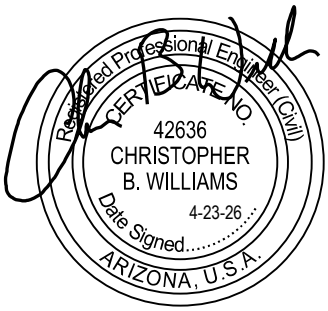
April 23, 2026

Francisco Castell
Land Planning Manager
K. Hovnanian Phoenix Division, Inc.
8800 East Raintree Drive, Suite 300
Scottsdale, AZ 85260

Phone: (480) 761 - 0545
Email: fcastell@khov.com



Subject: Traffic Impact Statement
Cooper Road and Chandler Heights Road, Chandler, Arizona

Dear Mr. Castell:

Y2K Engineering, LLC. (Y2K) has been retained to prepare a traffic impact statement (TIS) for a proposed residential development located at the southeast corner of Copper Road and Chandler Heights Road in Chandler, Arizona. The project consists of a 53-lot single-family residential community to be constructed on approximately 12.5 acres. Access to the site will be provided by two driveways, including a primary full-access driveway on Cooper Road and a secondary driveway on Via de Palmas, located along the southern border of the proposed development.

Per the City of Chandler's *Scope of Work for Traffic Impact Studies* (October 2023), Traffic Impact Studies are typically required for developments expected to generate over 100 peak hour trips. Based on standard trip generation rates, the proposed development is anticipated to generate fewer than this threshold; therefore, a traffic impact statement has been prepared to evaluate site access, trip generation characteristics, and any pertinent operational considerations.

A vicinity map is shown in **Figure 1**, and the proposed site location is shown in **Figure 2**.

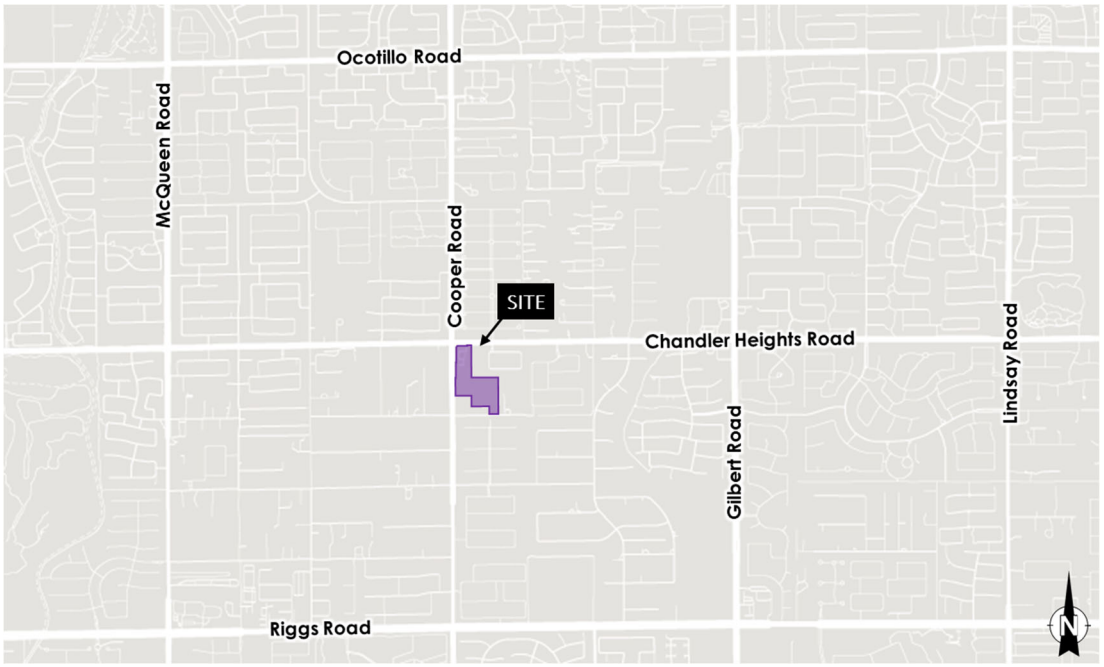


Figure 1: Project Vicinity

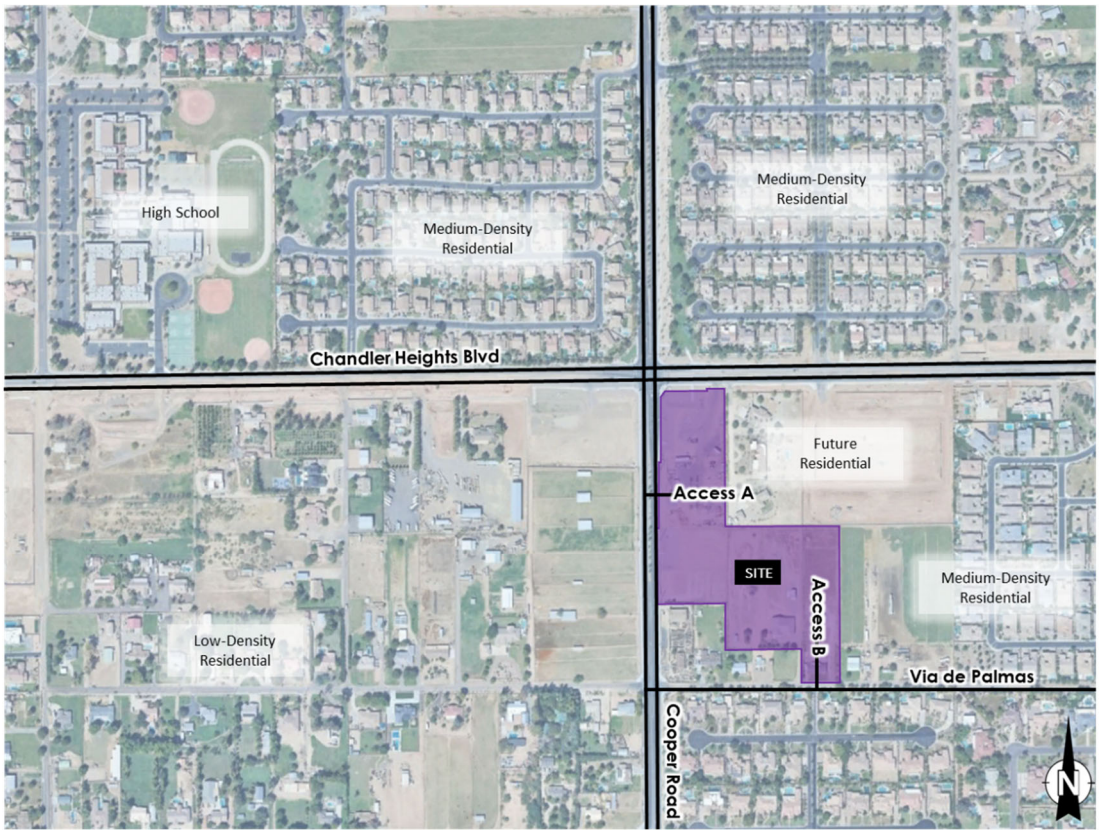


Figure 2: Proposed Site Location

EXISTING CONDITIONS

Cooper Road is a north-south roadway classified as a minor arterial in the *City of Chandler* Transportation Master Plan (January 2020). The roadway consists of a four-lane divided cross-section with opposing directions separated by a raised median located from Chandler Heights Blvd to approximately 900 feet south of Chandler Heights Blvd. A two-way left-turn lane (TWLTL) is present south of where the median ends. Cooper Road provides access to surrounding residential developments and is a key north-south corridor in the area. The roadway includes several improvements such as curb and gutter, roadway lighting, and designated bicycle lanes. The posted speed limit along this segment is 45 miles per hour (mph).

Via de Palmas is a two-way unstriped roadway with sufficient width to accommodate bidirectional travel near the project site. Via de Palmas is not classified per the *City of Chandler* Transportation Master Plan (January 2020), therefore this roadway is assumed to function as a local roadway based on its characteristics and usage. The roadway extends east from Cooper Road and provides access to a service vehicle-only roadway not accessible by the public located approximately 0.3 miles east. Improvements along the roadway including curb, gutter, and sidewalk along the southern side, while the northern side remains unimproved. Roadway lighting is not present along Via de Palmas. A posted speed limit is not posted, though it is assumed to be 25 mph.

Cooper Road and Via de Palmas is a four-legged intersection controlled by a minor-street STOP-control, with the minor street (Via de Palmas) yielding to traffic on Cooper Road. The northbound and southbound approaches on Cooper Road provide a dedicated left-turn lane, one through lane, and one shared through/right-turn lane in each direction. The eastbound and westbound approaches are offered one shared lane for all movements. Intersection improvements present at this intersection include streetlights, curbing, and pedestrian ramps. However, striped crosswalks are not present at any approach at this intersection.

PROPOSED DEVELOPMENT

SITE LOCATION, LAND USE, AND ACCESS

The proposed residential community will consist of a 53-lot single-family development to be constructed on approximately 12.5 acres of land. The proposed development is planned to be constructed across six parcels (303-55-013Z, 303-55-013X, 303-55-013V, 303-55-013W, 303-55-015U and 303-55-015T). Based on a review of recent aerial imagery, the existing land uses on these parcels appear to consist of a heavy equipment staging area and low-density residential developments. The site will provide good circulation for residents and guests with an internal roadway that connects the houses on all sides of the site and two full-access driveways.

Access A is planned to be located on Cooper Road, approximately 550 feet south of Chandler Heights Road, and will serve as the primary access point for traffic accessing the development. Access A will be controlled by a gate located approximately 200 feet east of the centerline of Cooper Road. The driveway will be STOP-controlled at its intersection with Cooper Road, and vehicles exiting the site will be required to yield to north-south traffic on Cooper Road.

Access B is proposed on Via De Palmas, approximately 700 feet east of Cooper Road, and will function as a secondary access point to the site. This driveway will serve both ingress vehicles and egress vehicles and

will also be controlled by a gate, planned to be located approximately 65 feet north of the centerline of Via De Palmas. Access B will be stop-controlled, with exiting vehicles yielding to traffic on Via De Palmas.

The site plan is shown in **Figure 3**. A detailed site plan is provided in **Attachment A.**

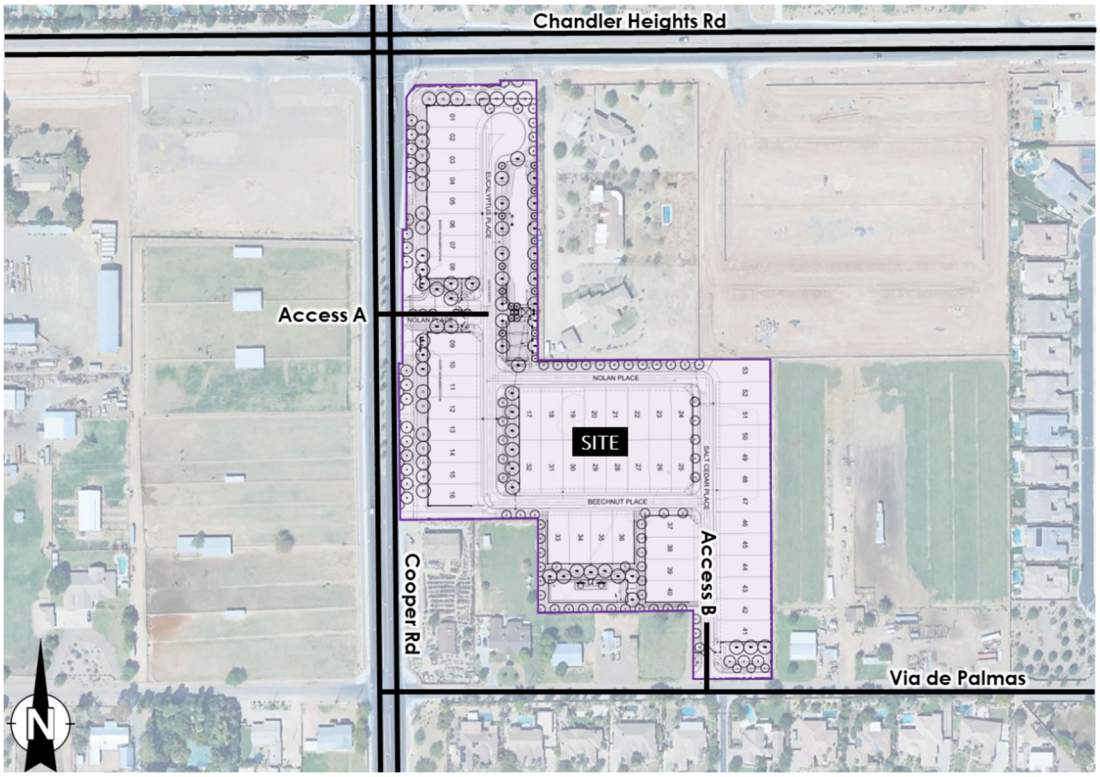


Figure 3: Site Plan

TRIP GENERATION

The trip generation for the proposed site was estimated using the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 12th Edition*. The manual contains data collected by various transportation professionals for a wide range of different land uses. The data summarized in the manual includes average rates and equations that have been established, correlating the relationship between an independent variable that describes the development size and the generated trips for each categorized land use. The manual provides information for daily and peak hour trips.

ITE Land Use Code 210 (Single-Family Residential) was utilized for analysis. The trip generation for the proposed residential community is summarized in **Table 1**. Supporting details for the trip generation are provided in **Attachment B**.

Table 1: Trip Generation

DESCRIPTION OF LAND USE					VEHICLE GENERATED TRIPS						
					Daily	AM Peak Hour			PM Peak Hour		
ID	Land Use	ITE LUC	Size		Total	Enter	Exit	Total	Enter	Exit	Total
1	Single-Family Detached Housing	210	53	DU	693	11	30	41	33	21	54
				Total	**693**	**11**	**30**	**41**	**33**	**21**	**54**

The proposed residential development is anticipated to generate a total of 693 daily trips (entering and exiting), with 41 AM peak hour trips and 54 PM peak hour trips.

TRIP DISTRIBUTION AND ASSIGNMENT

The generated trips for the proposed development have been distributed and assigned to the surrounding street system based on existing traffic patterns and access to nearby freeways. The trip distribution and assignment percentages are depicted in **Figure 4**.

The site assignment at the project driveways were calculated based on the trip generation and assumed trip distribution percentages. The estimated site traffic assignment is shown in **Figure 5**.

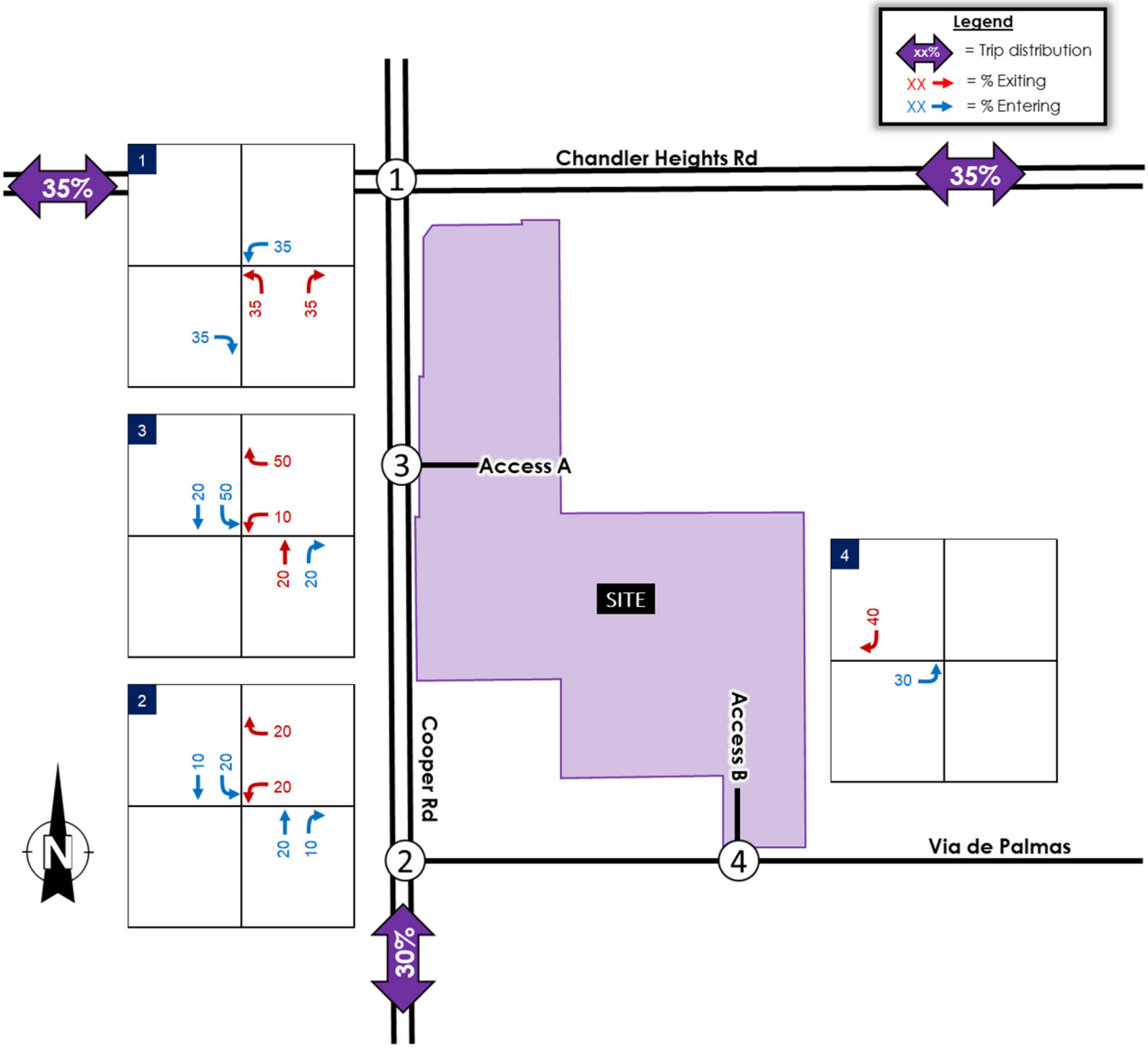


Figure 4: Trip Distribution

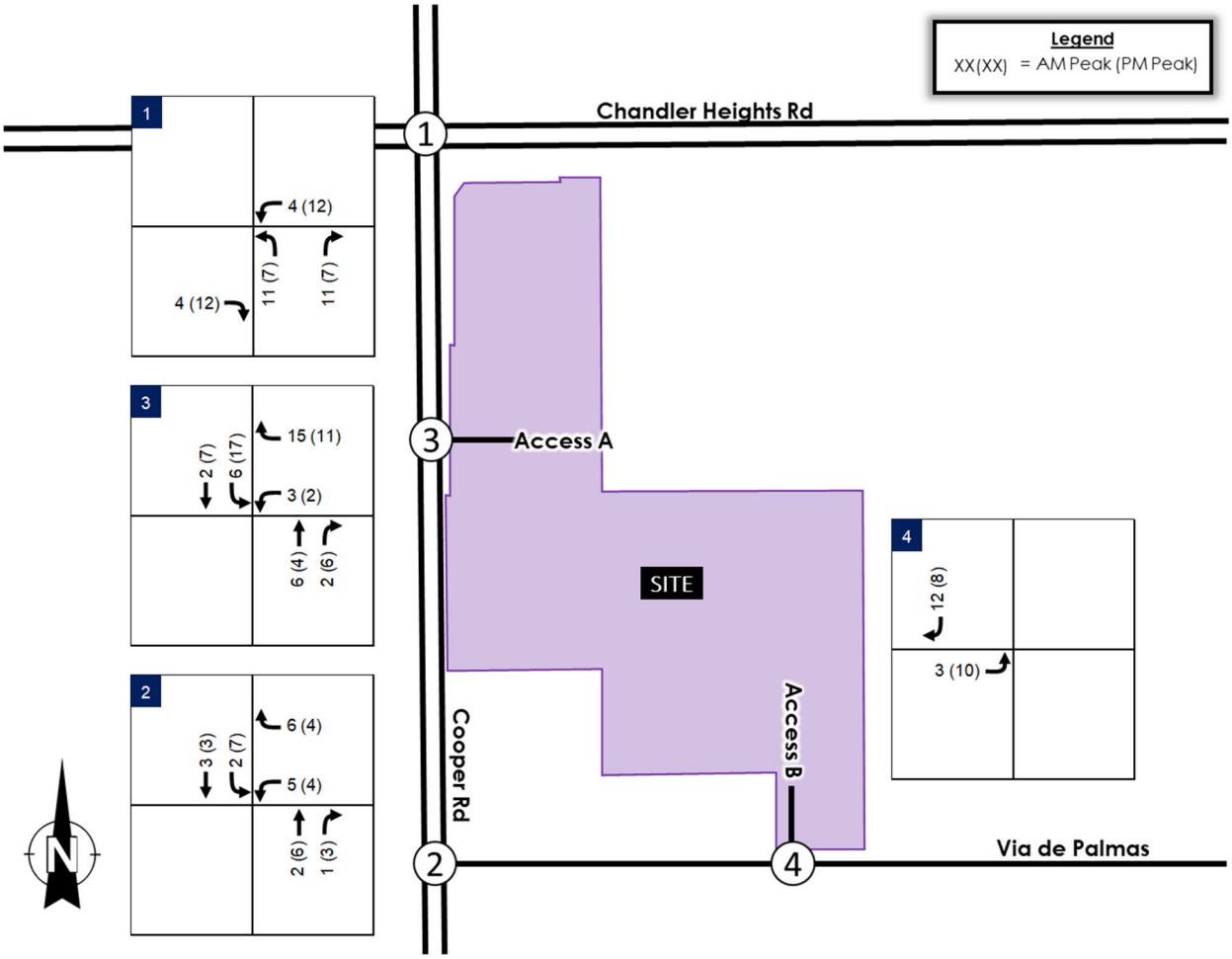


Figure 5: Trip Assignment

TURN LANE WARRANT ANALYSIS

The City of Chandler provides guidance on the need for dedicated left- and right-turn lanes in section 4.2.10 of the *Engineering and Design Standards Manual for Public Works Construction* (January 2025). The guidelines state:

- "Left turn and right turn lanes must be provided on all approaches to major (arterial-arterial) intersections as shown in City Detail C-223. Left turn lanes must be provided on all median breaks, and right turn lanes must be provided where warranted by projected traffic demands."
- "A right turn deceleration lane must be provided at cross streets and driveways when projected right turns into the site exceed 40 vehicles for a typical peak hour."

A southbound left-turn lane is recommended to be installed on Cooper Road at Access A due to the proposed median break at this location in order to meet the City of Chandler requirements for left-turn lanes at median openings. A left-turn lane is not required at Access B because this access is located on Via De Palmas, which does not include a median and functions as a local roadway.

Eastbound right-turn lanes are not warranted at either site driveway. Based on the anticipated site traffic generated by the proposed development, the number of right-turning vehicles entering the site during the peak hour is not expected to exceed the City of Chandler threshold of 40 vehicles for a typical peak hour. Therefore, dedicated right-turn deceleration lanes are not required at Access A or Access B.

Based on City Standards found in in section 4.2.10 of the *Engineering and Design Standards Manual for Public Works Construction* (January 2025), left-turn lanes must a minimum storage length of 100 feet when constructed.

Calculations provided by AASHTO were utilized to confirm the recommended length of the warranted southbound left-turn lane at the intersection of Cooper Road and Access A. AASHTO guidance recommends that turn lanes at unsignalized intersections accommodate the number of vehicles likely to arrive in a 2-minute period. AASHTO guidance recommends that turn lanes at signalized intersections accommodate one to two times the number of vehicles expected to arrive in a cycle length. In this methodology, a vehicle length of 25 feet is assumed, and the resulted storage lengths are rounded to the nearest 25 feet.

The turn lane storage needs were evaluated using site traffic volumes. The results of the queue storage evaluation for all left-turn and right-turn lanes the proposed project adds traffic to are provided in **Table 2.**

Table 2: Queue Storage Calculations

Intersection	Traffic Control	Movement	AM/PM Volume (vph)	Queue Storage (ft)		
				AASHTO	Existing	Recommended
3 Cooper Road & Access A	Minor Street Stop Control	SB Left	6 / 17	25	N/A	100'

Based on the review of anticipated queuing and City Standards, the southbound left-turn at the intersection of Cooper Road and Access A is recommended to have a storage length of 100 feet.

DRIVEWAY SPACING ANALYSIS

Access A and Access B will be located on Cooper Road and Via de Palmas, respectively, and will be surrounded by several other minor-street driveways providing access to nearby residential and municipal developments.

The City of Chandler provides guidance on the spacing of driveways in section 4.6.4 of the *Engineering and Design Standards Manual for Public Works Construction* (January 2025). Although Via de Palmas is not classified as a collector, the roadway is assumed to operate characteristically similar to a collector and is therefore analyzed per collector standards. City of Chandler standards state:

- All driveways, including minor driveways restricted to right turn movements, should be spaced at least 100 feet apart along arterial streets and 50 feet apart along collector streets."

Additionally, section 4.6.2 of the manual also provides guidance for the spacing of median breaks. Access A is planned to be located at a median opening, as it is planned to be proposed to be a full access driveway. The requirements concerning median openings is listed below:

- Median breaks must generally be constructed at one-eighth, one-quarter, and one-half mile spacing from major intersections

Figure 6 depicts a diagram showing the spacing of the proposed driveways from adjacent driveways.

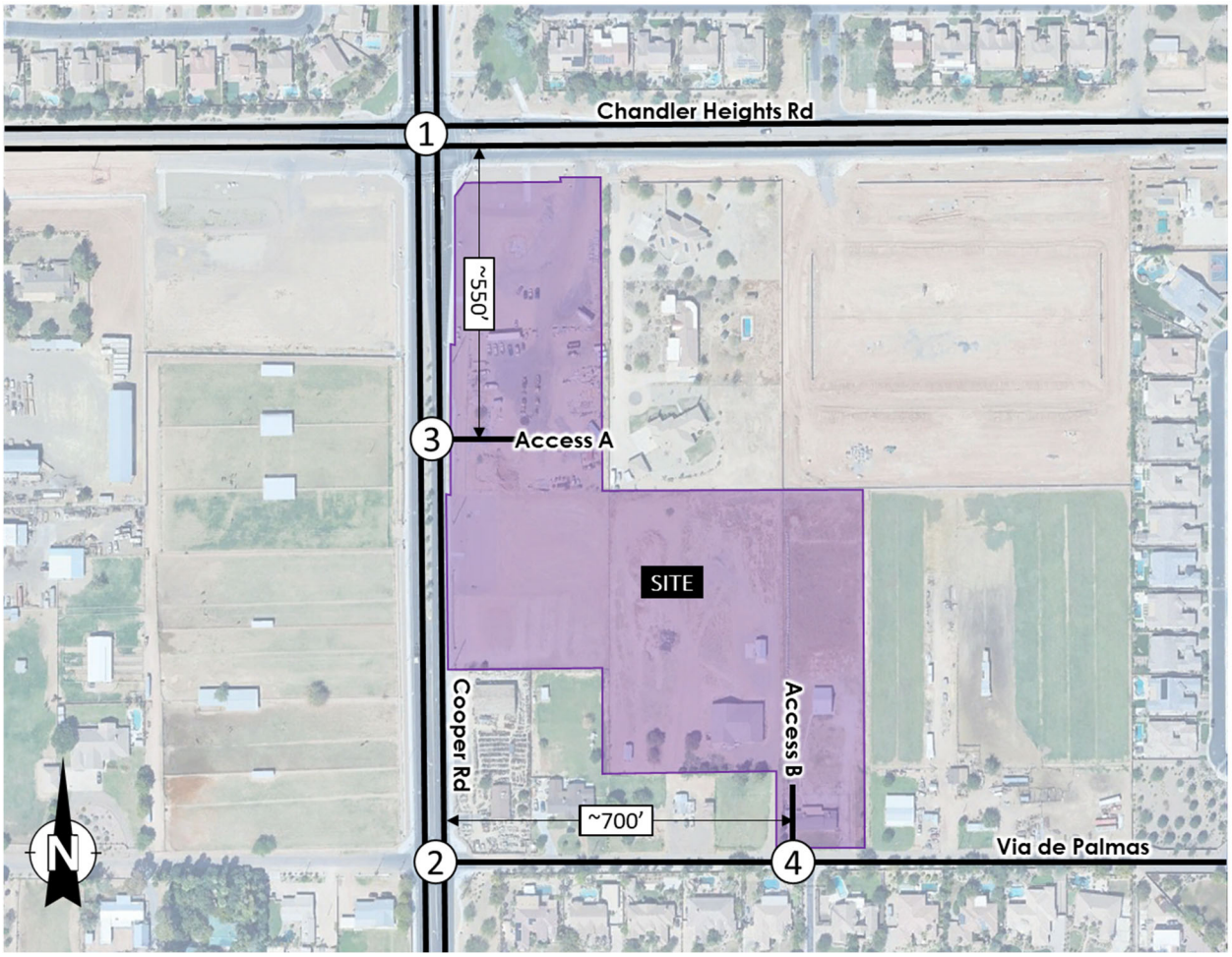


Figure 6: Driveway Spacing

The spacing of Access B will meet the requirements as all in the proximity of the proposed residential site are spaced 50 feet or greater and satisfy City standards. As shown in the figure above, the median break planned to be constructed at the location of access A is planned to be located approximately 550 feet south of Chandler Heights Road. While this does not meet the City of Chandler's standard of having a one-eighth mile (660 feet) spacing from major intersections conflicts with existing power poles and a planned sewer connection prevent locating Access A 660 feet south of Chandler Heights Road. The proposed location for Access A is located far enough south so that the intersections with Access A and Chandler Heights Road will not impede the safety and operations of each other.

CONCLUSIONS

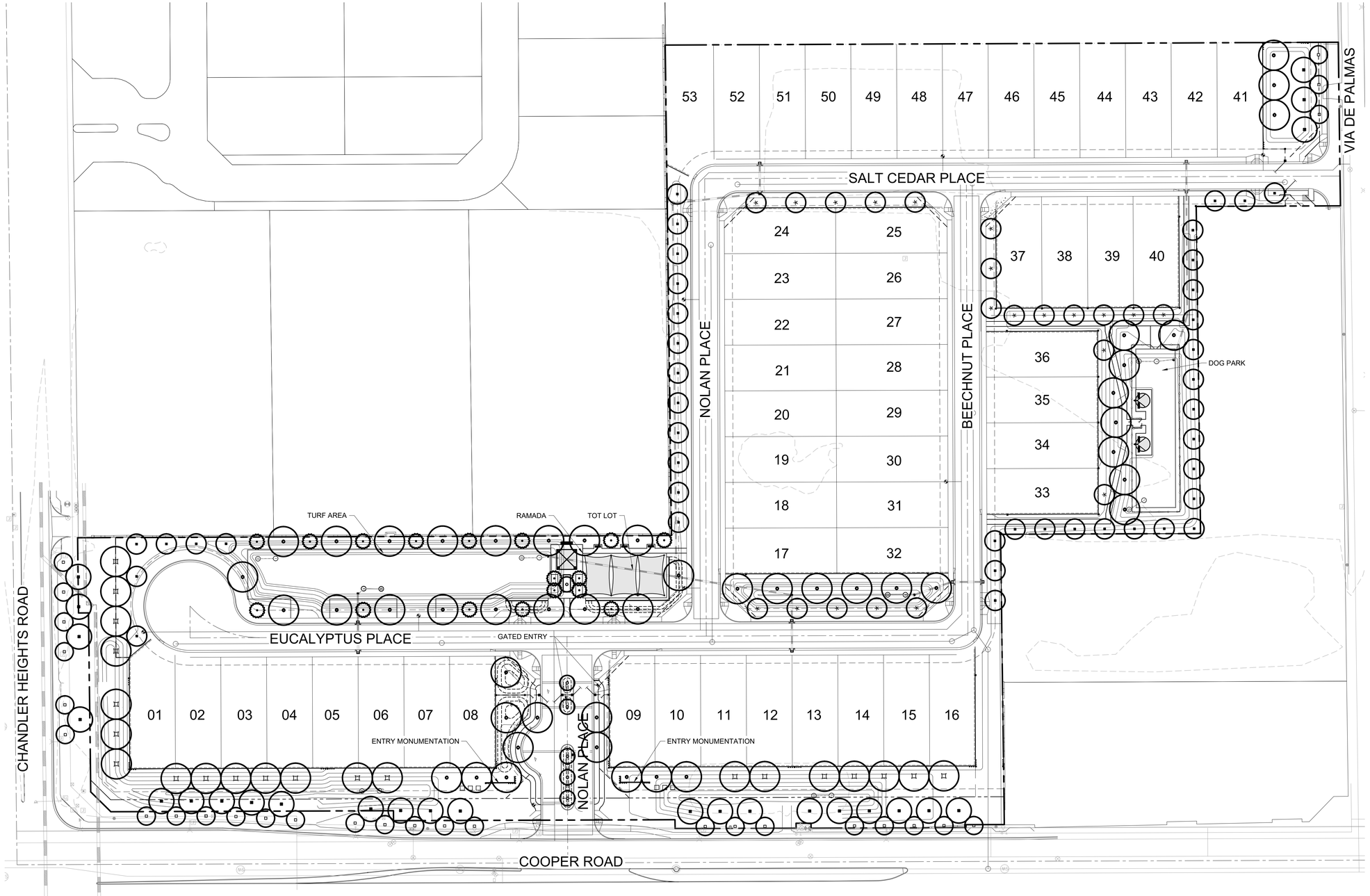
- The planned Vale Sereno residential development is anticipated to create 701 daily trips, with 42 AM and 55 PM peak hour trips based on ITE Trip Generation Data.
- The site is anticipated to be served by two proposed full-access driveways, with the primary driveway (Access A) to be located on Cooper Rd and the secondary driveway to be located on Via de Palmas (Access B).
- A southbound left-turn lane is recommended to be installed the intersection of Cooper Road and Access A and is recommended to be constructed with a storage length of 100 feet.
- The proposed location of Access B will meet City of Chandler spacing requirements, but a variance will be needed for the location of Access A as the respective median break is located 550 feet south of the intersection with Chandler Heights Road and does not meet City spacing requirements for median openings. Access A was located as far south as possible to prevent conflicts with the intersection with Chandler Heights Road while avoiding utility conflicts at the location one eighth-mile (660 feet) location south of Chandler Heights Road.
- A stop sign is recommended to be installed on both Access A and Access B to control exiting traffic.
- The proposed residential development is anticipated to generate a relatively low amount of traffic and is not anticipated to have adverse consequences to the surrounding roadway system.

We appreciate the opportunity to prepare this brief evaluation of the pertinent features for the proposed residential community. Should you have any questions, please feel free to contact me by email at cwilliams@y2keng.com.

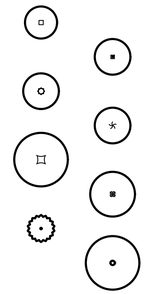
Sincerely,

Christopher Williams, PE, PTOE

ATTACHMENT A:
SITE PLAN



LANDSCAPE MATERIAL SCHEDULE



TREES
BOTANICAL / COMMON NAME

Acacia aneura
MULGA

Acacia stenophylla
SHOESTRING ACACIA

Caesalpinia mexicana
MEXICAN BIRD OF PARADISE

Eucalyptus papuana
GHOST GUM

Pistacia x `Red Push`
RED PUSH PISTACHE

Quercus fusiformis 'Joan Lionetti'
JOAN LIONETTI LIVE OAK

Sophora secundiflora `Silver Peso`
SILVER LEAFED TEXAS MOUNTAIN LAUREL

Ulmus parvifolia
EVERGREEN ELM

SHRUBS & ACCENTS & VINES
BOTANICAL / COMMON NAME

Antigonon leptopus
QUEEN`S WREATH VINE
Caesalpinia pulcherrima
RED BIRD OF PARADISE
Calliandra californica
BAJA FAIRY DUSTER
Dodonaea viscosa `Purpurea`
PURPLE LEAFED HOPSEED BUSH
Eremophila hygrophana `Blue Bells`
BLUE BELLS
Eremophila maculata `Valentine`
RED EMU BUSH
Hesperaloe parviflora
RED YUCCA
Leucophyllum langmaniae `Lynn`s Legacy`
LYNN`S LEGACY TEXAS RANGER
Leucophyllum zygophyllum `Cimarron`
BLUE RANGER
Muhlenbergia capillaris `Regal Mist`®
REGAL MIST PINK MUHLY GRASS
Muhlenbergia lindheimeri `Autumn Glow`®
LINDHEIMER`S MUHLY
Pedilanthus macrocarpus
LADY SLIPPER
Russelia equisetiformis
FIRECRACKER PLANT
Tecoma stans `Gold Star`
GOLD STAR YELLOW BELLS

GROUNDCOVER
BOTANICAL / COMMON NAME

Acalypha monostachya `Raspberry Fuzzies`™
RASPBERRY FUZZIES ROUND COPPERLEAF
Baccharis x `Starn`®
STARN THOMPSON COYOTE BRUSH
Bougainvillea x `Oo-La-La`®
OO-LA-LA BOUGAINVILLEA
Eremophila glabra `Mingenew Gold`
OUTBACK SUNRISE EMU BUSH
Lantana montevidensis
TRAILING LANTANA
Lantana x `New Gold`
NEW GOLD LANTANA
Portulacaria afra 'Minima'
ELEPHANT'S FOOD
Rosmarinus officinalis 'Huntington Carpet'
HUNTINGTON CARPET ROSEMARY
Ruellia brittoniana `Katie`
BLUE DWARF RUELLIA

MISCELLANEOUS
BOTANICAL / COMMON NAME

ROCK MULCH
ROCK PROS 'PAINTED DESERT'

Cynodon dactylon `E-Z Turf Midiron`
MIDIRON BERMUDA

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Suite 1200
Scottsdale, Arizona 85251
Tel: 480.994.0994
www.rviplanning.com

VALE SERENO • **PRELIMINARY PLANTING PLAN**

CHANDLER, ARIZONA
04/03/26
26001454
KHOV

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

For Illustrative purposes only. Subject to change without notice.

ATTACHMENT B:
TRIP GENERATION WORKSHEETS

Single-Family Detached Housing
(210)

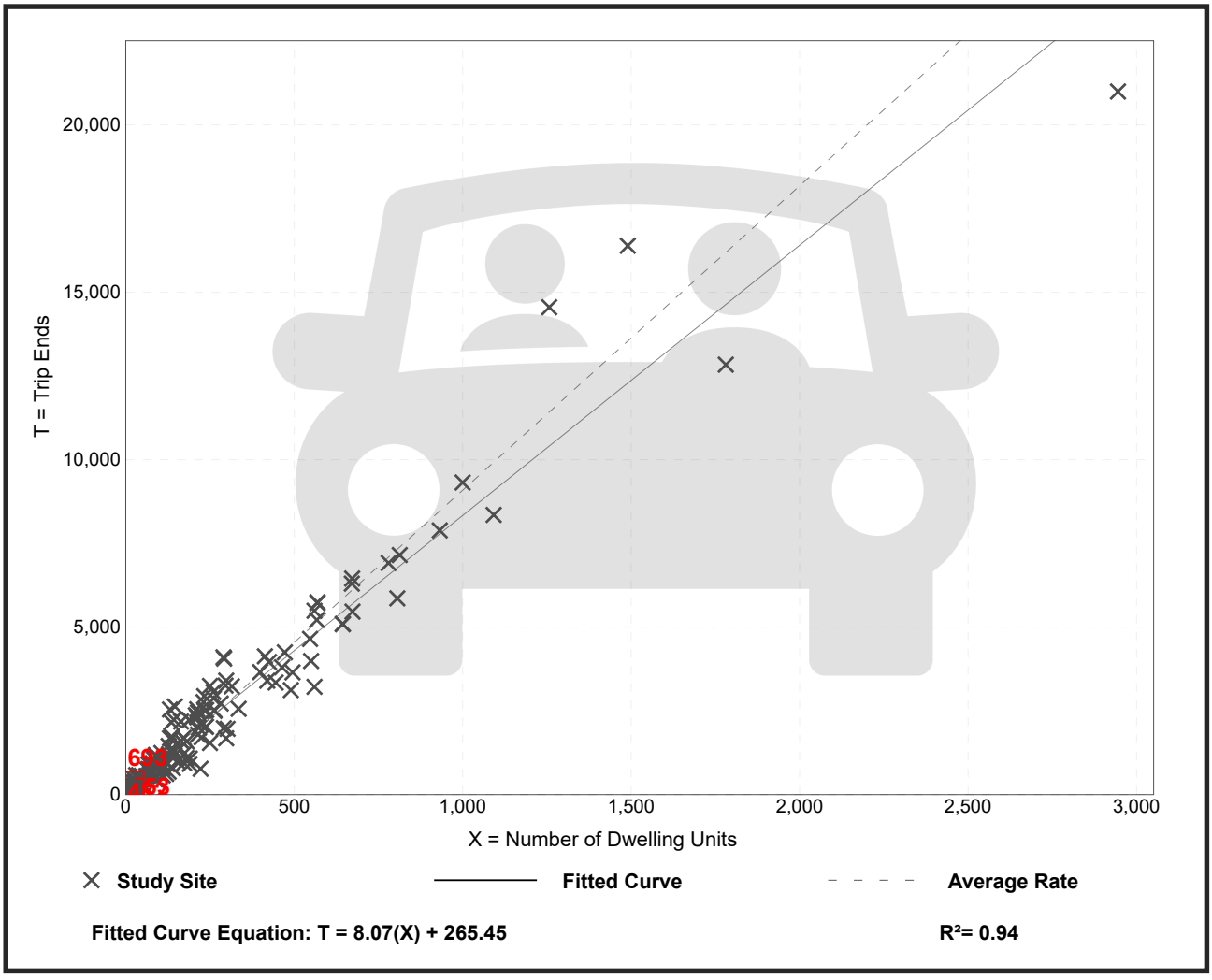
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 155
Avg. Num. of Dwelling Units: 261
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.09	3.47 - 23.80	2.29

Data Plot and Equation



Trip Gen Manual, 12th Edition ● Institute of Transportation Engineers

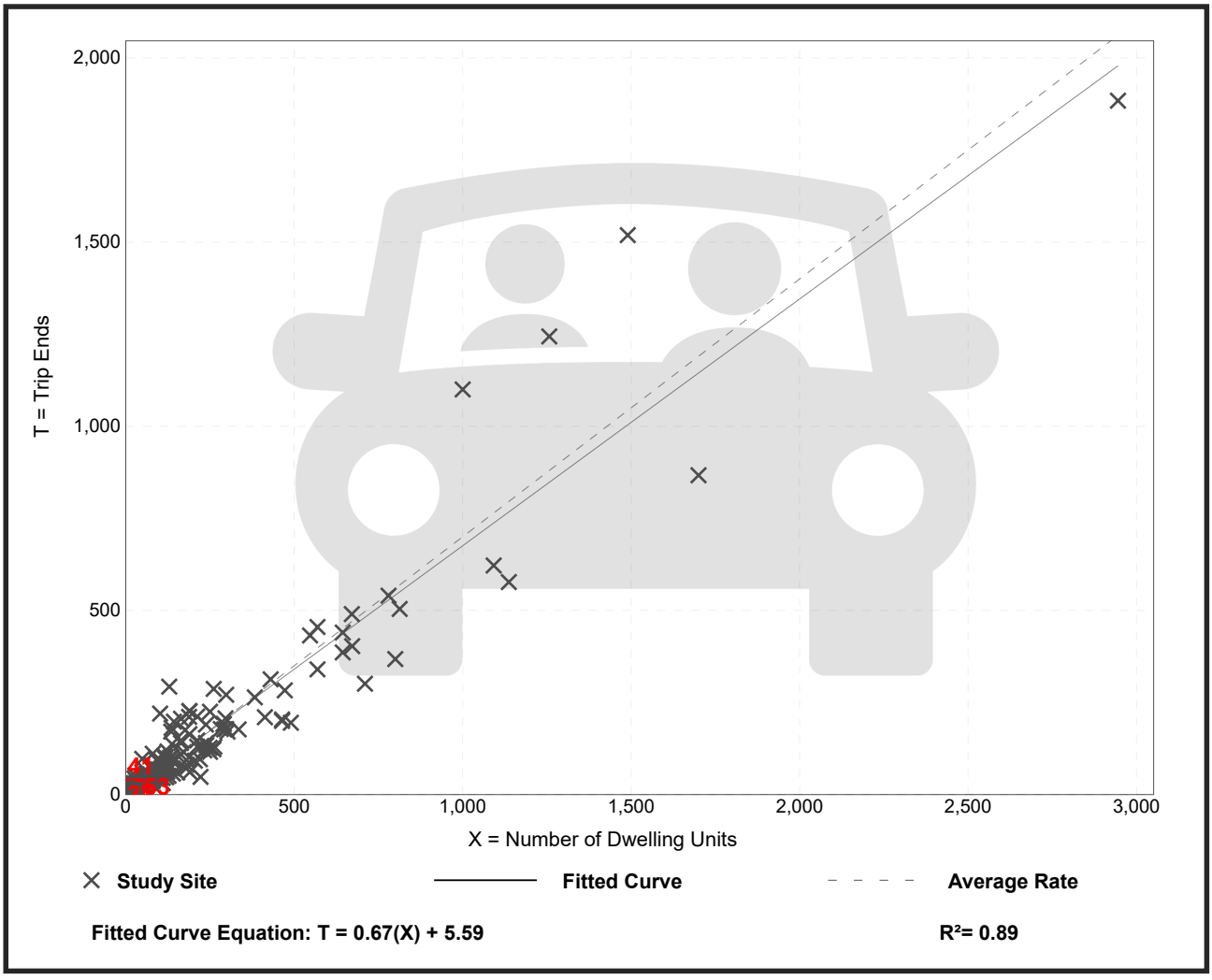
Single-Family Detached Housing
(210)

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: 153
Avg. Num. of Dwelling Units: 239
Directional Distribution: 27% entering, 73% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.22 - 2.27	0.26

Data Plot and Equation



Trip Gen Manual, 12th Edition ● Institute of Transportation Engineers

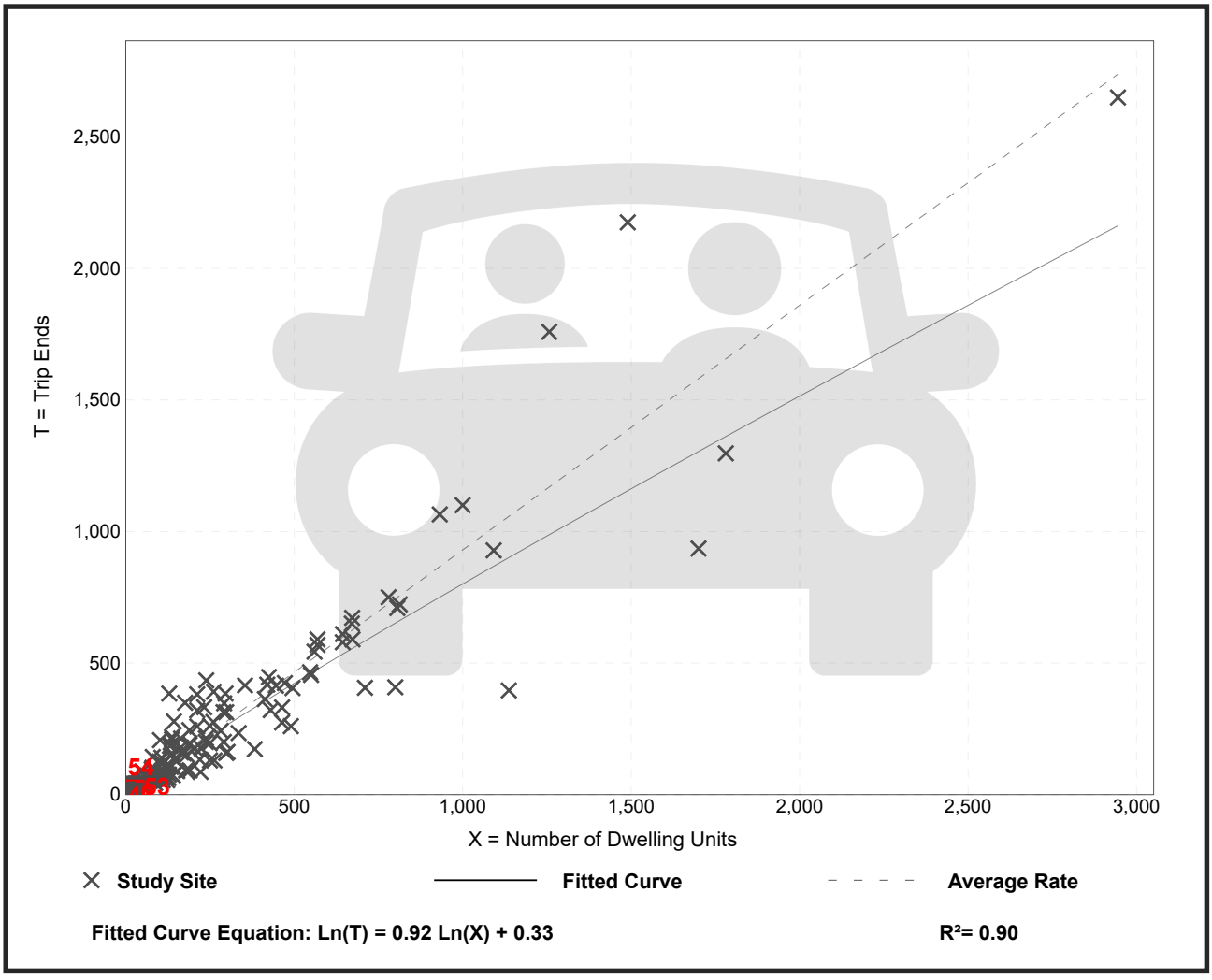
Single-Family Detached Housing
(210)

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: 166
Avg. Num. of Dwelling Units: 266
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.93	0.35 - 2.98	0.33

Data Plot and Equation



Trip Gen Manual, 12th Edition ● Institute of Transportation Engineers