



OAK SPRINGS
TRIP GENERATION & DISTRIBUTION ANALYSIS

Thurston County, WA



08/02/2022

Prepared for: Mark Conwell
c/o Heath Burgess
Phillips Burgess Law

August 2022



August 2, 2022

Arthur Saint, PE

Thurston County Public Works

Subject: Trip Generation & Distribution Analysis – Oak Springs

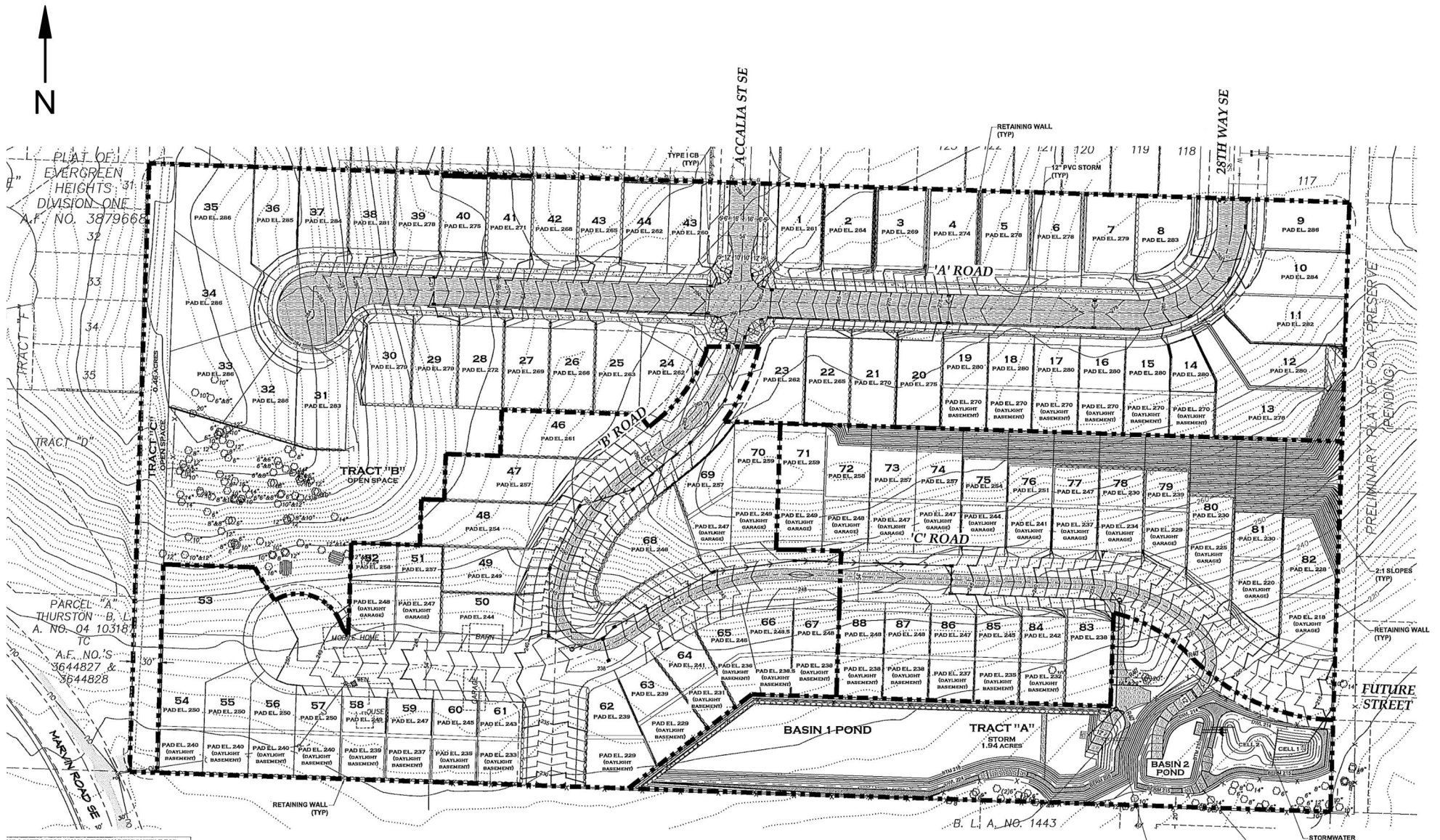
The intent of this assessment is to provide Thurston County with a trip generation summary and site characteristics for the proposed project herein referred to as Oak Springs. A project description is provided below.

PROJECT DESCRIPTION

Oak Springs is a proposed single-family plat consisting of up to 90 new dwelling units in Thurston County. The subject property is situated on an undeveloped, 20-acre parcel (tax parcel: 11825240000) located on the east side of Marvin Road SE. Access to and from the plat would be via extensions and connections to existing local roadways (i.e., no new intersection on Marvin Road). Access to the north would be available by way of Accalia Street SE and 28th Way SE southerly extensions. Additional connectivity to future roadways to the east and south would also be included. A vicinity map of the surrounding roadway network is provided below with the subject parcel outlined in red. A conceptual site plan is presented on the following page which illustrates the overall lot layout and site configuration. It should be noted that the site plan identifies 88 single-family homes, however, the final layout may accommodate up to 90 dwelling units.

Figure 1: Aerial Vicinity





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OAK SPRINGS

SITE PLAN
FIGURE 2

Oak Springs-Trip Generation & Distribution Analysis
PO Box 397 Puyallup, WA 98371 (253) 770 1401 heathtraffic.com

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TRIP GENERATION

The magnitude of the anticipated vehicle trip generation for the proposed project was derived from the Institute of Transportation Engineers (ITE) publication, *Trip Generation Manual*, 11th Edition.

The utilized Land Use Code (LUC) is defined under ITE's *LUC 210 – Single-Family Detached Housing*. Dwelling units were applied as the input variable and ITE equations were used in determining trip ends.

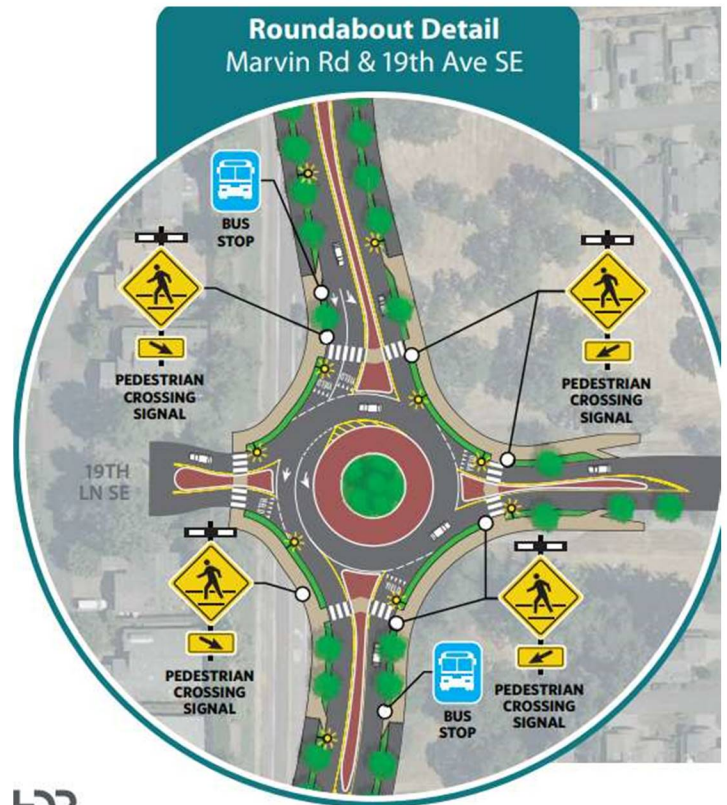
Table 1: Project Trip Generation

Land Use	Size	AWDT	AM Peak-Hour Trips			PM Peak-Hour Trips		
			In	Out	Total	In	Out	Total
Single-Family	Up to 90 units	916	18	50	68	57	33	90

Based on ITE data, the proposed project is estimated to generate approximately 916 daily weekday trips with 68 trips (18 inbound / 50 outbound) occurring in the AM peak hour and 90 trips (57 inbound / 33 outbound) in the PM peak hour. It should be noted that projects that generate 100 or more peak hour trips typically require a full Transportation Impact Analysis (TIA). As this proposed development falls below the thresholds, a trip generation/distribution analysis has been prepared.

PLANNED IMPROVEMENTS

The Marvin Road Concurrency has recently been lifted, indicating funding and improvements along the subject corridor have been secured. Improvements consist of new roundabouts at varying locations, channelization improvements, non-motorist amenities, and more. The projects would increase safety, decrease congestion, and improve overall mobility. The project would initially start with constructing a new roundabout at Marvin Road E & Mullen Road and continue improvements to the north ending at Pacific Avenue. See image to right for an example of a planned roundabout and Marvin Road & 19th Avenue SE.





TRIP ASSIGNMENT AND DISTRIBUTION

Trip distribution to and from the site have been established based on TAZ 991 distribution from Thurston Regional Planning Council. All traffic has been assigned via Marvin Road SE by way of Woodgrove Street SE with an approximate 80/20 north/south split. See Figure 3 on the following page for PM peak hour volume assignment. No connectivity to/from the south and east was assumed for the analysis.

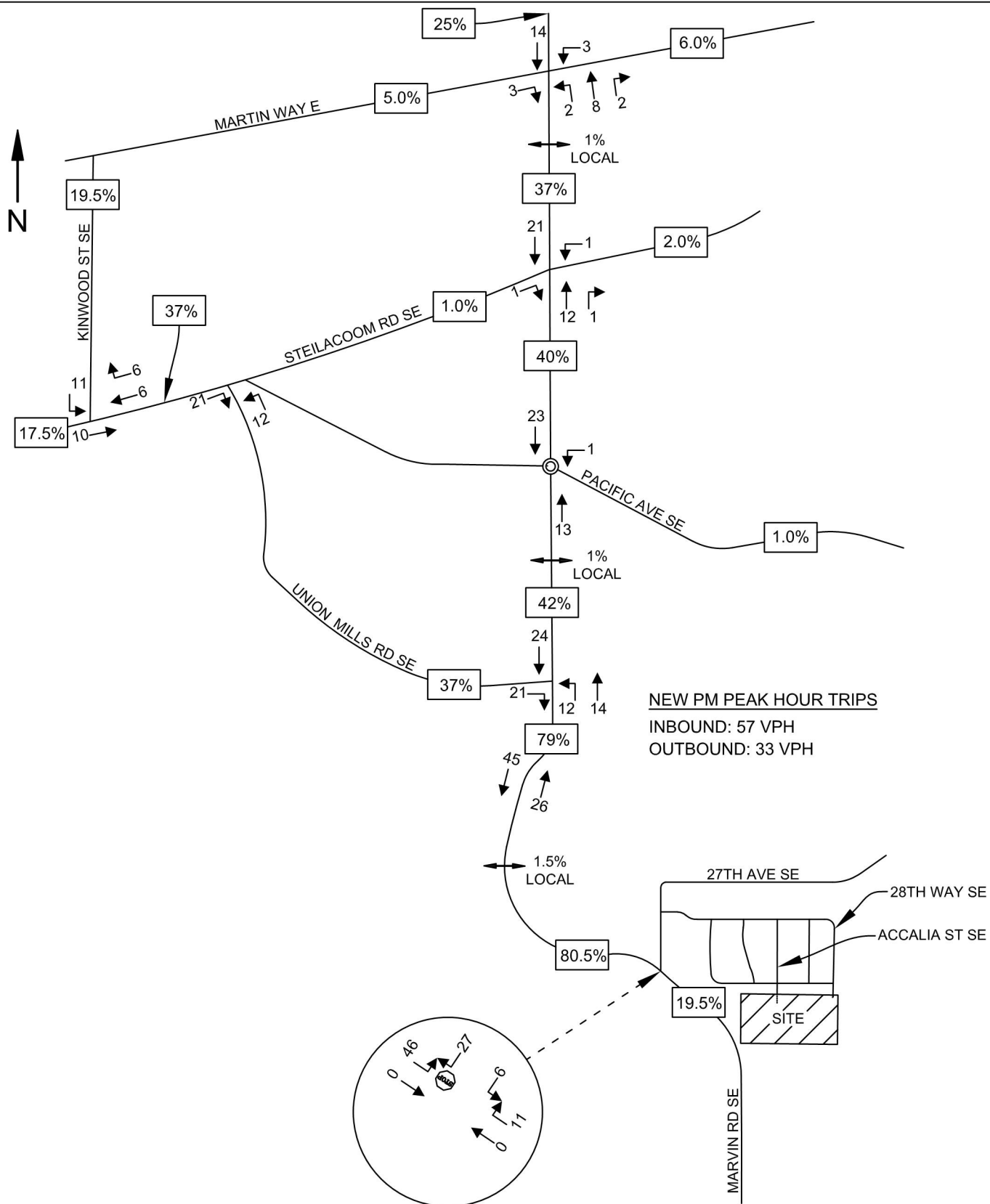
CONCLUSION

Oak Springs is a proposed development consisting of up to 90 single-family dwelling units. A site plan illustrating the ingress/egress points is provided in Figure 2. Based on the unit count and applying ITE data, the project is estimated to generate 916 average weekday daily trips with 68 trips occurring in the AM peak hour and 90 trip in the PM peak hour. The projected trip values fall under the County's thresholds for a full TIA and therefore this analysis includes trip generation and distribution evaluation.

Trip distribution, per the subject parcel's location, was based on TAZ 991. Figure 3 illustrates the PM peak hour volumes with travel assignments at various outlying intersections. As part of the Marvin Road Corridor Intersection Improvements, several County projects are identified and planned for construction. With no Marvin Road concurrency, Oak Springs would be subject to Traffic Impact Fees (TIF).

Please feel free to contact me should you require further information.

Aaron Van Aken, P.E. PTOE



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 TRAFFIC AND CIVIL ENGINEERING

OAK SPRINGS
 PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT
 FIGURE 3

Single-Family Detached Housing

(210)

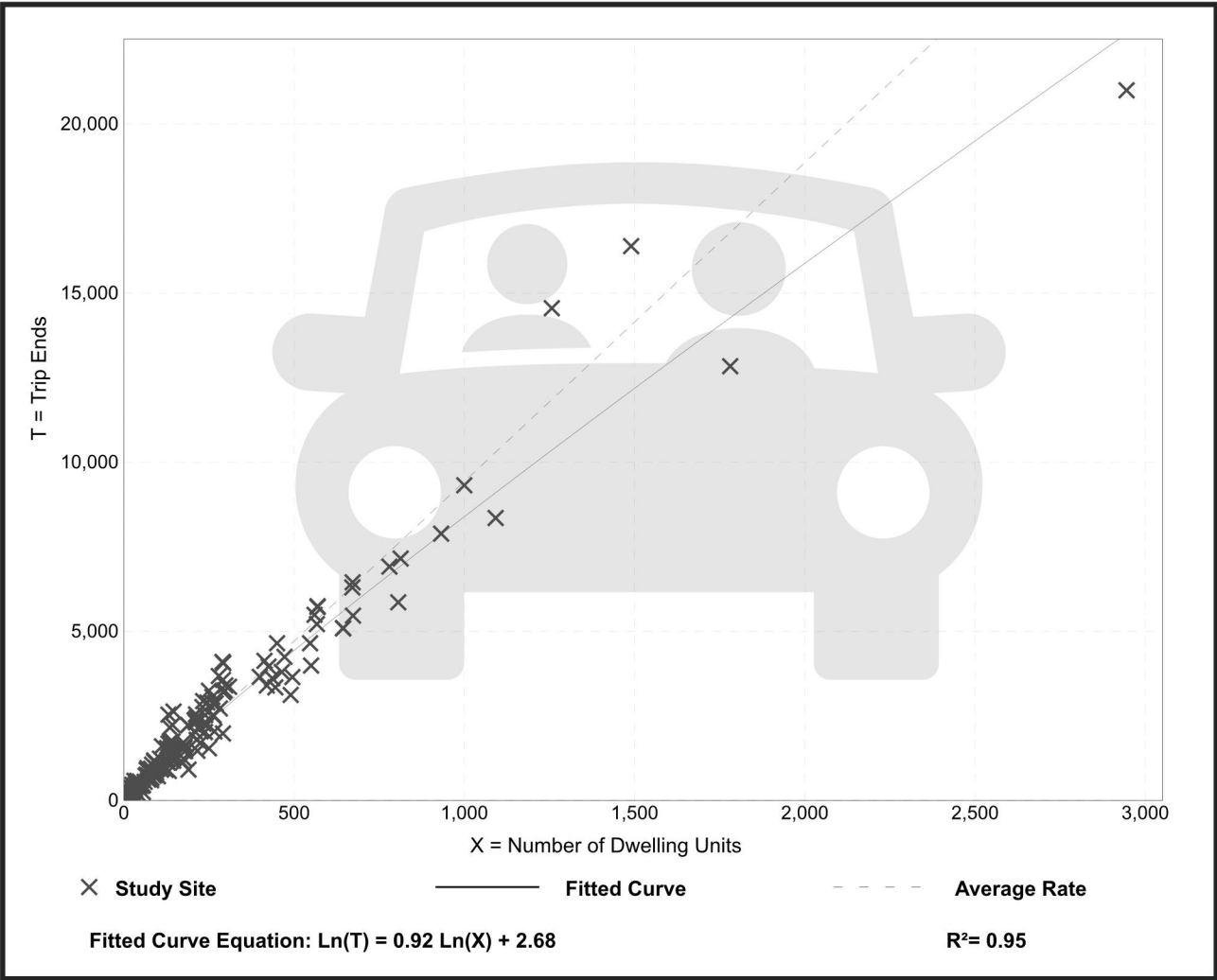
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

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

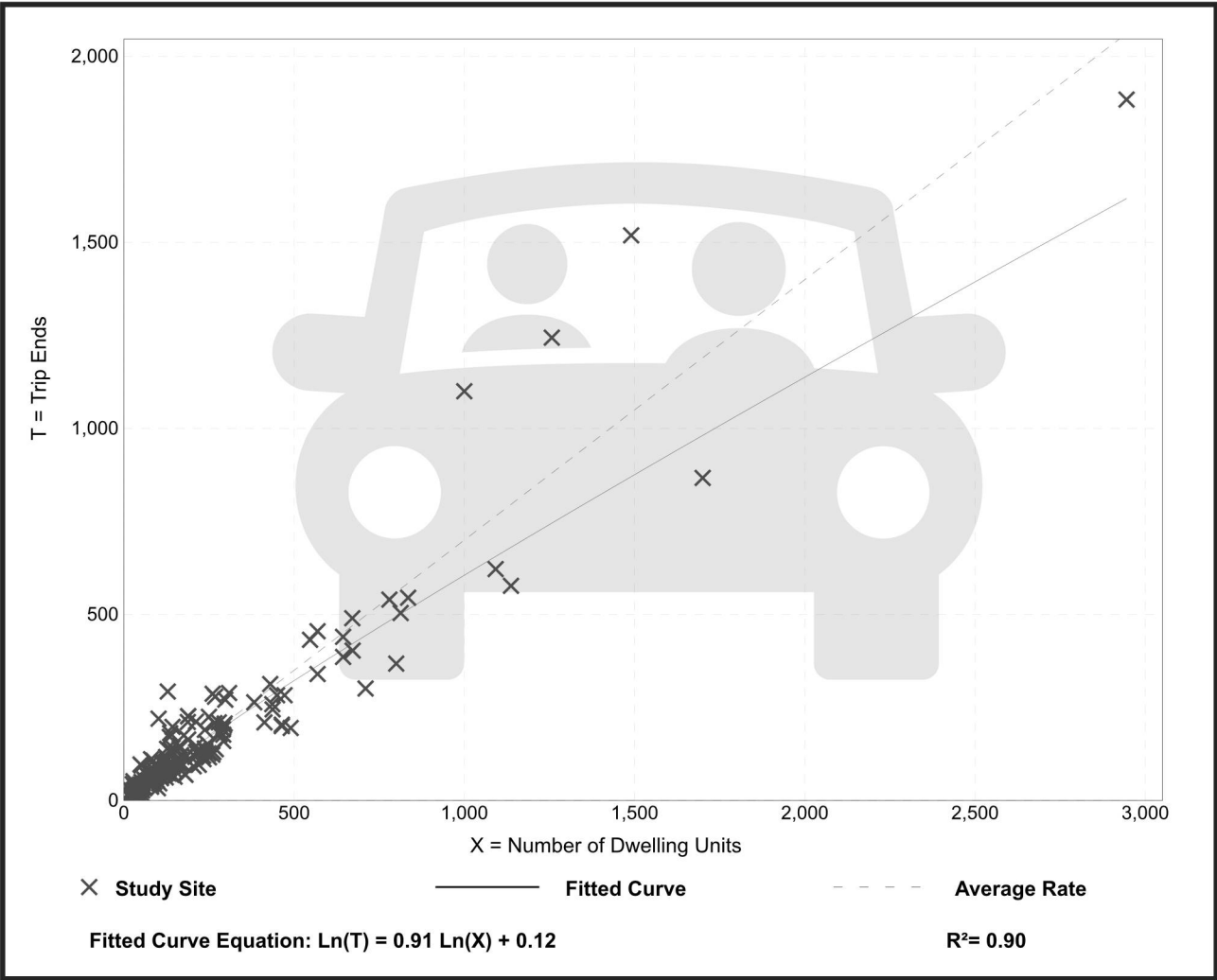
Directional Distribution:

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

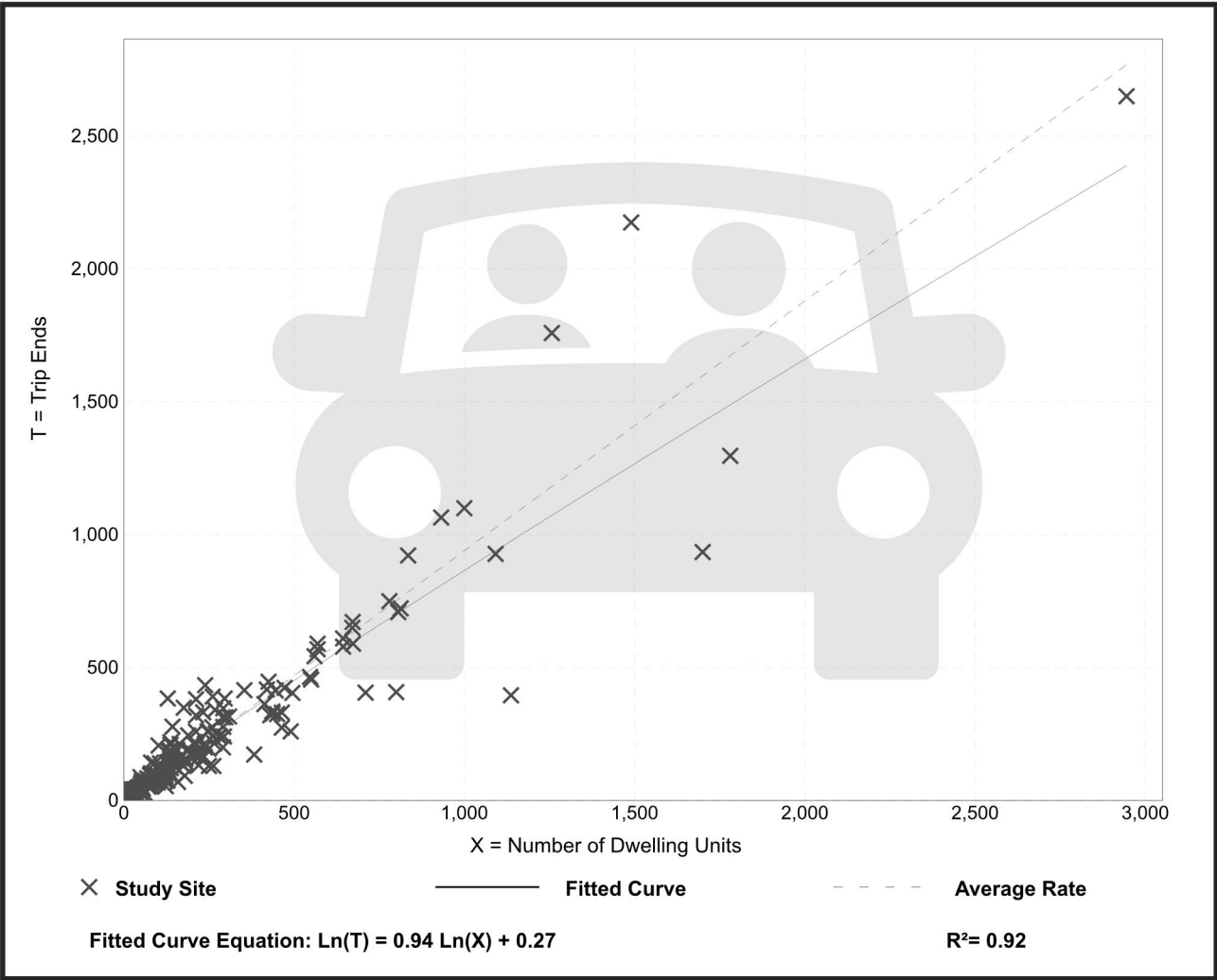
Directional Distribution:

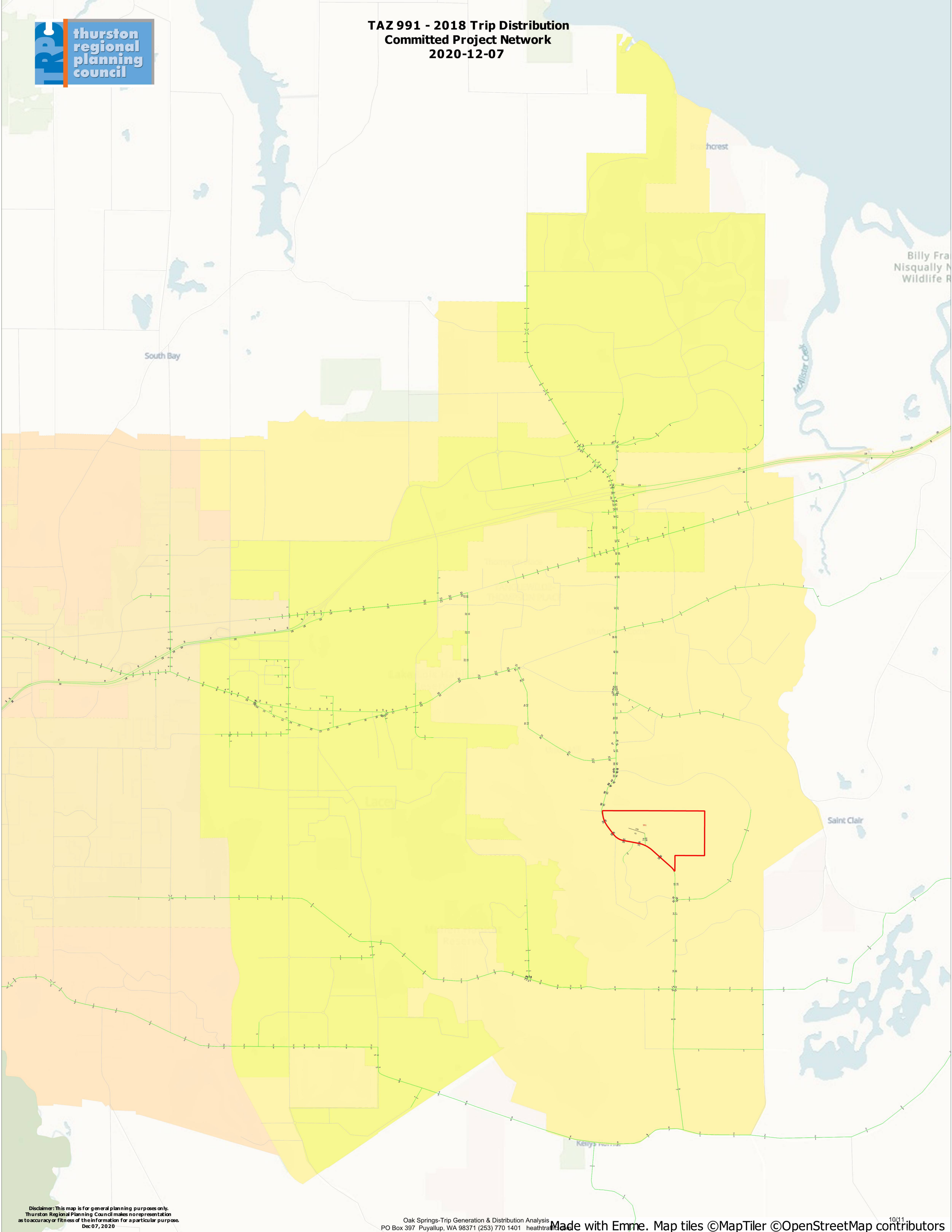
63% entering, 37% exiting

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





PRELIMINARY PLAT OF OAK SPRINGS

SITE DATA

ORIGINAL PARCEL NUMBER: 11825240000
TOTAL AREA: 20.02 ACRES
ZONING: LD3-6/Low-Density Residential
TOTAL LOTS: 90
DENSITY: 4.50 D.U. per acre (90/20.02)
OPEN SPACE: 3.60 acres (18%)

USE OF TRACTS
TRACT "A"
TRACT "B"
TRACT "C"

STORM DRAINAGE/ OAK HABITAT/ TREE TRACT/ ACTIVE RECREATION OPEN SPACE

SMALLEST LOT SIZE: 5,000 S.F.
AVERAGE LOT SIZE: 6,106 S.F.
LENGTH OF PUBLIC ROADS: 2,923 L.F.
AREA OF PUBLIC ROADS: 3.81 ACRES
WATER: CITY OF LACEY
SEWER: CITY OF LACEY

LEGAL DESCRIPTION

PARCEL "A"
THE SOUTH HALF OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 25, TOWNSHIP 18 NORTH, RANGE 1 WEST, W.M.; EXCEPTING THEREFROM THAT PORTION, IF ANY, LYING IN RIGHT OF WAY OF COUNTY ROAD KNOWN AS MARVIN ROAD, IN THURSTON COUNTY, WASHINGTON.

PARCEL "B"
AN EASEMENT FOR INGRESS, EGRESS AND UTILITIES OVER, UNDER UPON AND THROUGH A 40 FOOT WIDE PORTION OF LAND AS DESCRIBED IN INSTRUMENT RECORDED DECEMBER 3, 2007 UNDER RECORDING NO. 3580798 IN THURSTON COUNTY, WASHINGTON.

PROJECT PROPONENT

CONWELL INVESTMENTS, LLC
2415 CARPENTER RD SE
LACEY, WA 98503
(360) 438-0525

SHEET INDEX

1. PRELIMINARY SITE PLAN / T.E.S.C. PLAN
2. PRELIMINARY T.E.S.C. DETAILS
3. PRELIMINARY GRADING & DRAINAGE PLAN
4. PRELIMINARY GRADING & DRAINAGE DETAILS
5. PRELIMINARY UTILITY PLAN

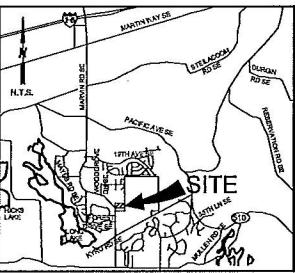
CITY OF LACEY

VERTICAL DATUM

THURSTON COUNTY
PHOTOGRAMMETRY
NOVEMBER 2009

MERIDIAN HORIZONTAL DATUM

50 25 0 25 50 100
SCALE: 1" = 50'



VICINITY MAP N.T.S.



NOTE: THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 1-800-424-5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

THIS DRAWING DOES NOT REPRESENT A RECORD DOCUMENT, UNLESS CERTIFIED BY HATTON GODAT PANTIER.

ANY ALTERATIONS TO THE DESIGN SHOWN HEREON MUST BE REVIEWED AND APPROVED BY HATTON GODAT PANTIER.

TOPOGRAPHIC NOTE:
THE EXISTING TOPOGRAPHIC DATA SHOWN ON THESE DRAWINGS HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, HGP CANNOT ENSURE ITS ACCURACY AND THIS IS NOT RESPONSIBLE FOR THE ACCURACY OF THAT INFORMATION OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THESE DRAWINGS AS A RESULT.

LEGEND

	EX. POWER POLE		EX. GAS LINE		EX. SEWER CLEANOUT		NEW PEDESTRIAN STREET LIGHT
	EX. POWER VAULT		EX. POWER JUNCTION BOX		EX. SEWER MANHOLE		NEW HIGH MAST W/ PED SCALE LIGHT
	EX. POWER TRANSFORMER		EX. CATCHBASIN TYPE 1		EX. SEWER LINE		NEW LIGHTING J BOX
	EX. POWER PEDESTAL		EX. STORM MAIN LINE		EX. CONCRETE		NEW TRANSFORMER & SERVICE DISCONNECT
	EX. PVC RISER		EX. CULVERT		EX. EDGE OF PAVEMENT		NEW WATERMETER
	EX. OVERHEAD POWER		EX. SIGNS		EX. MAJOR CONTOUR		NEW HYDRANT
	EX. UNDER GROUND POWER		EX. FENCE		EX. MINOR CONTOUR		NEW VALVE
	EX. TELEPHONE PEDESTAL		EX. WATERMETER		FINISH MAJOR CONTOUR		NEW BLIND FLANGE
	EX. TELEPHONE MANHOLE		EX. HYDRANT		FINISH MINOR CONTOUR		NEW BLOCKING
	EX. CABLE PEDESTAL		EX. VALVE		NEW ROCK WALL		NEW WATERMAIN
	EX. TELEPHONE LINE		EX. BLOWOFF				NEW CATCHBASIN TYPE 1
	EX. GAS VALVE		EX. WATER LINE				NEW CATCHBASIN TYPE 2-48
							NEW STORM CATCHBASIN W/ SOLID LID
							NEW STORM MAIN LINE
							NEW LOT DRAINAGE LINE
							NEW SEWER CLEANOUT
							NEW SEWER MANHOLE
							NEW GRAVITY SEWER LINE
							NEW PIGG LAUNCH PORT
							NEW SEWER FORCEMAIN

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OLYMPIA, WA 98506
TEL: 360.943.1599 FAX: 360.357.6299
hatterpantier.com

REVISIONS: DATE: 04/09/2014
CITY COMMENTS: 04/09/2014

OAK SPRINGS
PRELIMINARY PLAT
PRELIMINARY SITE PLAN /
T.E.S.C. PLAN

AGENCY NO. 1 OF 5
SHEET: 13-046
INDEX: 13-046-pre-con.dwg
JOB: 13-046