

## Technical Memo

**To:** City of Tumwater Public Works

**From:** Ryan Shea, PTP, Senior Transportation Planner

**Date:** June 10, 2025

**Project:** Tumwater Townhomes

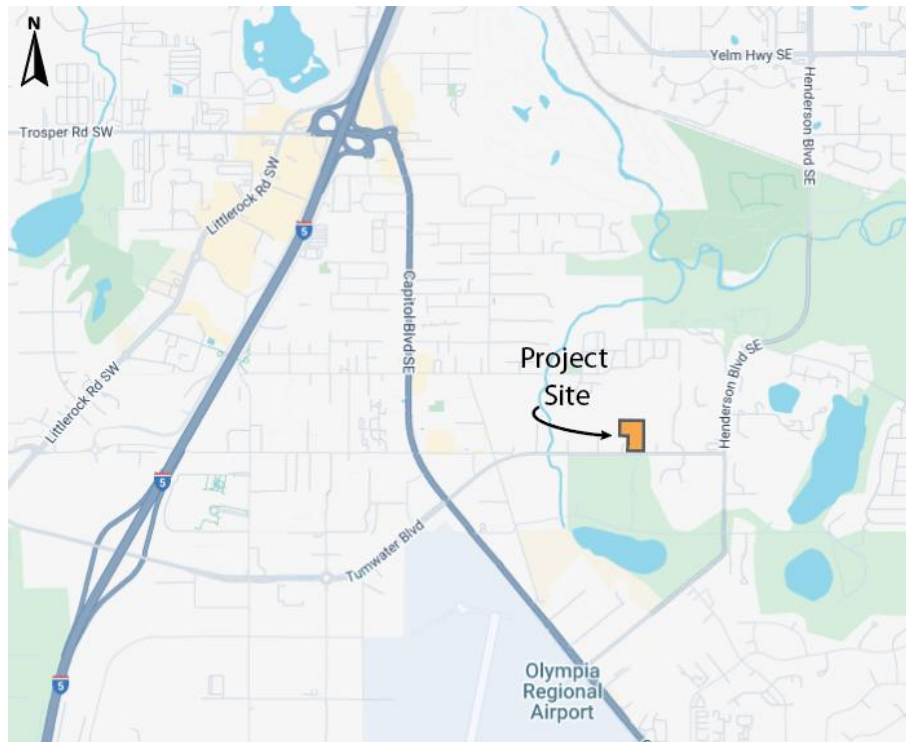
**Subject:** Traffic Scoping Analysis

---

### Introduction:

The Tumwater Townhomes project is being proposed for construction located at 715 Dennis St in Tumwater, Washington. This Traffic Scoping Analysis estimates the trip generation, distribution, and assignment for the proposed development. **Figure 1** illustrates the site vicinity and the transportation network serving the project area.

Figure 1. Site Vicinity



## Proposed Development

The proposed Tumwater Townhomes project will construct 24 townhomes on an undeveloped lot located at 715 Dennis St in Tumwater, WA. The total project site area is approximately 6 acres. Site access is expected to be provided by one full access driveway on Tumwater Boulevard.

The project is anticipated to open in 2025. The preliminary site plan is attached.

## Project Traffic Characteristics

The two project-related characteristics having the most effect on area traffic conditions are peak hour trip generation and the directional distribution of traffic volumes on the surrounding roadway network.

### Site-Generated Traffic Volumes

Vehicle trip generation was calculated using the trip generation rates contained in the 11<sup>th</sup> edition of the Trip Generation Manual by the *Institute of Transportation Engineers (ITE)*. The Single-Family Attached Housing (land use code 215) land use category best matches the proposed development and has been used to calculate the trip generation. For this analysis, the “fitted-curve” equation was used to estimate trips in preference to using the average trip rate as this approach was recommended by ITE.

The trip generation rates used for the Single-Family Attached Housing land use category are shown in **Table 1**.

**Table 1. ITE Trip Generation Rates - Single-Family Attached Housing**

Peak Period	Unit	Trip Rate	Enter %	Exit %
AM peak hour of Adjacent Street	Dwelling Units	0.28	31%	69%
PM peak hour of Adjacent Street	Dwelling Units	0.44	57%	43%
Daily	Dwelling Units	5.52	50%	50%

1. Fitted Curve Equation was used

The total trip generation expected from this project is calculated by applying the unit measure for the land use category to the appropriate trip generation rate. The trip generation for the proposed Tumwater Townhomes project is shown in **Table 2** below.

**Table 2. Project Trip Generation**

Peak Period	Size	New-to-Network Trips		
		Enter	Exit	Total
AM peak hour of Adjacent Street	24.0	2	5	7
PM peak hour of Adjacent Street	24.0	6	4	10
Daily	24.0	66	66	132

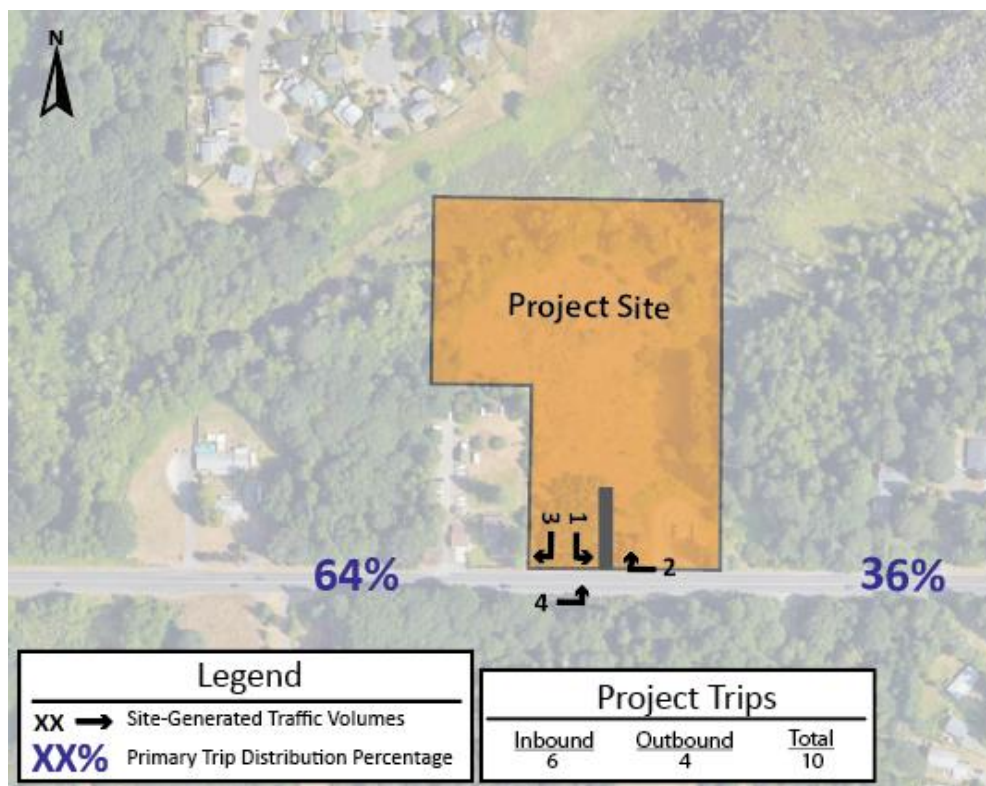
## Site Traffic Distribution and Assignment

We have prepared a trip distribution and assignment for the proposed development. The directional distribution of traffic to and from the proposed project was estimated using the regional transportation model. The Thurston Regional Planning Council (TRPC) created the area-wide transportation model with cooperation from local jurisdictions within the county. The model, developed using the Emme/4 software package, has been calibrated to represent the existing vehicle travel patterns throughout the entire county.

The Tumwater Townhomes project is located within TAZ 231 of the regional transportation model. A distribution analysis was performed for this project by conducting a “Select Zone Analysis” for this TAZ. This feature of the Emme/4 software package allows all of the traffic into and out of a particular zone to be isolated and shown separately from the rest of the traffic on the network. This graphically shows the percentage of vehicles currently using each of the available routes into and out of the area (Tumwater Boulevard, Henderson Blvd, Capitol Blvd, etc.). From this information, regional distribution percentages were calculated for future traffic traveling to and from the Tumwater Townhomes project.

The resultant traffic distribution percentages and traffic assignments are shown in **Figure 2** for the PM peak hour. A copy of the Emme/4 select zone analysis model plot is attached. Given the size of the project, every 10% of distribution equates to a single PM peak hour project trip. Based on the TRPC distribution plot, 9% of the project traffic is expected to travel through the Tumwater Boulevard interchange, resulting in one project trip.

**Figure 2. PM Peak Hour Site Generated Traffic Volumes**





Thank you for reviewing the enclosed materials. Due to the low volume of PM peak hour trips associated with the proposed Tumwater Townhomes project, it is not anticipated that a Traffic Impact Analysis will be required.

If you have any questions or comments about the enclosed information, please contact me at (360) 352-1465, Ext. 124.

Respectfully,  
SCJ Alliance

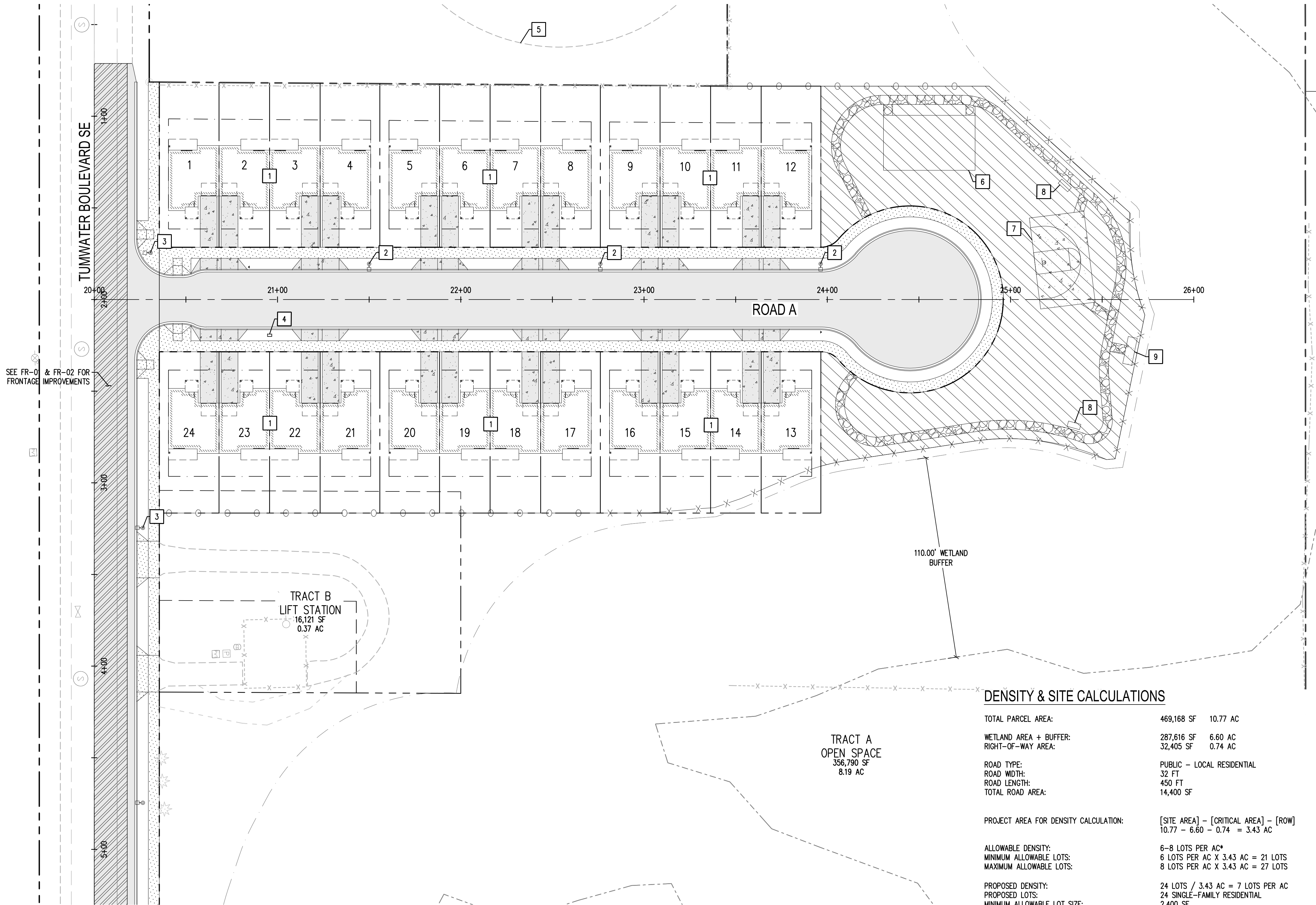
A handwritten signature in blue ink, appearing to read "Ryan Shea".

Ryan Shea, PTP  
Senior Transportation Planner

Enclosures: Preliminary Site Plan  
TRPC Select Zone Plot

N:\Projects\5275 JSA Civil, LLC\24-000722 Tumwater Townhomes\Transportation Planning\04 - Dels\Reports\2024-1023 Tumwater Townhomes Traffic Scoping.docx

Nov 21, 2024, 8:00:05pm - User: whitney  
N:\1 - PROJECTS\100 TODD HANSEN\100.006 TUMWATER BLVD - MULTIFAMILY\ACAD\100.006 SP-01.DWG



N

0 30 60  
SCALE IN FEET

#### LEGEND

- PROPERTY LINE
- LOT LINE
- SETBACK LINE
- EASEMENT LINE
- EXISTING CHANNELIZATION
- EXISTING WETLAND BOUNDARY
- 110' WETLAND BUFFER
- WETLAND FENCING  
PLACE WETLAND BUFFER SIGN EVERY 50'
- LOT FENCING
- PROPOSED STREET LIGHT
- PROPOSED BUILDING
- CEMENT CONCRETE CURB & GUTTER
- CEMENT CONCRETE SIDEWALK
- CEMENT CONCRETE DRIVEWAYS
- ASPHALT PAVEMENT
- GRIND & OVERLAY
- CEMENT CONCRETE AS NOTED
- ACTIVE OPEN SPACE  
SEE LANDSCAPE PLANS FOR USE OF AREA

#### CONSTRUCTION NOTES

- PROPOSED 4 UNIT, 2-STORY TOWNHOME BUILDING
- INTERNAL STREET LIGHTING  
LIGHTS SHALL BE AT A MOUNTING HEIGHT OF 25' WITH AN ARM LENGTH OF 6'. MAXIMUM SPACING 120 FEET ON CENTER
- TUMWATER BLVD STREET LIGHTING  
LIGHTS SHALL BE AT A MOUNTING HEIGHT OF 35' WITH AN ARM LENGTH OF 8'. MAXIMUM SPACING 150 FEET ON CENTER
- MAILBOX CLUSTER
- 100' WELLHEAD PROTECTION RADIUS
- PLAYGROUND, CONCRETE PERIMETER WITH WOOD CHIP BASE
- HALF COURT BASKETBALL
- BENCH
- WETLAND VIEWING PLATFORM

#### PROJECT INFORMATION

APPLICANT	TENINO LAND COMPANY, TODD HANSEN
ENGINEER	JSA CIVIL, WHITNEY DUNLAP
PARCEL NUMBER	79300001100 & 79300001200
PROPOSED USE	SINGLE FAMILY RESIDENTIAL - TOWNHOMES
SIZE OF EACH UNIT	± 1,452 SF
FLOOR AREA RATIO	RANGE FROM 0.50 TO 0.60
BUILDING HEIGHT	± 30'
NUMBER OF PARKING SPACES	1 GARAGE SPACE + 1 DRIVEWAY SPACE PER LOT = 48 PARKING SPACES FOR DEVELOPMENT
IMPERVIOUS SURFACE	1.56 AC (20%)
ZONING	SINGLE FAMILY MEDIUM DENSITY (SFM & SFM2) WITH AIRPORT OVERLAY
WATER	CITY OF TUMWATER
SEWER	CITY OF TUMWATER
SETBACKS	FRONT 10' SIDE 5' (0' FOR CONNECTED UNITS) REAR 20'

#### DENSITY & SITE CALCULATIONS

TOTAL PARCEL AREA:	469,168 SF	10.77 AC
WETLAND AREA + BUFFER:	287,616 SF	6.60 AC
RIGHT-OF-WAY AREA:	32,405 SF	0.74 AC
ROAD TYPE:	PUBLIC - LOCAL RESIDENTIAL	
ROAD WIDTH:	32 FT	
ROAD LENGTH:	450 FT	
TOTAL ROAD AREA:	14,400 SF	
PROJECT AREA FOR DENSITY CALCULATION:	[SITE AREA] - [CRITICAL AREA] - [ROW] 10.77 - 6.60 - 0.74 = 3.43 AC	
ALLOWABLE DENSITY:	6-8 LOTS PER AC*	
MINIMUM ALLOWABLE LOTS:	6 LOTS PER AC X 3.43 AC = 21 LOTS	
MAXIMUM ALLOWABLE LOTS:	8 LOTS PER AC X 3.43 AC = 27 LOTS	
PROPOSED DENSITY:	24 LOTS / 3.43 AC = 7 LOTS PER AC	
PROPOSED LOTS:	24 SINGLE-FAMILY RESIDENTIAL	
MINIMUM ALLOWABLE LOT SIZE:	2,400 SF	
MINIMUM LOT SIZE PROVIDED:	2,426 SF	
AVERAGE LOT SIZE PROVIDED:	2,778 SF	
OPEN SPACE REQUIRED (15% DEVELOPABLE AREA)	3.43 AC X 0.15 = 0.51 AC	
MIN ACTIVE OPEN SPACE (50% OF REQUIRED)	0.51 AC X 0.50 = 0.255 AC	
ACTIVE OPEN SPACE PROVIDED:	22,693 SF	
MIN PASSIVE OPEN SPACE (50% OF REQUIRED):	0.51 AC X 0.50 = 0.255 AC	
PROVIDED PASSIVE OPEN SPACE:	334,097 SF	
TOTAL OPEN SPACE PROVIDED:	356,790 SF	

\*MAXIMUM DENSITY CAN BE INCREASED TO 9 WITH USE OF DEVELOPMENT CREDITS

#### REVISIONS

PROJECT NO.	100.006
DRAWN	S. JANIK
CHECKED	W. DUNLAP
SUBMITTAL DATES	
OTB DATE	

**JSA CIVIL**  
Engineering | Planning | Management  
111 TUMWATER BLVD SE, SUITE B203  
TUMWATER, WA 98512

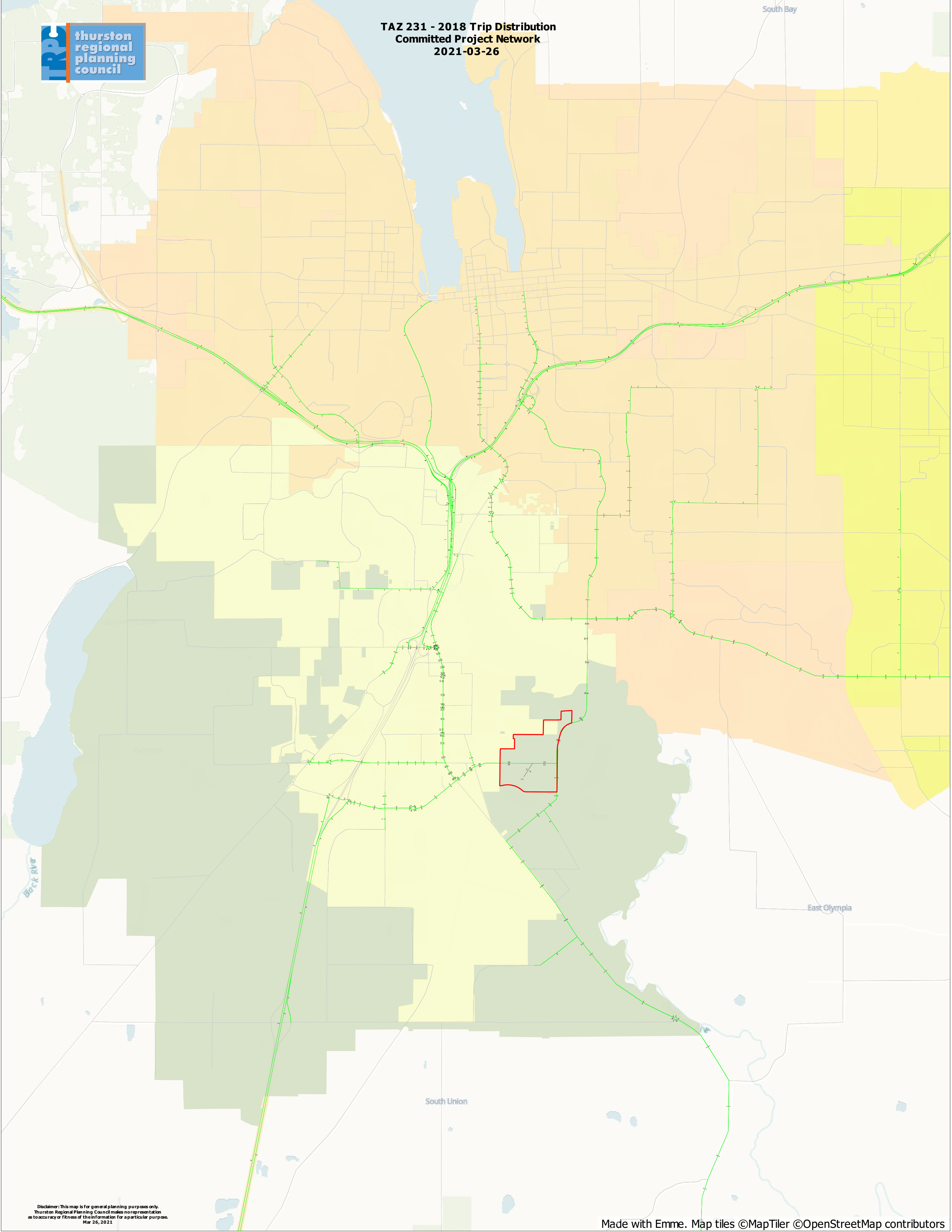


TUMWATER BOULEVARD TOWNHOMES  
SINGLE-FAMILY RESIDENTIAL  
715 DENNIS ST SE  
TUMWATER, 98501

TENINO LAND COMPANY  
17348 MARCH ST SW  
TENINO, WA 98589

SHEET TITLE  
PRELIMINARY SITE PLAN

SHEET  
SP-01



# Land Use: 215

## Single-Family Attached Housing

---

### Description

Single-family attached housing includes any single-family housing unit that shares a wall with an adjoining dwelling unit, whether the walls are for living space, a vehicle garage, or storage space.

### Additional Data

The database for this land use includes duplexes (defined as a single structure with two distinct dwelling units, typically joined side-by-side and each with at least one outside entrance) and townhouses/rowhouses (defined as a single structure with three or more distinct dwelling units, joined side-by-side in a row and each with an outside entrance).

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/>).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in British Columbia (CAN), California, Georgia, Illinois, Maryland, Massachusetts, Minnesota, New Jersey, Ontario (CAN), Oregon, Pennsylvania, South Dakota, Utah, Virginia, and Wisconsin.

### Source Numbers

168, 204, 211, 237, 305, 306, 319, 321, 357, 390, 418, 525, 571, 583, 638, 735, 868, 869, 870, 896, 912, 959, 1009, 1046, 1056, 1058, 1077

# Single-Family Attached Housing (215)

Vehicle Trip Ends vs: Dwelling Units  
On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 22

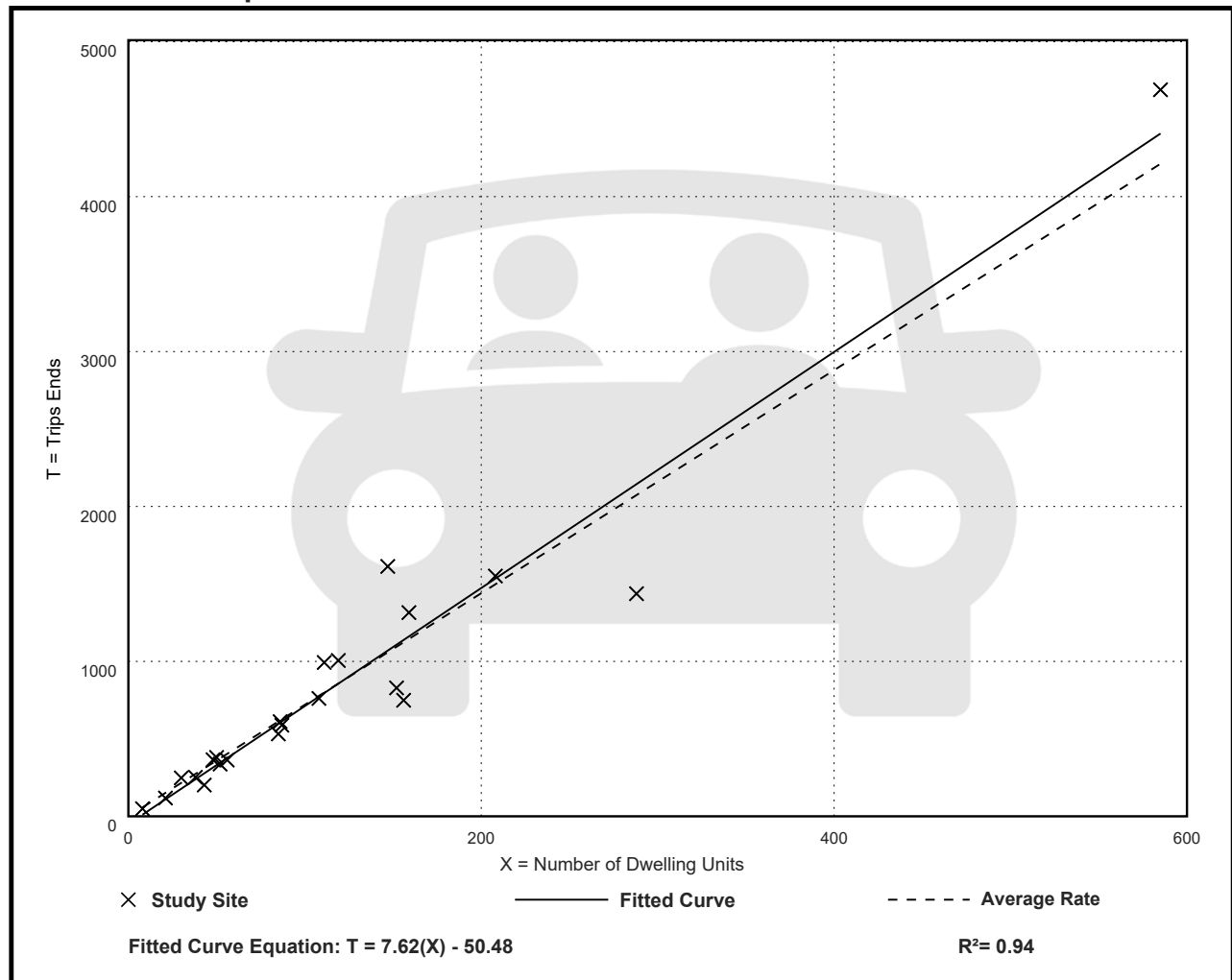
Avg. Num. of Dwelling Units: 120

Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.20	4.70 - 10.97	1.61

## Data Plot and Equation



# Single-Family Attached Housing (215)

## 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: 46

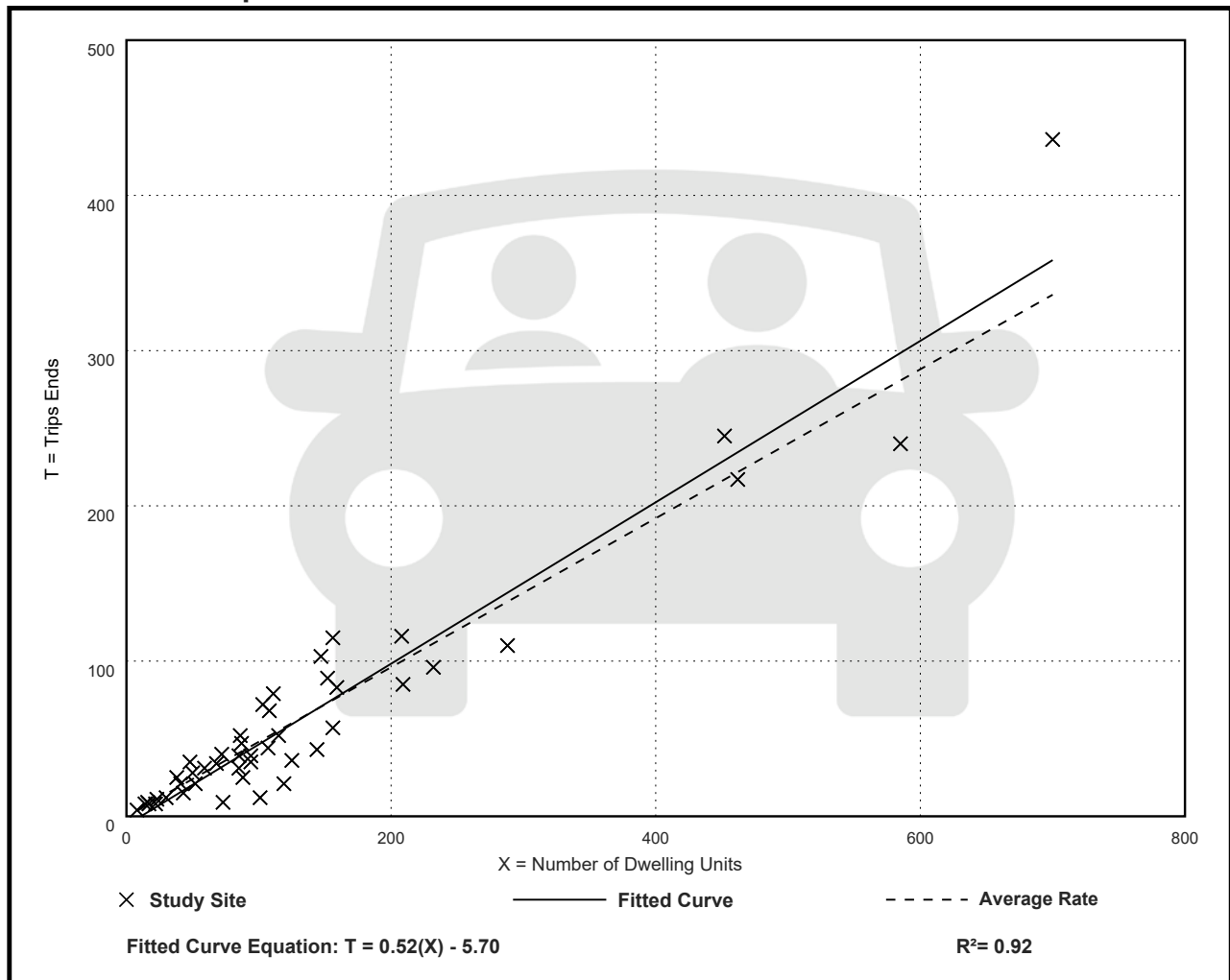
Avg. Num. of Dwelling Units: 135

Directional Distribution: 31% entering, 69% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.48	0.12 - 0.74	0.14

## Data Plot and Equation



# Single-Family Attached Housing (215)

## 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: 51

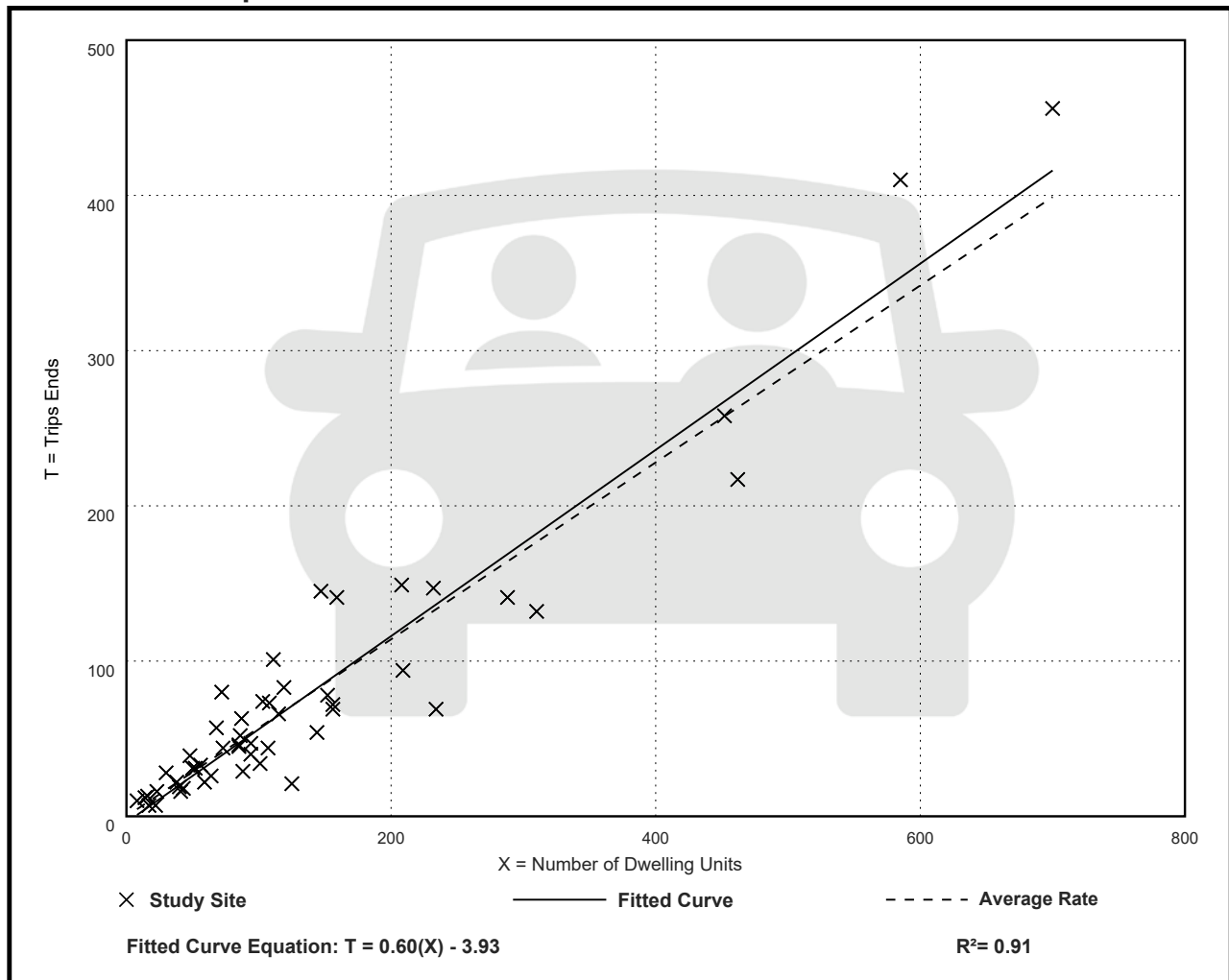
Avg. Num. of Dwelling Units: 136

Directional Distribution: 57% entering, 43% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.57	0.17 - 1.25	0.18

## Data Plot and Equation



# Single-Family Attached Housing (215)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

AM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 31

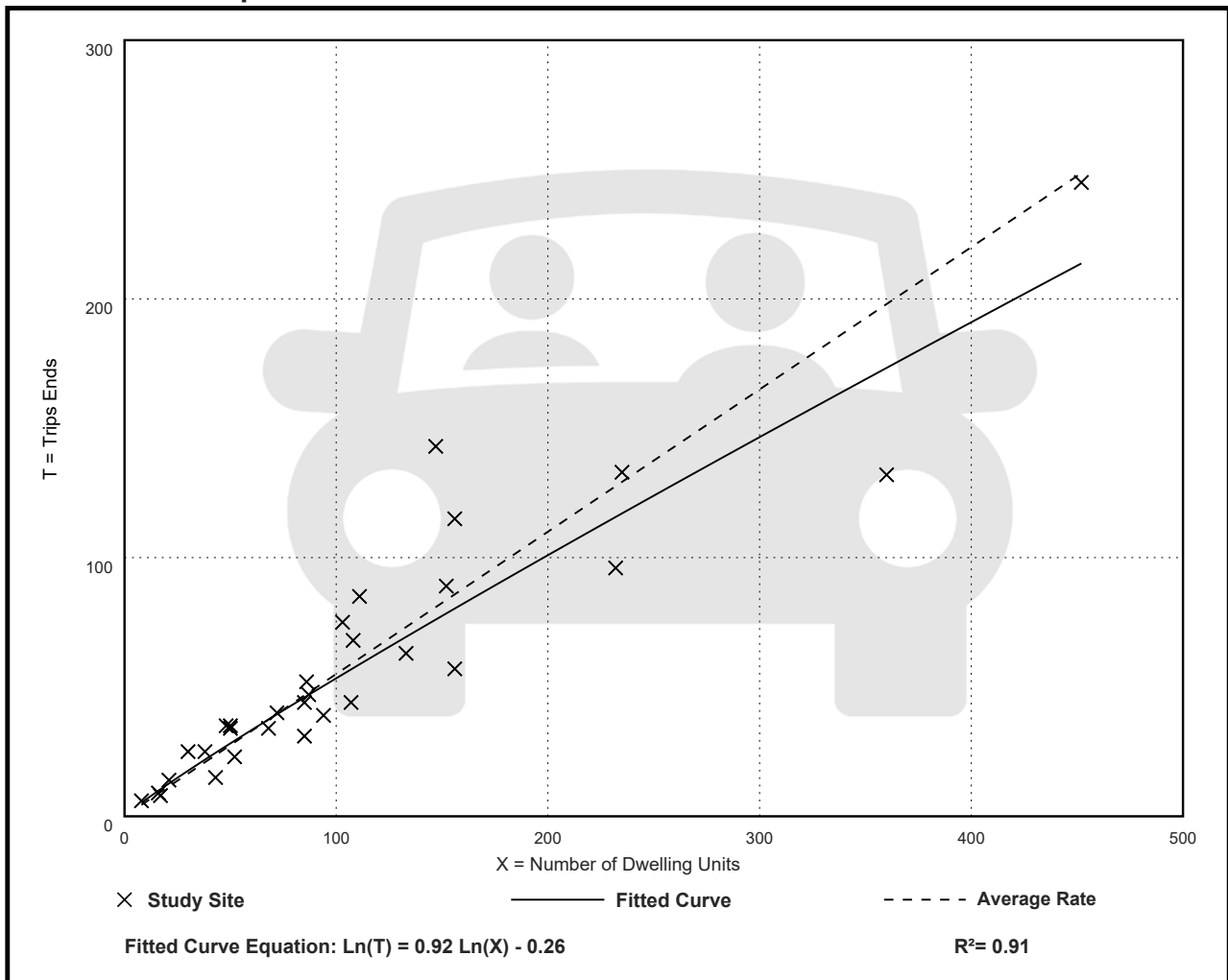
Avg. Num. of Dwelling Units: 110

Directional Distribution: 25% entering, 75% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.55	0.35 - 0.97	0.16

## Data Plot and Equation



# Single-Family Attached Housing (215)

## Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

PM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 34

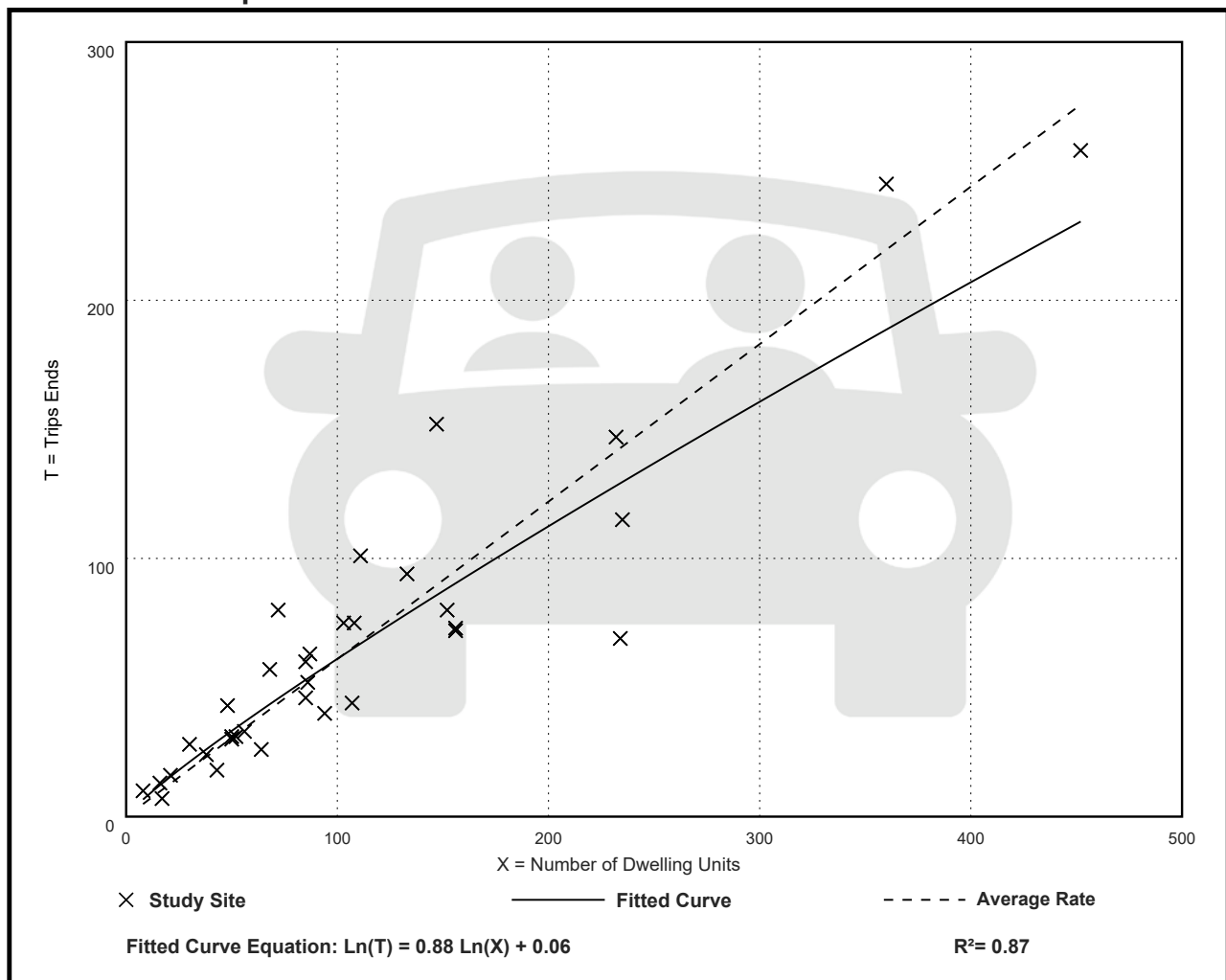
Avg. Num. of Dwelling Units: 110

Directional Distribution: 62% entering, 38% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.61	0.29 - 1.25	0.18

## Data Plot and Equation



# Single-Family Attached Housing (215)

Vehicle Trip Ends vs: Dwelling Units  
On a: Saturday

Setting/Location: General Urban/Suburban

Number of Studies: 5

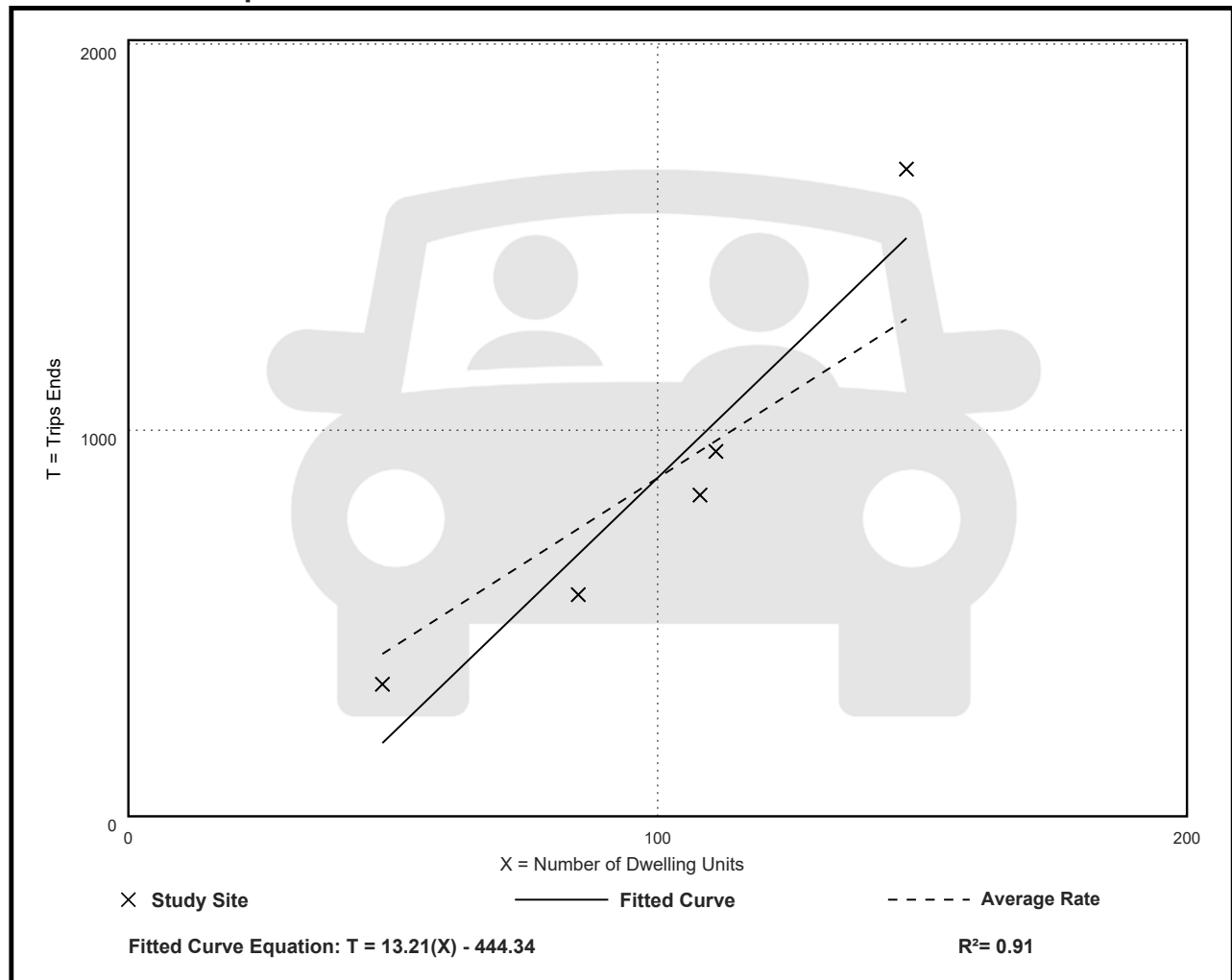
Avg. Num. of Dwelling Units: 100

Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
8.76	6.75 - 11.40	2.02

## Data Plot and Equation



# Single-Family Attached Housing (215)

Vehicle Trip Ends vs: Dwelling Units

On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 7

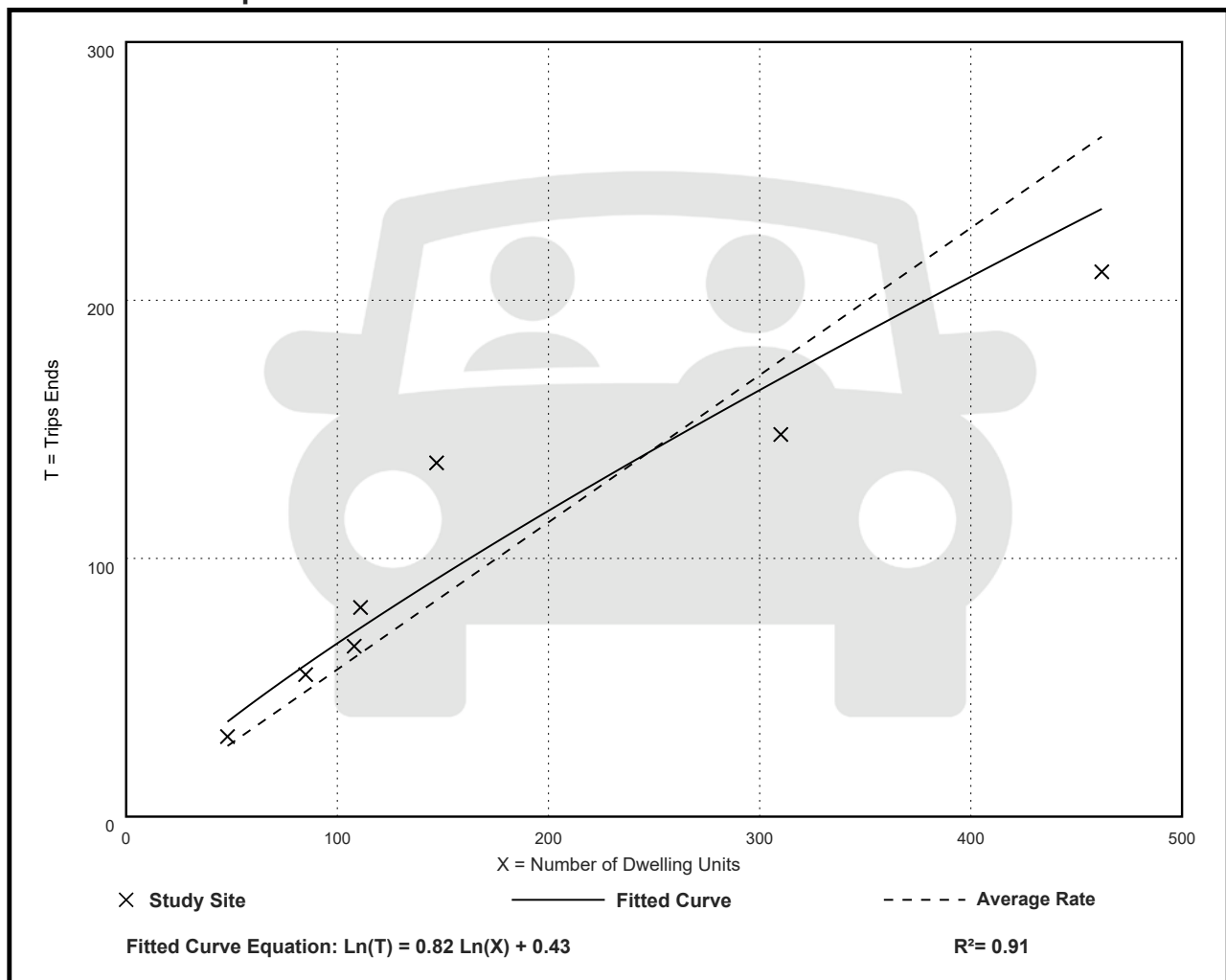
Avg. Num. of Dwelling Units: 182

Directional Distribution: 48% entering, 52% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.57	0.46 - 0.93	0.17

## Data Plot and Equation



# Single-Family Attached Housing (215)

Vehicle Trip Ends vs: Dwelling Units  
On a: Sunday

Setting/Location: General Urban/Suburban

Number of Studies: 5

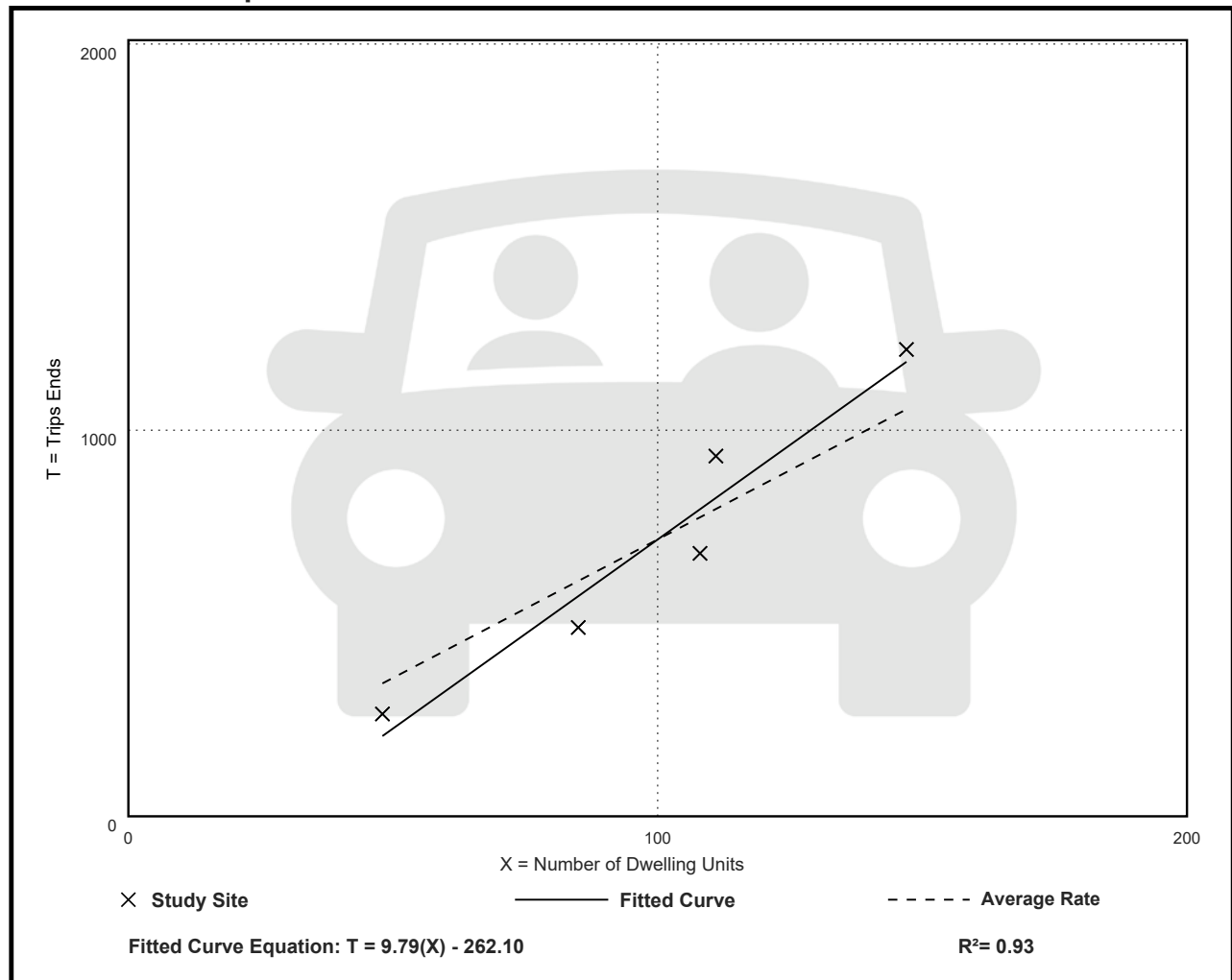
Avg. Num. of Dwelling Units: 100

Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.17	5.52 - 8.41	1.34

## Data Plot and Equation



# Single-Family Attached Housing (215)

## Vehicle Trip Ends vs: Dwelling Units

On a: Sunday, Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 5

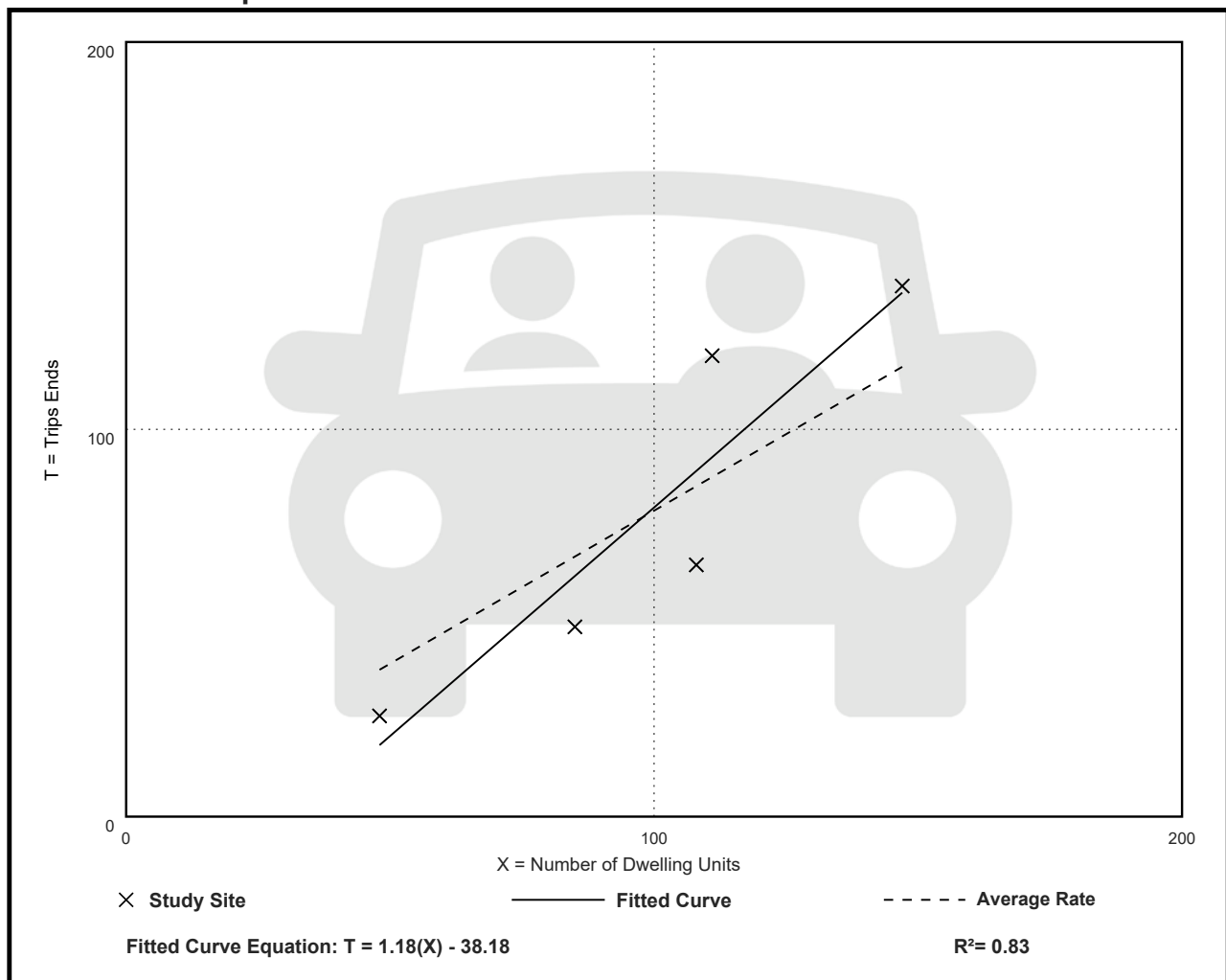
Avg. Num. of Dwelling Units: 100

Directional Distribution: Not Available

### Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.79	0.54 - 1.07	0.24

### Data Plot and Equation



# Single-Family Attached Housing (215)

Vehicle Trip Ends vs: Residents

On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. Num. of Residents: 36

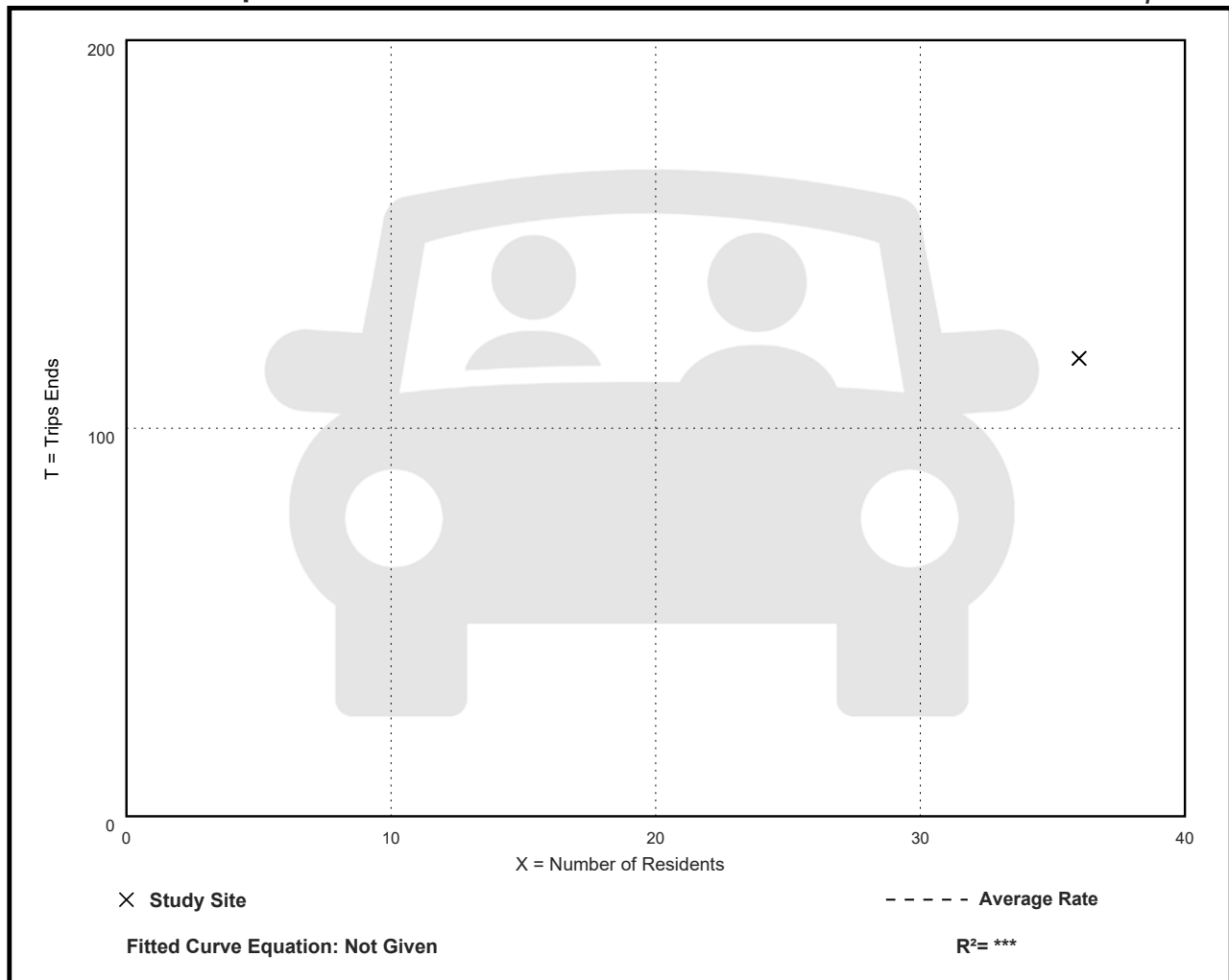
Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
3.28	3.28 - 3.28	***

## Data Plot and Equation

Caution – Small Sample Size



# Single-Family Attached Housing (215)

Vehicle Trip Ends vs: Residents

On a: Weekday,

AM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. Num. of Residents: 36

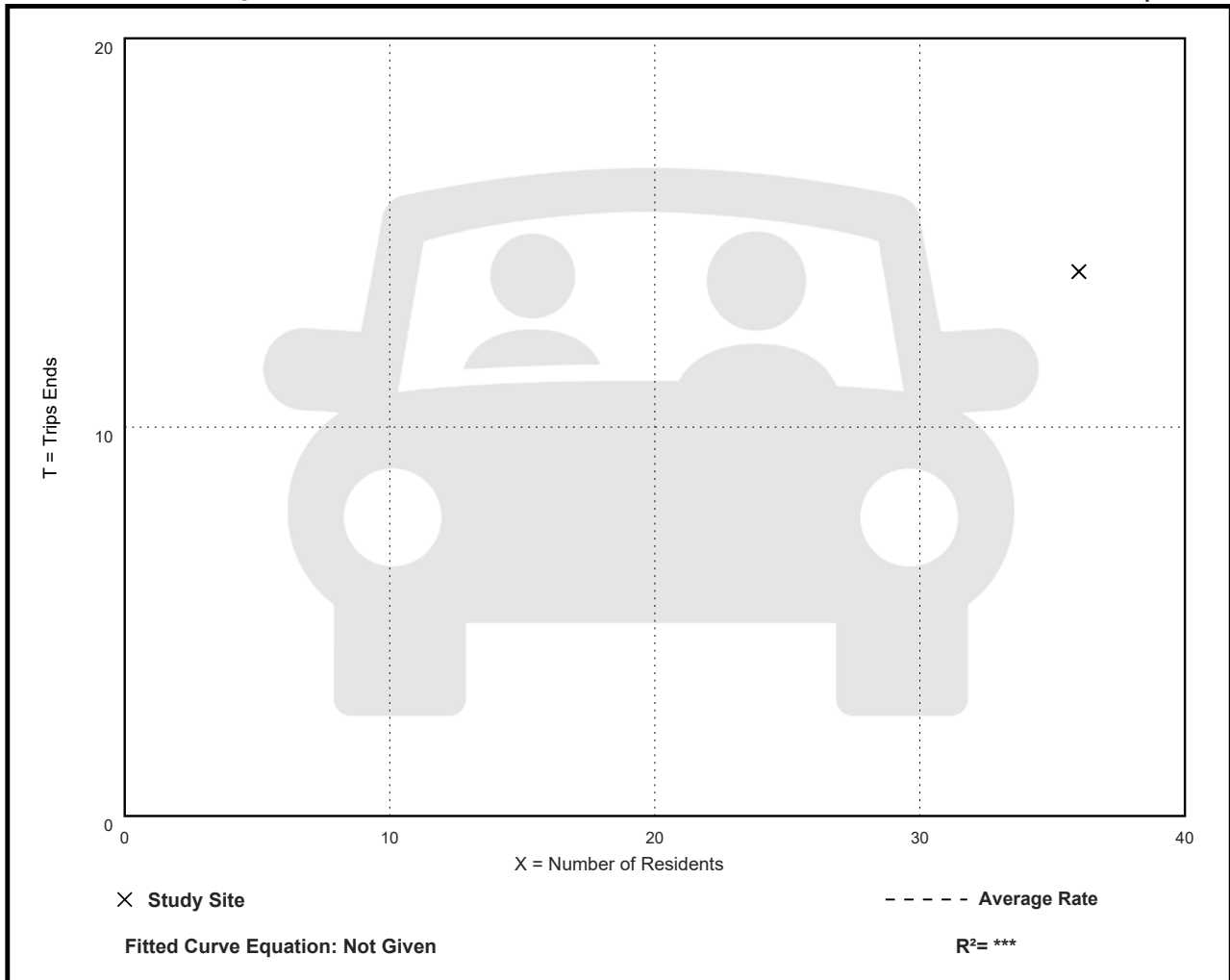
Directional Distribution: Not Available

## Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
0.39	0.39 - 0.39	***

## Data Plot and Equation

Caution – Small Sample Size



# Single-Family Attached Housing (215)

## Vehicle Trip Ends vs: Residents

On a: Weekday,

PM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. Num. of Residents: 36

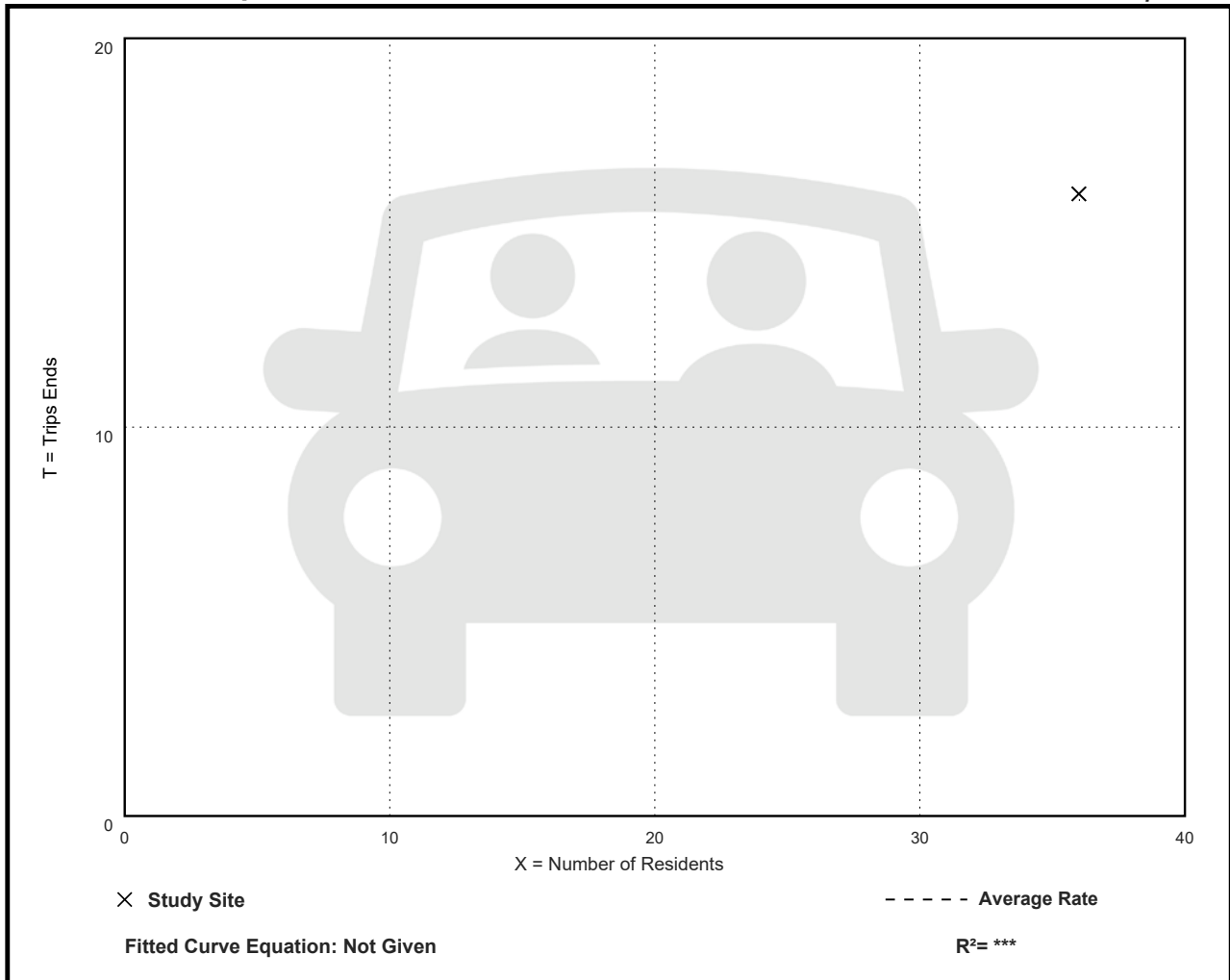
Directional Distribution: Not Available

## Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
0.44	0.44 - 0.44	***

## Data Plot and Equation

Caution – Small Sample Size



# Single-Family Attached Housing (215)

## Walk+Bike+Transit 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: 7

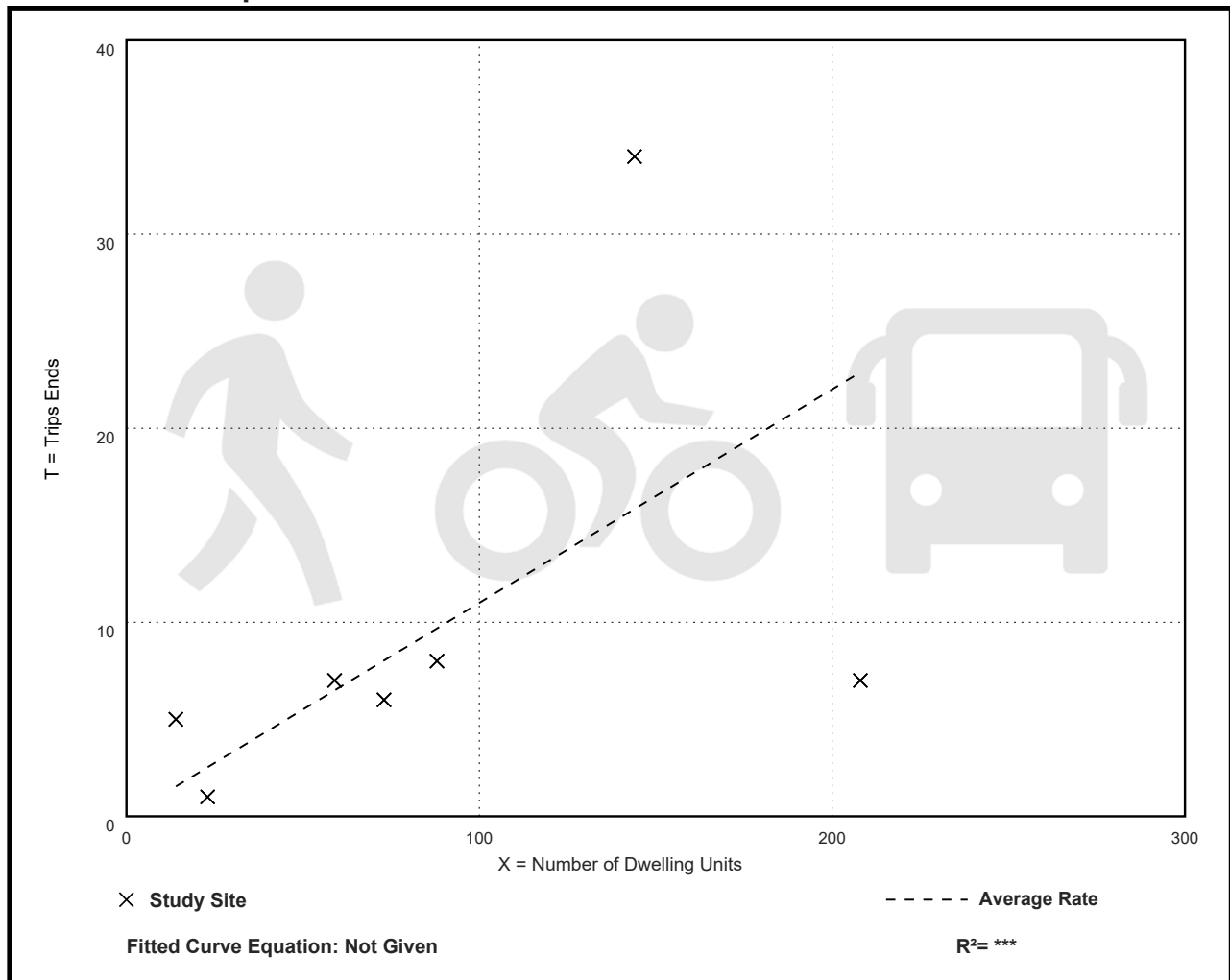
Avg. Num. of Dwelling Units: 87

Directional Distribution: 75% entering, 25% exiting

## Walk+Bike+Transit Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.11	0.03 - 0.36	0.09

## Data Plot and Equation



# Single-Family Attached Housing (215)

## Walk+Bike+Transit 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: 7

Avg. Num. of Dwelling Units: 87

Directional Distribution: 38% entering, 62% exiting

## Walk+Bike+Transit Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.18	0.08 - 0.31	0.11

## Data Plot and Equation

