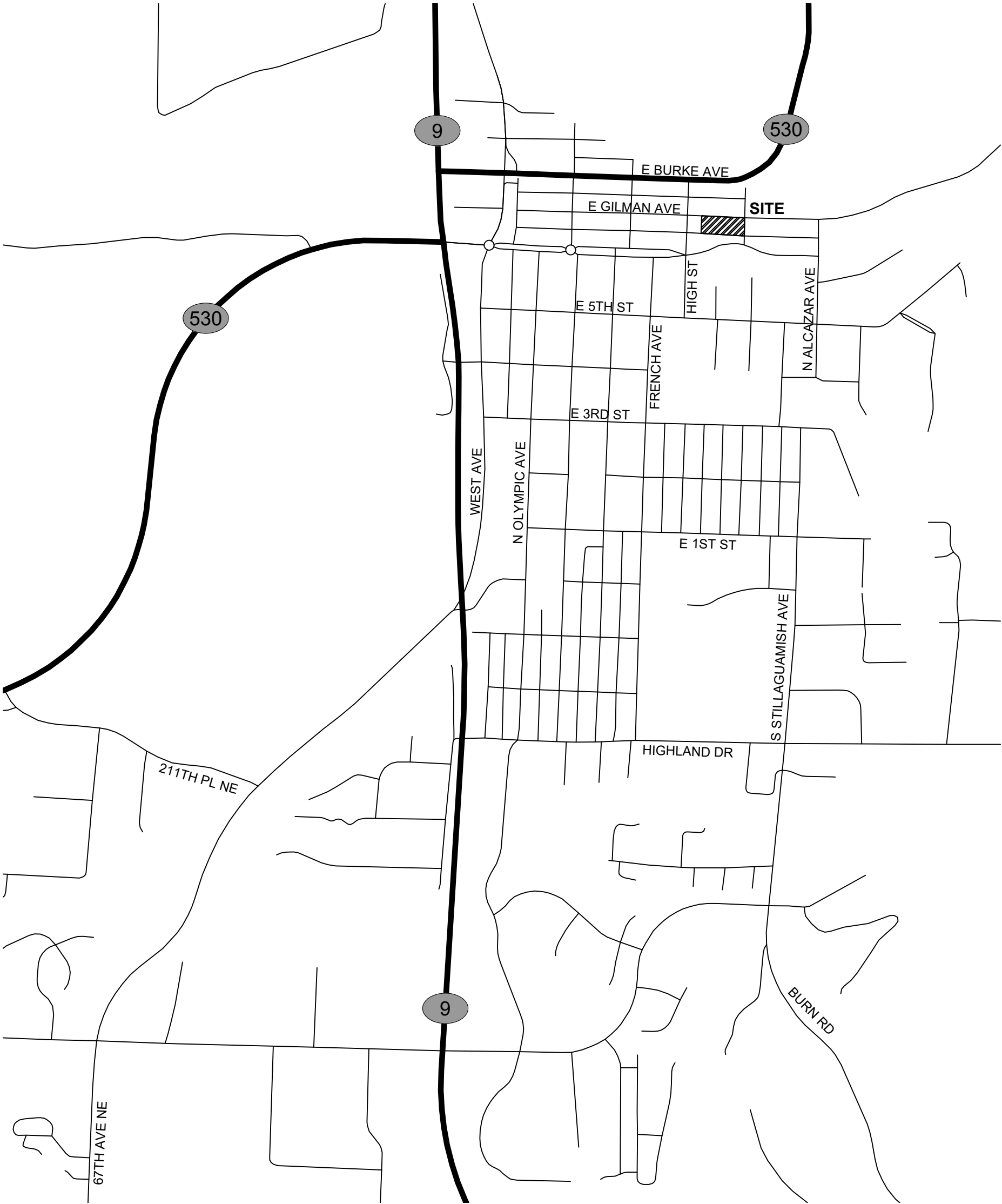
LEGEND



DEVELOPMENT SITE

FIGURE 1
VICINITY MAP

KH #090223060



3. TRIP GENERATION

Trip generation calculations for the Development are based on national statistics contained in the ITE *Trip Generation Manual, 11th Edition (2021)*. The trip generation calculations are based on single-family detached residential units for the proposed units and existing units that will be removed. It is important to note that City staff identified that ADU units are not required to be included in the trip generation calculations. The average trip generation rates for ITE Land Use Code (LUC) 210, Single-Family Detached Housing, were used for the trip generation. The proposed units will have a shared wall, which would meet the ITE definition of a single-family attached residential unit (ITE LUC 215). ITE LUC 215 has a lower trip generation rate than ITE LUC 210. The trip generation calculations are therefore conservative in this report. The trip generation calculations are summarized in **Table 1**.

Table 1: Trip Generation Summary

Land Use	Size	Average Daily Trips (ADTs)	AM Peak-Hour Trips			PM Peak-Hour Trips		
			In	Out	Total	In	Out	Total
ITE LUC 210, Single-Family Detached	12 Units	113	2	6	8	7	4	11
ITE LUC 210, Single-Family Detached (Removed)	-2 Units	-19	0	-1	-1	-1	-1	-2
TOTAL		94	2	5	7	6	3	9

The Development is anticipated to generate approximately 94 new ADTs with approximately 7 new AM peak-hour trips and approximately 9 new PM peak-hour trips. The trip generation calculations are included in **Appendix B**.

4. TRIP DISTRIBUTION

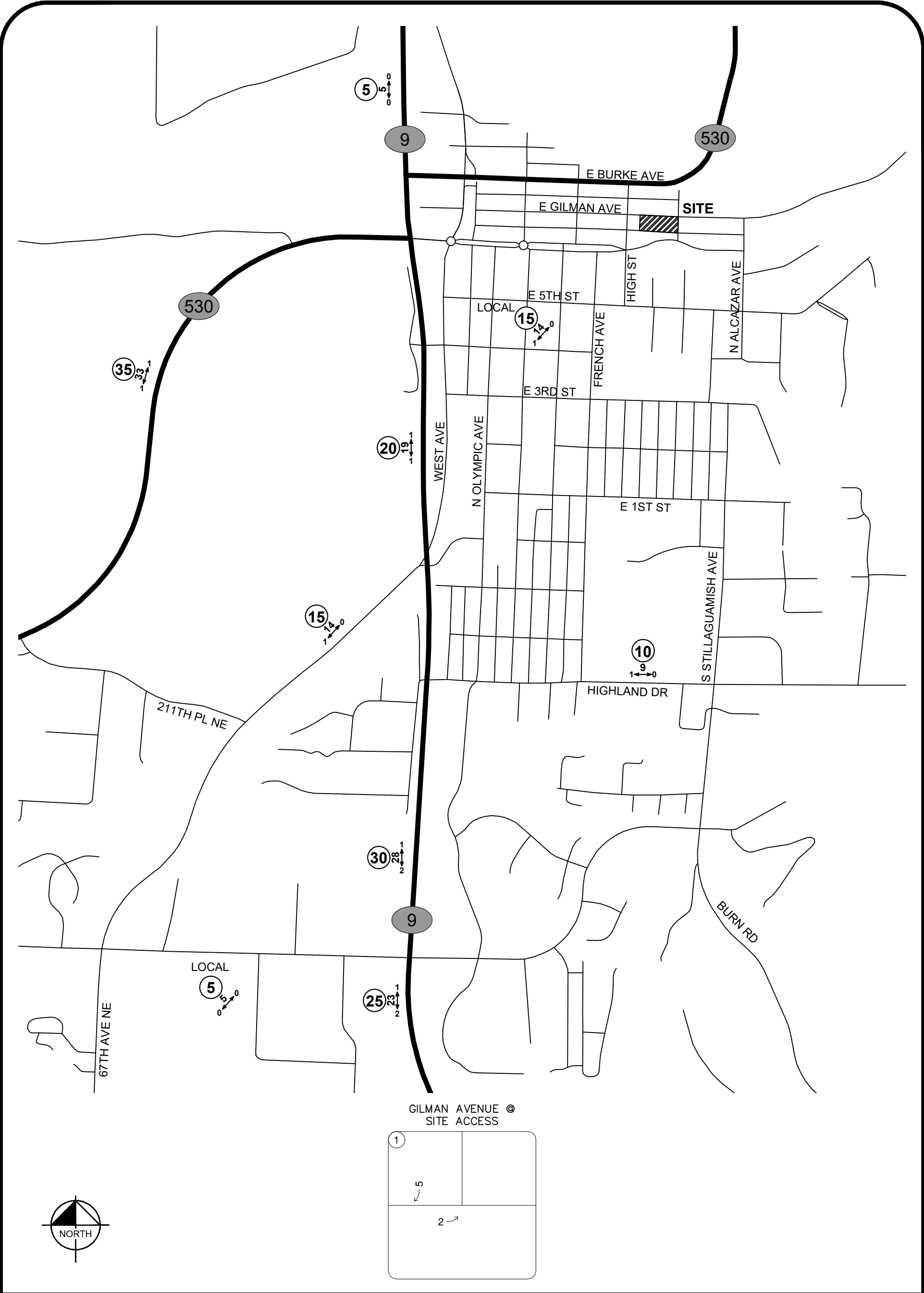
The Development will have access to the alley south of the Development between E Gilman Avenue and E Division Street. The trip distribution is based on approved distributions for similar uses and surrounding land uses. The anticipated trip distribution is:

- 35% along SR-530 west of SR-9
- 25% along SR-9
 - 20% to and from the south
 - 5% to and from the north
- 15% along West Avenue/67th Avenue NE
- 25% to and from the south along local roadways

There are not any intersections that will be impacted by ten PM peak-hour trips generated by the Development. Intersection analysis should therefore not be required for the Development.

The City and County have an interlocal agreement that requires any County Key Intersections impacted with three or more directional peak-hour trips to be identified. An impact of three directional PM peak-hour trips equates to approximately 50% of the trips generated by the Development. The nearest County Key Intersection is Stillaguamish Avenue and E Highland Drive/Tveit Road. It is anticipated that less than 50% of the trips generated by the Development will travel to and from the south along Stillaguamish Avenue. County Key Intersections and roadways are therefore not anticipated to be impacted with three or more directional peak-hour trips. The trip distribution during the AM and PM peak-hours are shown in **Figure 2** and **Figure 3**, respectively.

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RIVERTOWN TOWNHOMES

CITY OF ARLINGTON

LEGEND

AWDT
AM ↔ PEAK

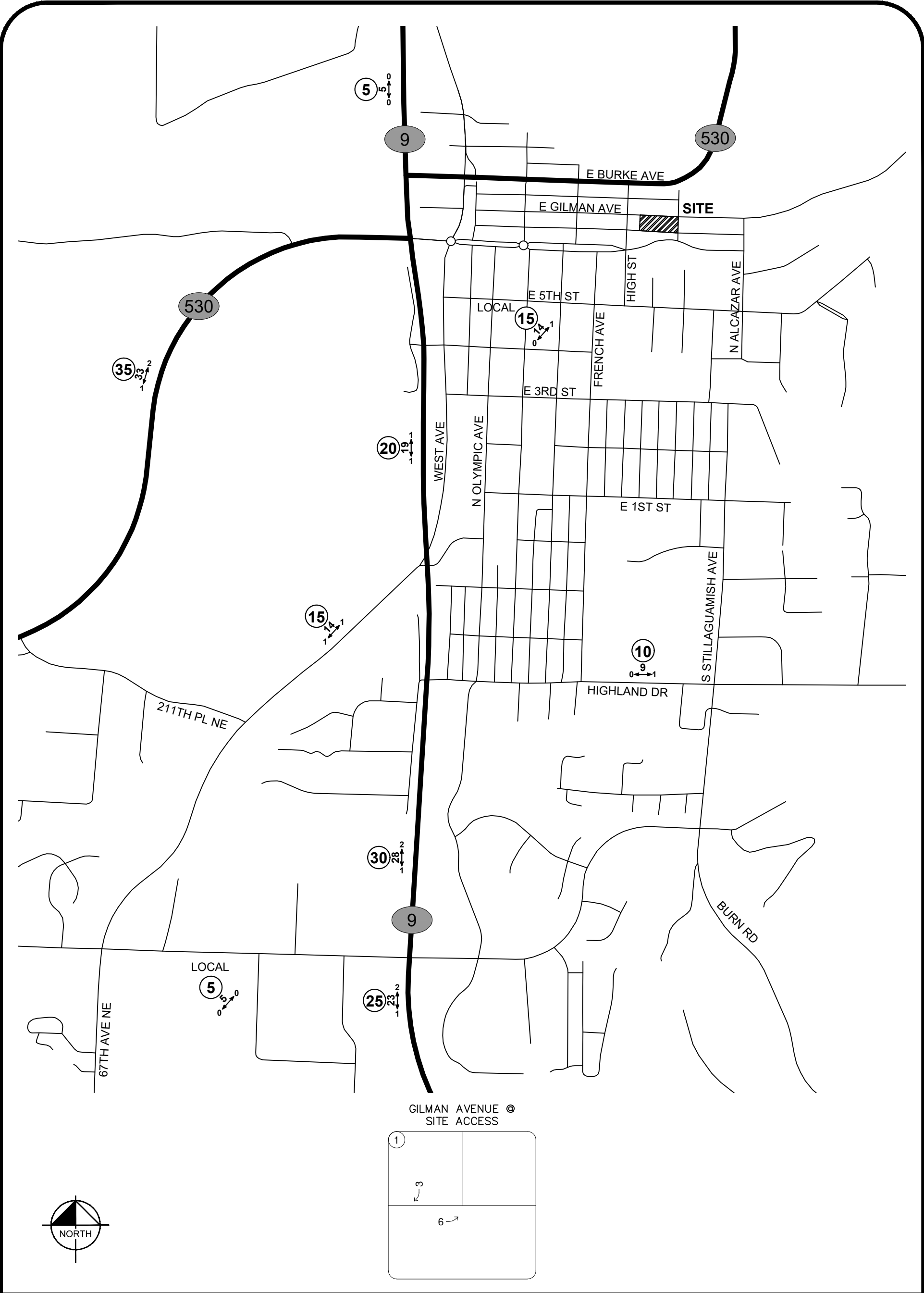


NEW DAILY TRAFFIC
NEW PEAK-HOUR TRIPS

TRIP DISTRIBUTION %

FIGURE 2
DEVELOPMENT
TRIP DISTRIBUTION
AM PEAK-HOUR

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RIVERTOWN TOWNHOMES

CITY OF ARLINGTON

LEGEND

AWDT
PM ← → PEAK



NEW DAILY TRAFFIC
NEW PEAK-HOUR TRIPS

TRIP DISTRIBUTION %

FIGURE 3
DEVELOPMENT
TRIP DISTRIBUTION
PM PEAK-HOUR

5. SITE ACCESS

The Development is proposed to have driveways for each unit along the alley south of the site. It is anticipated that the majority of the trips generated by the Development will travel to and from the west along the alley.

6. TRAFFIC MITIGATION FEES

The City collects traffic mitigation fees based on the number of PM peak-hour trips generated by a development. The City also has interlocal agreements with the County and WSDOT for traffic mitigation fees.

6.1 City of Arlington

The City currently has a traffic mitigation fee of \$3,355 per PM peak-hour trip. The Development is anticipated to generate nine net new PM peak-hour trips with credit for all existing uses. This results in City traffic mitigation fees of \$30,195.00.

It is important to note that City traffic mitigation fees do not vest to the time of application. It is possible that the City fees will increase between the time of this report and when the traffic mitigation fees are required to be paid.

6.2 Snohomish County

The City has an interlocal agreement with the County that provides for mitigation payments for impacts to County improvement projects. County fees are based on impacts to improvement projects included in the *Transportation Needs Report (TNR)*. There are not any County projects on the *TNR* that will be impacted by three directional PM peak-hour trips generated by the Development. County traffic mitigation fees should therefore not be a condition of approval for the Development.

6.3 Washington State Department of Transportation

The WSDOT improvement projects and their associated fees are based on the most recent Exhibit C list, which is part of the interlocal agreement between the County and WSDOT. City developments are required to pay for WSDOT improvement projects on the Exhibit C list impacted with ten or more PM peak-hour trips. The Development is not anticipated to generate ten PM peak-hour trips and therefore WSDOT traffic mitigation fees should not be a condition of approval for the Development.

7. CONCLUSIONS

The Development is proposed to construct 12 single-family detached residential units. The site consists of two parcels, each parcel has an existing single-family residential unit on site that will be removed. The Development will generate approximately 94 new ADTs with approximately 7 new AM peak-hour trips and approximately 9 new PM peak-hour trips. The Development should only have to pay standard traffic mitigation fees to the City, which will total \$30,195.00 based on the current fee. County or WSDOT fees should not be required since the impacts will not reach the County and WSDOT thresholds.

APPENDIX A
SITE PLAN

[illegible]

APPENDIX B

TRIP GENERATION CALCULATIONS

Trip Generation for: Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 7 and 9 AM
(a.k.a.): Weekday AM 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
LAND USES	VARIABLE	ITE LU code	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	% of Trips	In+Out (Total)	In+Out (Total)	% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out	In+Out (Total)	In	Out	In	Out						
Single-Family (Attached Housing)	12 Units	210	0.70	25%	75%	8	0%	0	0	8	0%	0.00	0%	0	0%	0	0	0	8	0	0	2	6						
Single-Family (Detached Housing) (Removed)	-2 Units	210	0.70	25%	75%	-1	0%	0	0	-1	0%	0.00	0%	0	0%	0	0	0	-1	0	0	0	-1						
Total						7		0	0	7		0.00		0		7	0	0	7	0	0	2	5						

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
LAND USES	VARIABLE	ITE LU code	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	% of Trips	In+Out (Total)	In+Out (Total)	% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out	In+Out (Total)	In	Out	In	Out						
Single-Family (Attached Housing)	12 Units	210	0.94	63%	37%	11	0%	0	0	11	0%	0.00	0%	0	0%	0	0	0	11	0	0	0	4						
Single-Family (Detached Housing) (Removed)	-2 Units	210	0.94	63%	37%	-2	0%	0	0	-2	0%	0.00	0%	0	0%	0	0	0	-2	0	0	-1	-1						
Total						9		0	0	9		0.00		0		9	0	0	9	0	0	6	3						

Land Use: 210

Single-Family Detached Housing

Description

A single-family detached housing site includes any single-family detached home on an individual lot. A typical site surveyed is a suburban subdivision.

Specialized Land Use

Data have been submitted for several single-family detached housing developments with homes that are commonly referred to as patio homes. A patio home is a detached housing unit that is located on a small lot with little (or no) front or back yard. In some subdivisions, communal maintenance of outside grounds is provided for the patio homes. The three patio home sites total 299 dwelling units with overall weighted average trip generation rates of 5.35 vehicle trips per dwelling unit for weekday, 0.26 for the AM adjacent street peak hour, and 0.47 for the PM adjacent street peak hour. These patio home rates based on a small sample of sites are lower than those for single-family detached housing (Land Use 210), lower than those for single-family attached housing (Land Use 251), and higher than those for senior adult housing -- single-family (Land Use 251). Further analysis of this housing type will be conducted in a future edition of *Trip Generation Manual*.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (<https://www.ite.org/technical-resources/topics/trip-and-parking-generation/>).

For 30 of the study sites, data on the number of residents and number of household vehicles are available. The overall averages for the 30 sites are 3.6 residents per dwelling unit and 1.5 vehicles per dwelling unit.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Arizona, California, Connecticut, Delaware, Illinois, Indiana, Kentucky, Maryland, Massachusetts, Minnesota, Montana, New Jersey, North Carolina, Ohio, Ontario (CAN), Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Vermont, Virginia, and West Virginia.

Source Numbers

100, 105, 114, 126, 157, 167, 177, 197, 207, 211, 217, 267, 275, 293, 300, 319, 320, 356, 357, 367, 384, 387, 407, 435, 522, 550, 552, 579, 598, 601, 603, 614, 637, 711, 716, 720, 728, 735, 868, 869, 903, 925, 936, 1005, 1007, 1008, 1010, 1033, 1066, 1077, 1078, 1079

Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 174

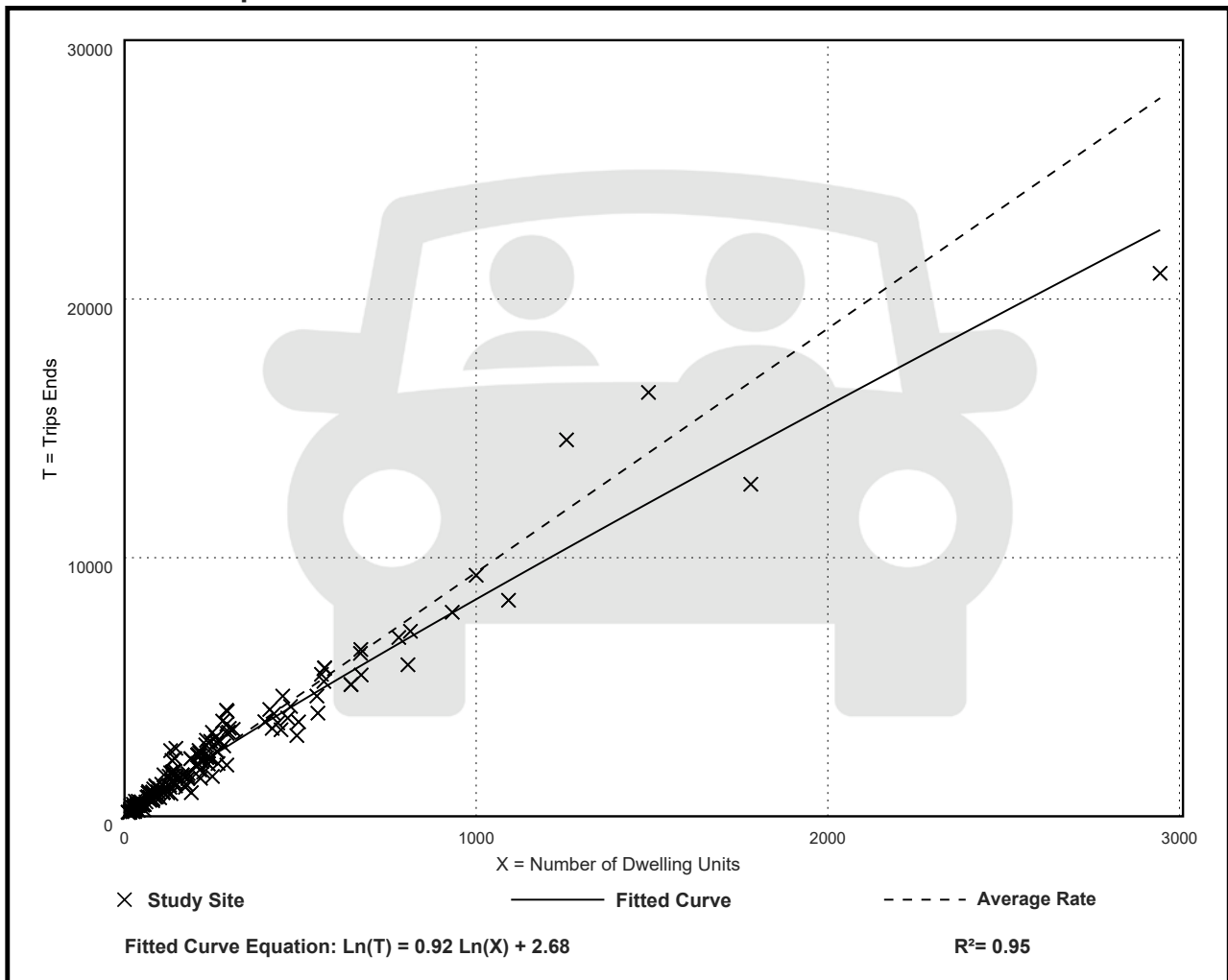
Avg. Num. of Dwelling Units: 246

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.43	4.45 - 22.61	2.13

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 192

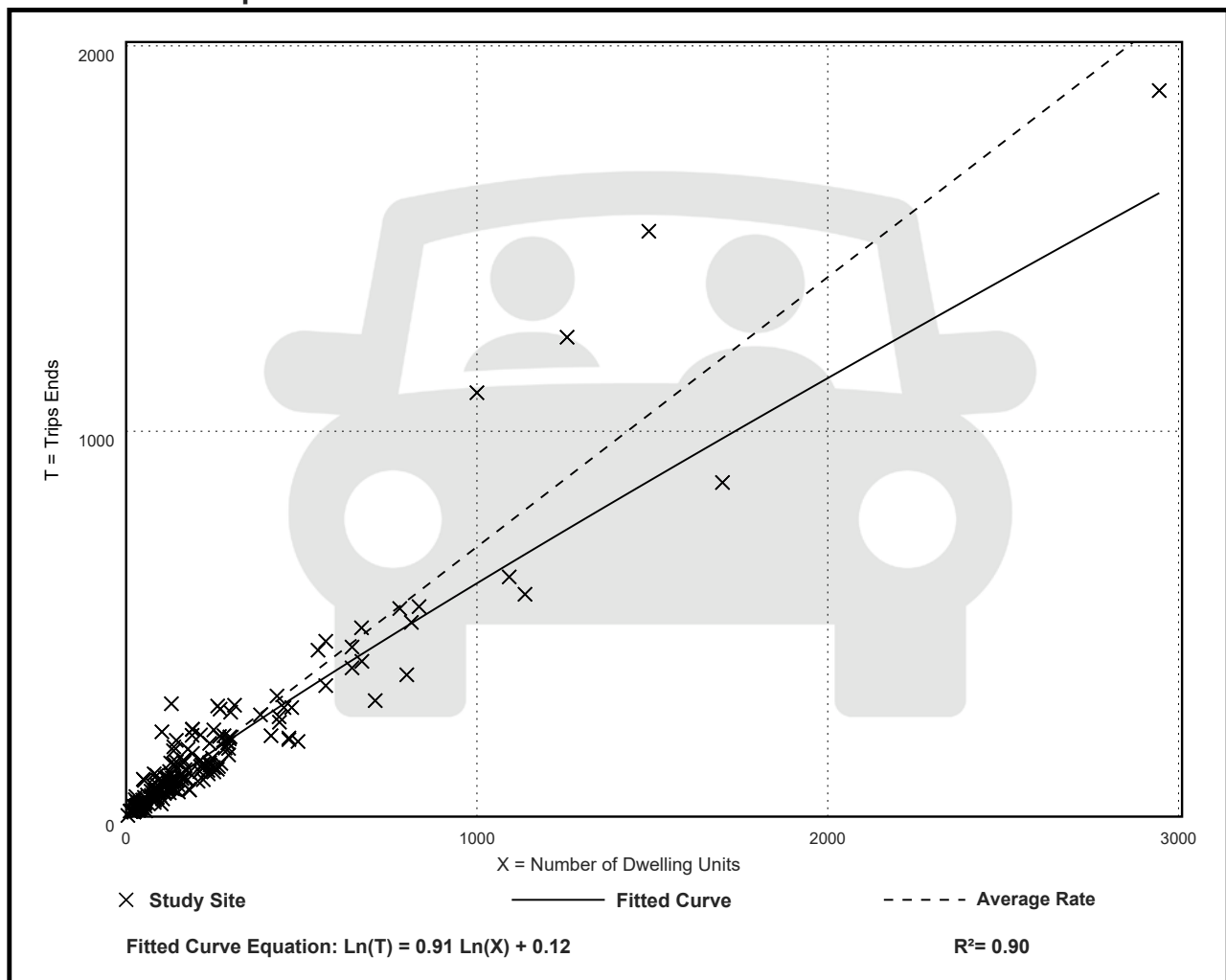
Avg. Num. of Dwelling Units: 226

Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.27 - 2.27	0.24

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 208

Avg. Num. of Dwelling Units: 248

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.94	0.35 - 2.98	0.31

Data Plot and Equation

