



Model Development and Validation For the Ventura County Transportation Model Update to 2025 Base Year and 2050 Forecast Year (VCTM)



April 21, 2026

Submitted to:



12761.25 | Prepared by Iteris, Inc.

Innovating Through Informatics™



TABLE OF CONTENTS

- 1 ORGANIZATION AND APPROACH.....1
 - 1.1 Background.....1
 - 1.2 Model Description1
 - 1.3 SOFTWARE.....1
- 2 MODEL COMPONENTS.....1
 - 2.1 VCTM Components.....1
 - 2.2 Transportation Analysis Zones1
 - 2.3 Networks2
 - 2.4 Trip Generation6
 - 2.5 Trip Distribution12
 - 2.6 Mode Choice14
 - 2.7 Time of Day Factoring.....16
 - 2.8 Traffic Assignment.....16
 - 2.9 Air Quality Data Module.....18
- 3 MODEL VALIDATION24
 - 3.1 Assignment Validation.....24
 - 3.2 Conclusion28
- 4 FORECAST YEAR.....29
 - 4.1 Transportation Analysis Zones29
 - 4.2 Networks29
 - 4.3 Mode Choice31
 - 4.4 Air Quality Data Module.....32

APPENDICES

- Appendix A – Air Quality Summary
- Appendix B – SB 743 VMT Summaries

TABLES

- Table 2-1: VCTM Zone Structure.....1
- Table 2-2: Major Zonal Population Attributes for the Base Year (2025).....2
- Table 2-3: Facility Type Coding.....3
- Table 2-4: Base Year Transit Route Summary5
- Table 2-5: Income Group Definition.....7
- Table 2-6: Age of Household Head Categories.....7
- Table 2-7: Trip Purposes.....7



TABLE OF CONTENTS

Table 2-8: VCTM HBWD (Home-Based Work Direct) Trip Production Rates	8
Table 2-9: VCTM HBWS (Home-Based Work Strategic) Trip Production Rates	8
Table 2-10: VCTM HBSC (Home-Based School) Trip Production Rates	8
Table 2-11: VCTM HBCU (Home-Based College/University) Trip Production Rates	8
Table 2-12: VCTM HBNW (Home-Based Non-Work) Trip Production Rates	9
Table 2-13: VCTM WBO (Work-Based Other) Trip Production Rates	11
Table 2-14: VCTM OBO (Other-Based Other) Trip Production Rates	11
Table 2-15: VCTM HBSC and HBCU (Home-Based Work School and College/University) Trip Attraction Rates	11
Table 2-16: Time of Day Factors	12
Table 2-17: Destination Choice Model Coefficients	13
Table 2-18: Average Vehicle Occupancy for HOV3+ Trips	14
Table 2-19: Daily Trips by Mode (2025)	15
Table 2-20: Daily Shares of Trips by Mode	16
Table 2-21: Average Vehicle Occupancy for HOV3+ Trips	17
Table 2-22: VDF Parameters by Facility type, Speed Limit, and Area Type	17
Table 2-23: VCTM Base Year Regional Trip VMT (in 1,000s) Matrix	19
Table 2-24: VCTM Base Year District Trip VMT (in 1,000s) Matrix	20
Table 2-25: VCTM Base Year City Trip VMT Matrix	21
Table 2-26: VCTM Base Year (2025) Regional Air Quality Summary by Speed Bin	22
Table 2-27: VCTM Base Year Regional Air Quality Summary by Facility Type	22
Table 2-28: VCTM Base Year SB 743 VMT	23
Table 3-1: VCTM Screenline Validation	26
Table 3-2: Count/Volume Comparison by Facility Type	27
Table 4-1: Major Zonal Population Attributes for the Forecast Year (2050)	29
Table 4-2: Forecast Year Transit Route Summary	30
Table 4-3: Daily Trips by Mode (2050)	31
Table 4-4: Daily Shares of Trips by Mode (2050)	32
Table 4-5: VCTM Forecast Year Regional Trip VMT (in 1,000s) Matrix	33
Table 4-6: VCTM Forecast Year District Trip VMT Matrix	34
Table 4-7: VCTM Forecast Year City Trip VMT Matrix	35
Table 4-8: VCTM Forecast Year (2050) Regional Air Quality Summary by Speed Bin	36
Table 4-9: VCTM Forecast Year Regional Air Quality Summary by Facility Type	36
Table 4-10: VCTM Forecast Year SB 743 VMT	37



FIGURES

Figure 2-1: VCTM TAZ Structure within Ventura and Santa Barbara County.....2

Figure 2-2: VCTM Base Year Network4

Figure 2-3: Base Year Transit Network.....6

Figure 2-4: SCAG Mode Choice Model Nested Logit Model Structure15

Figure 3-1: VCTM Screenline Locations.....25

Figure 3-2: VCTM Count versus Volume Comparison27

Figure 4-1: VCTM Forecast Year (2050) Network.....30

Figure 4-2: Forecast Year Transit Network.....31

ACRONYMS

ACS	American Community Survey	V/C	Volume to Capacity
BPR	Bureau of Public Roads	VDF	Volume Delay Function
BRT	Bus Rapid Transit	VHD	Vehicle Hours of Delay
CEQA	California Environmental Quality Act	VHT	Vehicle Hours Traveled
FHWA	Federal Highway Administration	VMT	Vehicle Miles Traveled
FTIP	Federal Transportation Improvement Plan	WBO	Work-Based Other
GHG	Greenhouse Gas		
GIS	Geographic Information System		
HBCU	Home-Based College and University		
HBO	Home-Based Other		
HBSC	Home-Based School		
HBSH	Home-Based Shopping		
HBSP	Home-Based Serving Passenger		
HBSR	Home-Based Social-Recreational		
HBW	Home-Based Work		
HBWD	Home-Based Work Direct		
HBWS	Home-Based Work Strategic		
HOT	High-Occupancy Toll		
HOV	High-Occupancy Vehicle		
I	Interstate		
MPH	Miles Per Hour		
NCHRP	National Cooperative Highway Research Program		
OBO	Other-Based Other		
PCH	Pacific Coast Highway		
PeMS	Performance Measurement System		
RTP	Regional Transportation Plan		
RTP/SCS	Regional Transportation Plan/Sustainable Communities Solutions		
SB	Senate Bill		
SCAG	Southern California Association of Governments		
SED	Socioeconomic data		
SMDT	Sub-regional Model Development Tool		
SR	State Route		
TAZ	Transportation Analysis Zone		
TDF	Travel Demand Forecasting		
TIMF	Traffic Impact Mitigation Fee		
TTAC	Technical Transportation Advisory Committee		
US	United States		
VCTC	Ventura County Transportation Commission		
VCTM	Ventura County Transportation Model		

1 ORGANIZATION AND APPROACH

This report summarizes the results for development of the Ventura County Transportation Model (VCTM), a county-wide model consistent with regional and subregional models, including the base-year and forecast year land-use projections and transportation networks. The VCTM was developed to address the Ventura County General Plan Update, transportation impact assessments, vehicle miles travelled (VMT) forecasts for CEQA analysis, and air quality greenhouse gas (GHG) applications.

This document was updated in 2025 to reflect an update of the base year from 2012 to 2025, and the forecast year from 2045 to 2050.

1.1 Background

Ventura County has a long history in development and application of travel demand forecasting models. The original VCTM was developed in 1992 utilizing System 2 software and was updated for land use inputs and networks in 1997. The VCTM was re-developed in 2009 as a more comprehensive update of the original model and was one of the first county-wide models developed in TransCAD software in Southern California.

Ventura County is unique in Southern California in that it has relatively more stable and controlled growth patterns, and incorporated cities that are not as contiguous as cities in other counties, with vast intermediate preserved open spaces and a limited number of transportation facilities connecting the cities. In addition, Ventura County is at the northwestern end of the Southern California Association of Governments (SCAG) Region. As such, the VCTM shares several of its “cordon” points with the SCAG Regional Transportation Plan/Sustainable Communities Solutions (RTP/SCS) travel demand model, and has only a few connections with Los Angeles County, its’ only abutting county in the SCAG Region.

The previous version of this VCTM was updated in 2021 and validated to a base year of 2016. The documentation in this report reflects an update of the base year from 2016 to 2025.

1.2 Model Description

The base year of 2025 and the forecast year of 2050 were obtained from the 2024 SCAG RTP/SCS travel demand model and were updated through coordination with all cities within Ventura County. The updated travel demand model was developed using the TransCAD software package. The County’s highway network was updated and refined to include all key general plan roadways in the County of Ventura. The transit network in the County was also reviewed and found to be a satisfactory representation of transit services within the County. The forecasting model for the County is consistent with the traditional four step modeling process, which includes trip generation, trip distribution, mode split, and traffic assignment.

The following sections provide an overview of the VCTM and the steps that were followed in the development and validation of the updated Ventura County Transportation Model (VCTM).

1.3 SOFTWARE

This updated version of the VCTM utilizes TransCAD Version 9.0 (Build 32920).

2 MODEL COMPONENTS

This section of the report documents model inputs, variables, and parameters used in the VCTM. The review and revision of the model variables discussed in this document was an ongoing process throughout the development and validation of the 2025 Base Year model calibration. The intention of modifying variables or parameters is to ensure that the VCTM tool is tailored to meet the needs of Ventura County in supporting local and regional projects. Model inputs, variables, and parameters used within the VCTM are important to define and validate to ensure that the VCTM closely replicates existing travel within Ventura County.

2.1 VCTM Components

Update and development of the VCTM included seven main steps, as follows:

- Calibration of model components
- Network refinements and adjustments
- Automated model outputs for VMT, VHT, and VHD
- Automated model outputs for SB 743 VMT
- Automated plotting generator for County and Cities, including functional classification, number of lanes, posted speed assumptions, and V/C ratio (as a representation of level-of-service)

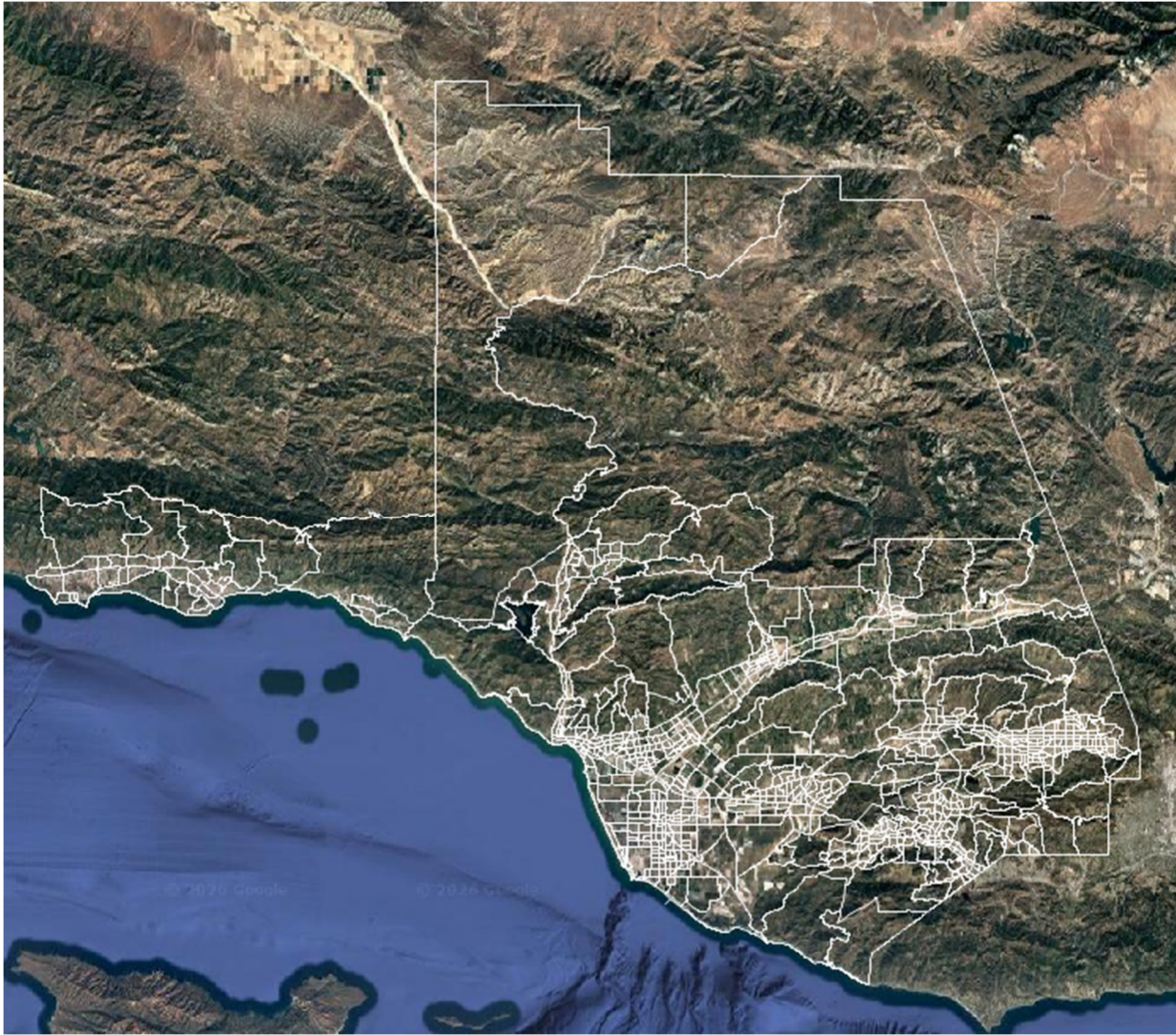
2.2 Transportation Analysis Zones

Transportation analysis zones (TAZs) are geographic areas dividing a planning region into relatively similar areas of land use or land activity. TAZs should be relatively homogenous in character and usually lie along major roadways, follow significant physical features, City, or other political boundaries. The TAZ structure for the VCTM was obtained through coordination with SCAG. An assumption was made that the Tier 2 level of zones within the SCAG model would be utilized to represent the VCTM. Additionally, TAZs from the Santa Barbara County Association of Governments (SBCAG) travel demand model were included into VCTM to fully capture regional trips.

The VCTM has a total of 1,508 zones excluding external zones. These zones include seven counties including Imperial County, Los Angeles County, Ventura County, San Bernardino County, Orange County, Riverside County, and parts of southern Santa Barbara County. **Table 2-1** summarizes the VCTM zone structure for the current and VCTM, **Figure 2-1** illustrates the internal zone structure within the VCTM for Ventura County, and **Table 2-2** reports the major zonal population attributes for the internal zones in 2025. External zones that are gates to the model to allow interaction with outside of the model area are not displayed in **Figure 2-1**.

Table 2-1: VCTM Zone Structure

MODEL AREA	VCTM	VCTM
	Zone Sequence	Number of Zones
Imperial County	10000001-10000015	15
Los Angeles County	20000017-22031300	635
Orange County	30000171-30000213	43
Riverside County	40000214-40000251	38
San Bernardino County	50000252-50000285	34
Ventura County	60001101-60210401	702
Santa Barbara County	70001001-70042002	41
External Zones	16727000-16933000, 26205000-26211000, 36940000, 6626000-46939000, 56212000-56625000, 66101000-66204000	40

Figure 2-1: VCTM TAZ Structure within Ventura and Santa Barbara County*Table 2-2: Major Zonal Population Attributes for the Base Year (2025)*

Zonal Attribute	Base Year (2025)
Total Household	296,228
Total Population	837,615
Total Employment	333,506
Total K12 Students	131,449
Total College Students	42,149

2.3 Networks

This section provides a detailed description of the highway network implemented in the VCTM, including the structure and attributes of network links. The highway network serves as a foundational supply-side component of the modeling system and plays a central role in shaping travel behavior and network performance outcomes. Characteristics such as roadway facility classification, area type, posted speed limits, and lane configurations are used to define link-level speeds and capacities, which directly influence model performance. Given the iterative nature of the modeling process and the extensive influence of the highway network on nearly all model

components, it is essential that the roadway network be developed and maintained to accurately reflect real-world roadway geometry, operating characteristics, and prevailing traffic conditions. The updated baseline base year (2025) and forecast year (2050) networks were obtained from SCAG and verified for existing and forecast year conditions.

2.3.1 Highway Network

The roadway network comprises interstates/freeways, arterials, and collector roadways while most local roadways are too detailed for modeling purposes and are represented using centroid connectors. However, selected local roadways that provide crucial network connections to major roadways or support the transit system were included in the network explicitly. Primary attributes which are critical to the performance of the travel demand model include:

- Functional Class,
- Speed Limits,
- Number of Lanes (by time period),
- Area Type,
- Directionality (one-way versus two-way streets), and
- Mode

Table 2-3 summarizes the facility type coding of the highway network. Facility type is one of the factors used to assign free flow speed and capacity to the network links. As a note, the free-flow speed is estimated using a speed lookup table (*located in 3_Params\1_Network\speed_table.bin*) and the capacity is estimated using a lookup table (*located in 3_Params\1_Network\cap_complex.bin*).

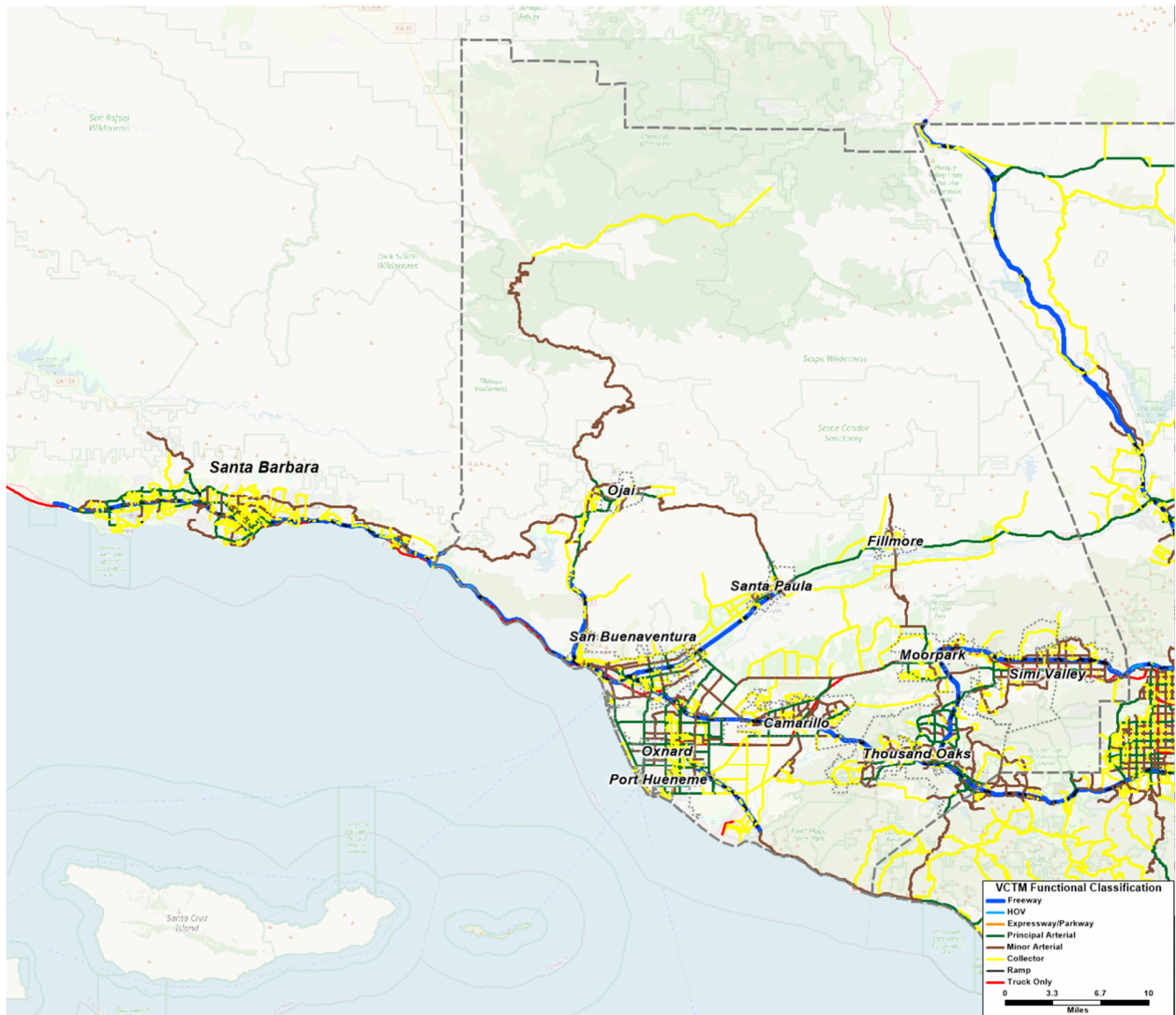
Table 2-3: Facility Type Coding

FACILITY TYPE	NETWORK CODE	DESCRIPTION
Freeway/HOV	10	Freeways
	20	HOV 2
	21	HOV 3+
	22	HOV to HOV Connector
Expressway/Parkway	30	Undivided
	31	Divided, Interrupted
	32	Divided, Uninterrupted
Principal Arterial	40	Undivided
	41	Divided
	42	Continuous Left-Turn
Minor Arterial	50	Undivided
	51	Divided
	52	Continuous Left-Turn
Major Collector	60	Undivided
	61	Divided
	62	Continuous Left-Turn
Minor Collector	70	Undivided
	71	Divided
	72	Continuous Left-Turn
	73	Posted Speed = 25
	74	Posted Speed = 15
Ramps	80	Freeway to Freeway Connector
	81	Off-ramp (Freeway to Arterial)
	82	On-ramp (Arterial to Freeway)
	83	Ramp Distributor
	84	Ramp from Arterial to HOV
	85	Ramp from HOV to Arterial

FACILITY TYPE	NETWORK CODE	DESCRIPTION
	86	Collector-Distributor
	87	Shared HOV Ramps to Mainline Facility
	89	Trucks Only
Truck-Only	90	Truck-Only Facility (non-ramp)
Centroid Connector	100	Tier 1
	200	Tier 2
	400	Tier 2 – Aggregated Regional Centroids
Rail	999	Rail

Figure 2-2 illustrates the VCTM base year highway network.

Figure 2-2: VCTM Base Year Network



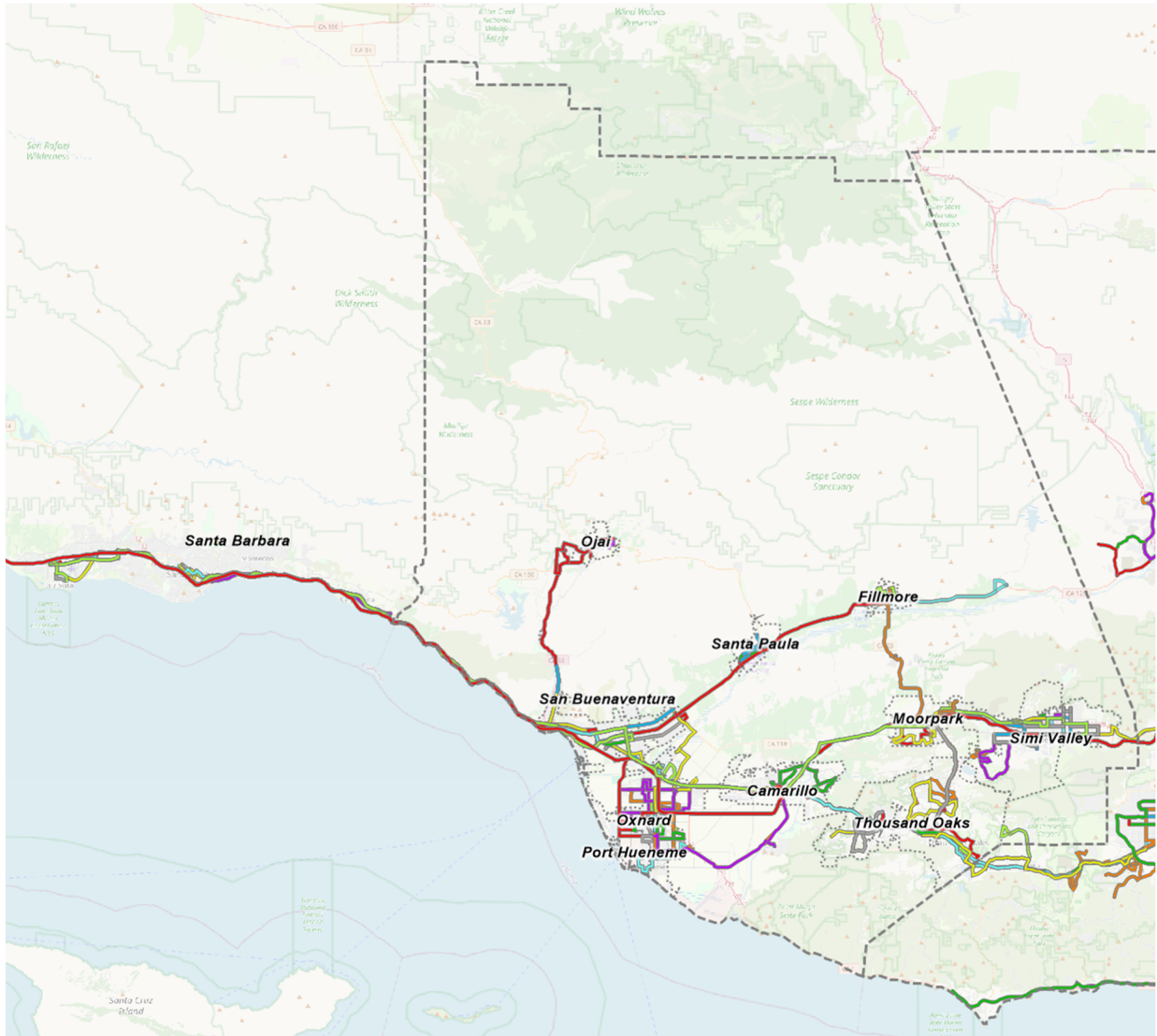
2.3.2 Transit Networks

Within Ventura County, there are multiple transit authorities, and modes of transit. **Table 2-4** summarizes the route information within the base year VCTM. **Figure 2-3** illustrates the base year model transit network within Ventura County.

Table 2-4: Base Year Transit Route Summary

TRANSIT AUTHORITY	NUMBER OF ROUTES
Amtrak	2
Camarillo Area Transit	1
Commuter Express	2
Gold Coast Transit	19
Kanan Shuttle	1
Metro	1
Metrolink	1
Moorpark City Transit	2
Ojai Trolley	2
Simi Valley Transit	4
Thousand Oaks Transit	5
Valley Express Transit Services	7
VCTC Intercity Transit	6

Figure 2-3: Base Year Transit Network



2.4 Trip Generation

The process of trip generation estimates daily person trips for average weekday conditions by trip purpose. Trip productions and trip attractions are estimated for each zone based on SCAG master socioeconomic inputs.

2.4.1 Household Classification

The trip generation model requires households to be classified according to several variables as follows:

- Household size,
- Number of workers in the household,
- Number of K12 students in the household,
- Number of college/university students in the household,
- Household income, and
- Number of autos in the household.

These classifications are consistent with the definitions used in the SCAG model. Household size is categorized into four groups (1, 2, 3, and 4+ persons). The number of workers per household is divided into four categories (0, 1, 2, and 3+), and the number of K–12 students is similarly grouped into four categories (0, 1, 2, and 3+). The number of college students is classified into three categories (0, 1, and 2+). **Table 2-5** and **Table 2-6** present the definitions for income groups and household head age categories.

Table 2-5: Income Group Definition

Income Group	Income Range (in 2011 dollars)
1	\$0 - \$34,999
2	\$35,000 - \$74,999
3	\$75,000 - \$149,999
4	>= \$150,000

Table 2-6: Age of Household Head Categories

Age Group	Age Range
1	18 - 24
2	25 - 44
3	45 - 64
4	>= 65

2.4.2 Trips by Purpose

The trip generation module of the VCTM generates trips at the household level. **Table 2-7** summarizes the trip purposes in the VCTM.

Table 2-7: Trip Purposes

TRIP PURPOSE	TRIP PURPOSE	TRIP PURPOSE DESCRIPTION
Home-Based Work	Home-Based Work Direct (HBWD)	HBWD trips go directly between home and work without intermediate stops.
	Home-Based Work Strategic (HBWS)	HBWS trips go to intermediate locations on the way to their work destination.
Home-Based School	Home-Based School (HBSC)	HBSC trips include all trips related to students with activity at the home end of the trip and a trip to a K-12 activity at the other end of the trip.
Home-Based College and University	Home-Based College and University (HBCU)	HBCU trips are all trips related to students over the age of 18 with activity at the home end of the trip and activity at a college or university at the other end of the trip.
Home-Based Shopping	Home-Based Shopping (HBSH)	HBSH trips go between a home activity and a shopping activity at the other end of the trip.
Home-Based Social-Recreational	Home-Based Social-Recreational (HBSR)	HBSR trips go between a home activity and a visit to a recreational or social activity at the other end.
Home-Based Serving-Passenger	Home-Based Serving Passenger (HBSP)	HBSP trips go between a home activity and a destination which serves a vehicle passenger trip. HBSP trips do not include HBW trips which make intermediate stops.
Home-Based Other	Home-Based Other (HBO)	HBO trips go between a home activity and a destination that does not classify as work, school, college, university, shopping, recreational, or serving a passenger.
Work-Based Other	Work-Based Other (WBO)	WBO trips go between a work activity and an activity that is not a home-based activity. An example of WBO trips would be to run an errand during a lunch break.

The following tables (**Table 2-8** to **Table 2-15**) summarize the trip production and attraction rates per vehicle by purposes based on a variety of model variables.

Table 2-8: VCTM HBWD (Home-Based Work Direct) Trip Production Rates

NUMBER OF WORKERS	AGE OF HEAD OF HOUSEHOLD	HOUSEHOLD INCOME (\$2011)			
		<\$35,000	\$35,000 TO \$75,000	\$75,000 TO \$150,000	>\$150,000
1	18-24	1.531	1.664	1.773	1.786
1	25-44	1.816	1.799	1.787	1.783
1	45-64	1.581	1.616	1.620	1.781
1	65+	1.578	1.644	1.604	1.692
2	18-24	2.762	2.692	2.707	2.718
2	25-44	3.044	3.048	3.174	3.268
2	45-64	3.092	3.167	3.177	3.167
2	65+	2.914	3.367	3.168	3.117
3+	18-24	3.832	4.043	4.186	4.224
3+	25-44	4.568	5.154	5.288	5.196
3+	45-64	4.665	4.949	5.095	5.040
3+	65+	4.169	4.268	4.474	4.623

Table 2-9: VCTM HBWS (Home-Based Work Strategic) Trip Production Rates

NUMBER OF WORKERS	AGE OF HEAD OF HOUSEHOLD	HOUSEHOLD INCOME (\$2011)			
		<\$35,000	\$35,000 TO \$75,000	\$75,000 TO \$150,000	>\$150,000
1	18-24	0.254	0.222	0.213	0.226
1	25-44	0.333	0.382	0.409	0.428
1	45-64	0.309	0.320	0.352	0.405
1	65+	0.298	0.234	0.279	0.305
2	18-24	0.552	0.633	0.637	0.639
2	25-44	0.692	0.694	0.833	0.821
2	45-64	0.670	0.672	0.741	0.788
2	65+	0.380	0.403	0.707	0.795
3+	18-24	0.682	0.720	0.746	0.752
3+	25-44	0.846	0.944	0.885	1.008
3+	45-64	0.773	0.841	0.873	0.979
3+	65+	0.638	0.652	0.629	0.649

Table 2-10: VCTM HBSC (Home-Based School) Trip Production Rates

NUMBER OF HOUSEHOLD MEMBERS 5-17 YEARS OLD	TRIP RATE
0	0.175
1	1.985
2	2.887
3+	5.369

Table 2-11: VCTM HBCU (Home-Based College/University) Trip Production Rates

HOUSEHOLD INCOME (\$2011)	NUMBER OF HOUSEHOLD MEMBERS 17 TO 25 YEARS OLD		
	0	1	2+
<\$35,000	0.067	0.441	0.584
\$35,000 to \$75,000	0.121	0.461	0.689
\$75,000 to \$150,000	0.065	0.463	0.692
>\$150,000	0.065	0.466	0.694

Table 2-12: VCTM HBNW (Home-Based Non-Work) Trip Production Rates

AUTO AVAILABILITY	HOUSEHOLD INCOME	HOUSEHOLD SIZE	TRIP PRODUCTION RATES			
			HBSH (Shopping)	HBSR (Social/Recreational)	HBSP (Strategic Passenger)	HBO (Other)
0	<\$35,000	1	0.509	0.502	0.063	0.882
		2	0.904	0.866	0.196	1.359
		3	0.803	1.015	1.405	1.803
		4+	1.560	1.367	1.008	2.567
	\$35,000 to \$75,000	1	0.316	0.502	0.053	0.882
		2	0.564	0.880	0.166	1.359
		3	0.803	1.015	1.381	1.803
		4+	1.429	1.367	0.988	2.646
	\$75,000 to \$150,000	1	0.316	0.502	0.047	0.882
		2	0.539	0.893	0.154	1.359
		3	0.803	1.015	1.362	1.803
		4+	1.429	1.367	0.964	3.651
	>\$150,000	1	0.316	0.502	0.047	0.882
		2	0.539	0.893	0.142	1.359
		3	0.803	1.015	1.346	1.803
		4+	1.429	1.367	0.941	3.651
1	<\$35,000	1	0.509	0.557	0.110	1.013
		2	0.968	1.110	0.575	1.432
		3	1.159	1.501	1.727	1.909
		4+	2.064	1.868	3.584	2.646
	\$35,000 to \$75,000	1	0.374	0.688	0.083	1.013
		2	0.785	1.124	0.441	1.448
		3	0.920	1.530	1.703	1.932
		4+	1.666	2.085	3.438	2.706
	\$75,000 to \$150,000	1	0.374	0.704	0.055	1.013
		2	0.686	1.151	0.381	1.514
		3	0.920	1.557	1.679	1.975
		4+	1.666	2.505	3.330	3.730
	>\$150,000	1	0.374	0.717	0.059	1.013
		2	0.817	1.151	0.168	1.674
		3	0.920	1.584	1.667	2.304
		4+	1.666	2.573	3.307	3.730
2	<\$35,000	1	0.558	0.609	0.066	1.040
		2	0.968	1.151	0.355	1.817
		3	1.159	1.625	1.393	1.905
		4+	1.588	2.099	3.490	3.094
	\$35,000 to \$75,000	1	0.374	0.704	0.066	1.106
		2	0.875	1.191	0.238	1.567
		3	0.900	1.652	1.334	1.941
		4+	1.291	2.355	3.348	3.168
	\$75,000 to \$150,000	1	0.379	0.744	0.049	1.119
		2	0.787	1.205	0.202	1.754
		3	0.908	1.679	0.778	2.212
		4+	1.084	2.567	3.243	3.950

AUTO AVAILABILITY	HOUSEHOLD INCOME	HOUSEHOLD SIZE	TRIP PRODUCTION RATES			
			HBSH (Shopping)	HBSR (Social/ Recreational)	HBSP (Strategic Passenger)	HBO (Other)
3	>\$150,000	1	0.379	0.744	0.049	1.119
		2	0.716	1.218	0.207	1.514
		3	0.908	1.692	0.702	2.332
		4+	1.084	2.952	3.220	4.062
	<\$35,000	1	0.558	0.812	0.066	1.040
		2	0.968	1.327	0.409	1.817
		3	1.412	1.665	0.690	2.172
		4+	1.588	2.342	3.131	3.094
	\$35,000 to \$75,000	1	0.501	0.812	0.066	1.106
		2	0.894	1.335	0.313	1.580
		3	0.944	1.679	0.476	2.297
		4+	1.712	2.370	3.003	3.835
	\$75,000 to \$150,000	1	0.501	0.812	0.049	1.119
		2	0.894	1.367	0.285	1.637
		3	0.944	1.706	0.357	2.304
		4+	1.324	2.623	2.909	3.950
	>\$150,000	1	0.501	0.812	0.049	0.187
		2	0.745	1.394	0.266	1.685
		3	1.466	1.760	0.333	2.309
		4+	1.324	2.952	2.889	4.062
4	<\$35,000	1	0.558	0.812	0.066	1.040
		2	0.968	1.327	0.409	1.817
		3	1.412	1.665	0.690	2.172
		4+	1.588	2.342	3.131	3.094
	\$35,000 to \$75,000	1	0.501	0.812	0.066	1.106
		2	0.894	1.335	0.313	1.580
		3	0.944	1.679	0.476	2.297
		4+	1.712	2.370	3.003	3.835
	\$75,000 to \$150,000	1	0.501	0.812	0.049	1.119
		2	0.894	1.367	0.285	1.637
		3	0.944	1.706	0.357	2.304
		4+	1.324	2.623	2.909	3.950
	>\$150,000	1	0.501	0.812	0.049	0.187
		2	0.745	1.394	0.266	1.685
		3	1.466	1.760	0.333	2.309
		4+	1.324	2.952	2.889	4.062

Table 2-13: VCTM WBO (Work-Based Other) Trip Production Rates

WORKERS PER HOUSEHOLD	HOUSEHOLD SIZE	HOUSEHOLD INCOME			
		<\$35,000	\$35,000 to \$75,000	\$75,000 to \$150,000	>\$150,000
1	1	0.480	0.571	0.752	0.752
	2	0.374	0.962	0.878	0.693
	3	0.498	0.940	0.901	0.774
	4+	0.498	0.514	0.539	0.746
2	1	N/A	N/A	N/A	N/A
	2	0.917	1.107	1.194	1.138
	3	0.955	1.100	1.845	1.845
	4+	0.955	0.824	1.018	1.156
3+	1	N/A	N/A	N/A	N/A
	2	N/A	N/A	N/A	N/A
	3	0.573	0.573	0.785	2.061
	4+	0.635	0.635	1.345	2.518

Table 2-14: VCTM OBO (Other-Based Other) Trip Production Rates

HOUSEHOLD INCOME	HOUSEHOLD SIZE	AUTO AVAILABILITY				
		0	1	2	3	4
<\$35,000	1	0.521	1.626	1.699	1.753	1.753
	2	1.239	2.345	2.398	2.455	2.455
	3	1.783	2.905	2.968	3.025	3.025
	4+	3.242	4.366	4.404	4.455	4.455
\$35,000 to \$75,000	1	0.568	1.773	1.852	1.912	1.912
	2	1.315	2.488	2.544	2.605	2.605
	3	1.879	3.063	3.129	3.188	3.188
	4+	3.373	4.542	4.582	4.635	4.635
\$75,000 to \$150,000	1	0.547	1.709	1.786	1.843	1.843
	2	1.291	2.442	2.497	2.557	2.557
	3	1.831	2.984	3.048	3.106	3.106
	4+	3.330	4.484	4.523	4.575	4.575
>\$150,000	1	0.557	1.739	1.817	1.875	1.875
	2	1.318	2.494	2.551	2.612	2.612
	3	1.857	3.025	3.091	3.150	3.150
	4+	3.368	4.535	4.575	4.628	4.628

Table 2-15: VCTM HBSC and HBCU (Home-Based Work School and College/University) Trip Attraction Rates

TRIP PURPOSE	TRIP ATTRACTION RATE (ATTRACTION PER ENROLLED STUDENT)
HBSC (Home-Based School)	1.326
HBCU (Home-Based College), Non-Group Quarters	0.542
HBCU (Home-Based College), Group Quarters	1.500

Trip generation is performed for a full 24-hour period. However, the subsequent trip distribution and mode choice procedures are executed separately for peak and off-peak time periods. To support this segmentation, daily trip totals are divided into peak and off-peak components using the time-of-day factors provided in **Table 2-16**.

Table 2-16: Time of Day Factors

Trip Purpose	Peak Period Factor	Off-peak Period Factor
HBWD	0.6422	0.3578
HBWS	0.6584	0.3416
HBO	0.4083	0.5917
HBSP	0.6117	0.3883
HBSH	0.351	0.649
HBSR	0.4368	0.5632
HBSC	0.739	0.261
HBCU	0.3562	0.6438
WBO	0.3031	0.6969
OBO	0.4171	0.5829

2.5 Trip Distribution

Trip distribution is the second stage of the four-step travel demand modeling process. In this phase, trip productions and attractions estimated during trip generation are spatially connected by allocating trips across all origin–destination pairs within the study area. In the VCTM, most trip purposes are distributed using destination choice models, while home-based school (HBSC) and home-based college/university (HBCU) trips are distributed using gravity models.

2.5.1 Destination Choice Model

The VCTM utilizes a destination choice modeling framework to estimate the spatial distribution of most home-based trips between each residential origin zone and all internal destination zones within the study area. This framework allocates trips by estimating the probability that a trip originating in each zone will be attracted to each potential destination, conditional on traveler characteristics, destination attributes, and network conditions.

Destination choice models are a class of trip distribution, or spatial interaction models formulated within a discrete choice framework, most commonly using multinomial logit specifications. Destination choice models offer a more behaviorally realistic representation of travel decisions by explicitly modeling destination selection as a choice among competing alternatives.

Prior to estimating destination choice models, a series of supply-side inputs must be developed and processed to generate variables. One of the most critical of these inputs is the mode-specific generalized cost, which captures the combined effects of travel time, distance, and monetary costs on destination. As described earlier, a discrete choice framework is used to estimate the distribution of trips from each residential origin zone to all internal destination zones. The resulting destination probability vectors are applied to the trip productions to generate the trip matrix in production–attraction (PA) format.

The destination choice model is specified separately for each trip purpose using a multinomial logit formulation. For each origin zone, the full set of internal zones constitutes the choice set. The utility associated with each origin–destination (OD) pair is defined in the equation presented below.

$$U_{ij} = \ln(A_j) + B_1 \cdot \text{Logsum}_{ij} + b\text{Dist} \cdot \text{Dist} + b\text{Dist}_{10,15} \cdot \text{Dist}_{10,15} + b\text{Dist}_{15,25} \cdot \text{Dist}_{15,25} + b\text{Dist}_{25} \cdot \text{Dist}_{25} + K_{ij}$$

Where:

- U_{ij} is the utility between zones i and j ,
- A_j is the Attractions in zone j (by purpose),
- B_1 is the logsum coefficient,
- $b\text{Dist}$ is the coefficient on total distance,

- Dist is the total distance between zones i and j ,
- $b\text{Dist}_{x,y}$ is the coefficient on portion of distance between x and y miles,
- $\text{Dist}_{x,y}$ is the distance between x and y miles, and
- K_{ij} is the factor for county to county and/or RSA to RSA flows

The utility for intrazonal trips is calculated separately and has another term that takes zonal mixed density class into account. Coefficients used in the destination choice model are reported in **Table 2-17** by purpose.

Table 2-17: Destination Choice Model Coefficients

Variable	HBWD	HBWS	HBO	HBSH	HBSP	HBSR	OBO	WBO
Logsum Coefficient	0.900	0.900	0.900	0.900	0.900	0.900	0.900	
Distance Cap – Segment 1	55	100/75	40/75	60/65	110/85	85		
Distance Cap – Segment 2	80/75	100/75	40/75	60/65	110/85	85		
Distance Cap – Segment 3	75/55	100/75	40/75	60/65	85	85		
Distance Cap – Segment 4	55	100/75	40/75	60/65	85	85		
Distance Cap – Segment 5	55	100/75	40/75	60/65	110/85	85		
Distance Cap							60	60
Distance	-0.100	-0.080	-0.280	-0.350	-0.425	-0.180	-0.150	-0.075
Distance over 10 miles	-0.006	-0.424	-0.096	-0.069	0.126	-0.309	-0.014	-0.076
Distance over 15 Med miles	0.078	0.630	0.392	0.473	0.303	0.674	0.227	0.183
Distance over 25 miles	-0.024	-0.311	-0.196	-0.616	-1.486	-0.326	-0.063	-0.032
Intrazonal	0.500	-0.052	0.0	-0.200	0.0	0.0	-0.200	-0.200
Intrazonal – Low Mixed Density				1.819			1.790	2.231
Intrazonal – Low Med Mixed Density				0.974			1.260	1.618
Intrazonal – Medium Mixed Density				0.000			0.000	0.000
Intrazonal – High Mixed Density				0.556			0.389	-0.006

2.5.2 Gravity Model

VCTM distributes Home-Based School (HBSC) and Home-Based College/University (HBCU) trips using a doubly constrained gravity model. This approach balances trip productions and attractions so that the total trips originating from each zone equal its productions and the total trips destined for each zone equal its attractions. The gravity formulation estimates trips between origin zone i and destination zone j as a function of three primary components:

- The number of productions in the origin zone
- The number of attractions in the destination zone
- The level of impedance (travel cost) between the two zones

Impedance effects are incorporated through friction factors, which represent travelers' sensitivity to travel time or cost. As travel impedance increases, the friction factor decreases, reducing the likelihood of trips between those zones. In other words, zones that are farther apart or less accessible exchange fewer trips than zones that are closer or more accessible.

The gravity model assumes that trip interchange between two zones is directly proportional to the magnitude of productions and attractions in those zones and inversely related to the impedance separating them. The general structure of the model is:

$$T_{ij} = P_i \frac{A_j F_{ij} K_{ij}}{\sum_{j=1}^n (A_j F_{ij} K_{ij})}$$

Where:

- T_{ij} = trips from origin zone i to destination zone j
- P_i = productions in zone i
- A_j = attractions in zone j
- F_{ij} = friction factor between zones i and j
- K_{ij} = adjustment (K-factor) between zones i and j

K-factors are applied, when necessary, to account for localized travel behavior patterns or structural characteristics of the transportation system that are not fully captured by the aggregated model variables. These adjustments are often implemented at a district or jurisdictional level to refine regional distribution patterns.

For HBSC and HBCU trip purposes, VCTM represents friction factors using a gamma function, which relates travel time to trip-making propensity. The functional form is:

$$F_{ij} = \alpha t^{-\beta} e^{-\gamma t}$$

Where:

- F_{ij} = friction factor between zones i and j
- t = travel time between zones
- α, β, γ = calibrated parameters

Separate parameter values are estimated for peak and off-peak periods. This functional form allows the model to capture both the gradual decline in trip-making with increasing travel time and the more rapid decay observed at longer travel times. **Table 2-18** summarizes the parameters for average vehicle occupancy parameters.

Table 2-18: Average Vehicle Occupancy for HOV3+ Trips

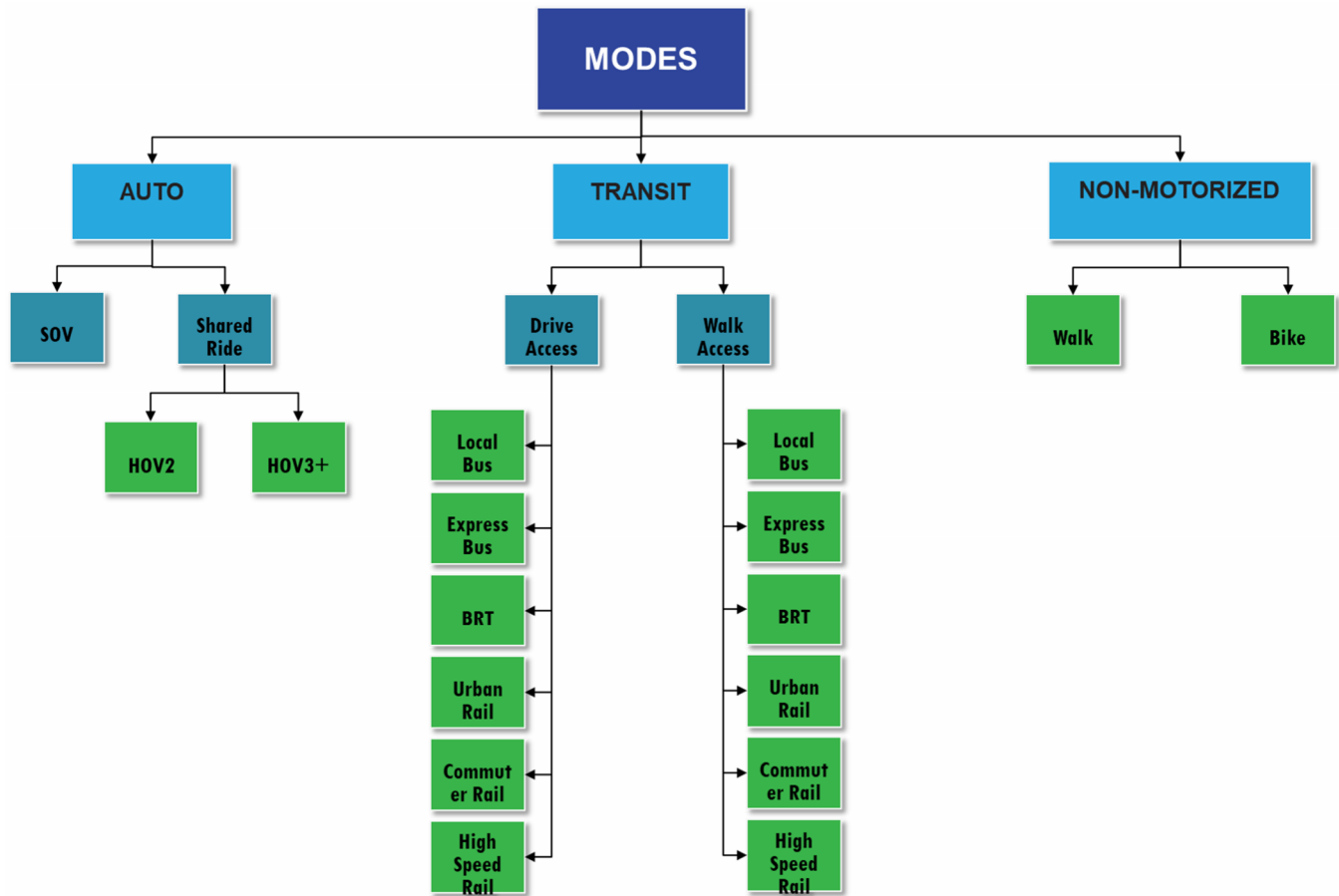
Parameter	Peak		Off-Peak	
	HBSC	HBCU	HBSC	HBCU
Alpha	65.0000	50.0000	65.0000	50.0000
Beta	1.6224	2.07662	2.44807	5.99582
Gamma	0.2095	0.08400	0.10157	0.10517

2.6 Mode Choice

The mode choice model determines the proportion of trips allocated to each available travel mode for trips produced in each zone, segmented by trip purpose, time period (peak and off-peak), and socio-economic characteristics of the household (combination of auto ownership and number of workers in the household). This step follows the destination choice model, which establishes the distribution of trips between production–attraction pairs. Mode selection is modeled as a function of traveler characteristics, trip attributes such as travel time and cost, and land use factors that influence modal attractiveness.

Figure 2-4 illustrates the mode choice nested logit model structure used in the VCTM.

Figure 2-4: SCAG Mode Choice Model Nested Logit Model Structure



The mode choice model results for the base year by trip purpose and mode are presented in **Table 2-19** and **Table 20-20**. Trips are reported by access mode for transit trips. Although the results shown in **Table 2-19** and **Table 2-20** are in daily basis, the model estimates mode shares by peak and off-peak period.

Table 2-19: Daily Trips by Mode (2025)

Mode	HBW	HBSC	HBCU	HBNW	OBO	WBO	Total
Drive Alone	441,127	17,015	12,490	596,623	327,291	114,668	1,509,214
Shared Ride 2	44,834	38,681	3,961	411,576	221,248	20,716	741,015
Shared Ride 3+	15,757	58,510	1,801	364,542	163,461	10,178	614,250
Drive to Local Bus	159	12	8	56	23	40	297
Drive to Express Bus	24	1	8	6	2	5	46
Drive to BRT	84	0	16	9	1	3	112
Drive to Urban Rail	7	0	6	0	0	1	14
Drive to Commuter Rail	551	0	1	26	7	15	601
Drive to High Speed Rail	0	0	0	0	0	0	0
Walk to Local Bus	3,669	271	1,603	3,226	358	436	9,563
Walk to Express Bus	320	23	841	174	36	60	1,454
Walk to BRT	375	11	82	339	64	137	1,009
Walk to Urban Rail	15	0	140	14	25	55	249

Mode	HBW	HBSC	HBCU	HBNW	OBO	WBO	Total
Walk to Commuter Rail	65	0	2	7	32	37	143
Walk to High Speed Rail	0	0	0	0	0	0	0
Walk	9,391	53,823	1,773	97,166	56,527	9,716	228,396
Bike	485	5,953	112	6,579	3,014	3,387	19,530
Total	516,862	174,301	22,845	1,480,343	772,091	159,453	3,125,894

Table 2-20: Daily Shares of Trips by Mode

Mode	HBW	HBSC	HBCU	HBNW	OBO	WBO	Total
Drive Alone	85.3%	9.8%	54.7%	40.3%	42.4%	71.9%	48.3%
Shared Ride 2	8.7%	22.2%	17.3%	27.8%	28.7%	13.0%	23.7%
Shared Ride 3+	3.0%	33.6%	7.9%	24.6%	21.2%	6.4%	19.7%
Drive to Local Bus	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Drive to Express Bus	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Drive to BRT	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Drive to Urban Rail	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Drive to Commuter Rail	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Drive to High Speed Rail	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Walk to Local Bus	0.7%	0.2%	7.0%	0.2%	0.0%	0.3%	0.3%
Walk to Express Bus	0.1%	0.0%	3.7%	0.0%	0.0%	0.0%	0.0%
Walk to BRT	0.1%	0.0%	0.4%	0.0%	0.0%	0.1%	0.0%
Walk to Urban Rail	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%
Walk to Commuter Rail	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Walk to High Speed Rail	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Walk	1.8%	30.9%	7.8%	6.6%	7.3%	6.1%	7.3%
Bike	0.1%	3.4%	0.5%	0.4%	0.4%	2.1%	0.6%
Total	100%	100%	100%	100%	100%	100%	100%

2.7 Time of Day Factoring

The mode choice model outputs trips in production–attraction (PA) format and classifies them by peak and off-peak periods. Before traffic assignment, these trips are converted to origin–destination (OD) format using PA-to-OD conversion factors. After conversion to OD format, trips are allocated to five time periods using fixed purpose-based factors. Because the mode choice model distinguishes only between peak and off-peak periods, peak trips are apportioned to AM and PM, while off-peak trips are distributed between MD, EVE, and NT. The five highway assignment time periods are as follows:

- AM Peak Period = 6:00 AM to 9:00 AM
- Midday Time Period = 9:00 AM to 3:00 PM
- PM Peak Period = 3:00 PM to 7:00 PM
- Evening Time Period = 7:00 PM to 9:00 PM
- Night-time Period = 9:00 PM to 6:00 AM

2.8 Traffic Assignment

Traffic assignment is the final step in the four-step travel demand modeling process is the assignment of the vehicle trip tables to the highway network. The traffic assignment process chooses the specific travel route between zone pairs for any given trip for each time period. Traffic assignment utilizes a generalized cost

function to build travel paths. The generalized cost function is based on travel time, high-occupancy toll (HOT) lane perceived penalties, auto operating costs, toll values, and a cost conversion factor.

2.8.1 Vehicle Occupancy Factor

Average vehicle occupancy factors were applied to the trip table to convert person-trip tables into vehicle-trip tables. A factor of 1 was used for SOV trips and 2 for HOV2 trips; however, the factor for HOV3+ trips needed to be determined. The VCTM applied the average vehicle occupancy factor by trip purpose, as reported in **Table 2-21**.

Table 2-21: Average Vehicle Occupancy for HOV3+ Trips

Trip Purpose	Average Occupancy Factor for HOV3+
HBW	3.572
HBO	3.595
HBSH	3.595
HBSR	3.595
HBSP	3.595
HBSC	3.094
HBCU	3.443
OBO	3.654
WBO	3.602

2.8.2 Volume Delay Function

Volume Delay Functions (VDFs) simulate how highway speeds decline as traffic volumes approach capacity. During highway assignments VDFs calculate travel speed changes based on the Volume/Capacity (V/C) ratio. This process is repeated in each iteration until the assignment converges, ensuring that optimal routing is determined while reflecting congestion impacts from all vehicle trips on the network.

The following VDF function was used for the VCTM:

$$T_c = T_0 [1 + \alpha (V/C)^\beta]$$

Where:

- T_c is the congested travel time,
- T_0 is the free flow travel time,
- V is the traffic volume,
- C is the roadway capacity, and
- α and β are parameters.

The VDF parameters are reported in **Table 2-22**.

Table 2-22: VDF Parameters by Facility type, Speed Limit, and Area Type

Facility Type	Speed Limit	Area Type	Alpha	Beta
Freeways	All	All	0.6	8.0
Expressways	<=45	1-5	0.6	5.0
Expressways	<=45	6 and 7	0.6	6.0
Expressways	<=45	All	0.6	8.0
Others	All	1-5	0.6	5.0
Others	All	6 and 7	0.6	6.0

2.8.3 Generalized Cost Function

The traffic assignment procedure applies a generalized cost formulation to incorporate tolls and vehicle operating costs into route choice decisions. This formulation converts travel time, distance, and toll charges into a unified cost metric, enabling consistent evaluation of alternative paths. Within the modified BPR function, the travel time variables (TF and TC) are replaced with the calculated generalized cost values, as defined below

$$GC = T_c + (OperatingCost + Toll) / vot$$

Where:

- *GC* is the generalized Cost,
- *T_c* is the congested travel time (minute),
- *OperatingCost* is the vehicle operating cost (dollar), and
- *vot* is the value of time (\$/min)

2.8.4 Multi-Class Assignment

The highway assignment process differentiates among six vehicle classes: Single Occupant Vehicles (SOV), Shared Ride 2 (SR2), Shared Ride 3+ (SR3+), Light-Duty Trucks (LDT), Medium-Duty Trucks (MDT), and Heavy-Duty Trucks (HDT). These classes are loaded onto the network concurrently, with link availability controlled through class-specific restrictions. Upon completion of the assignment, volumes are reported by vehicle class as well as in total.

2.9 Air Quality Data Module

The California Environmental Quality Act (CEQA) guidelines under SB 743 identify vehicle miles traveled (VMT) as the appropriate metric for evaluating transportation-related environmental impacts. Unlike the traditional level of service (LOS) measure, which focuses on vehicle delay and roadway congestion, VMT quantifies the amount and distance of vehicle travel generated by a project and provides a stronger basis for assessing greenhouse gas (GHG) emissions and regional mobility outcomes. The air quality data module supports this framework by generating both zonal-level and link-level VMT for air quality and GHG analysis, as well as for meeting SB 375 climate Action Plan (CAP) requirements.

2.9.1 Zone-Based VMT

A zone-based VMT calculation identifies the total number of trips produced by, or attracted to, a zone and uses the model distance “skims” to calculate a VMT. The “skim” is a matrix generated by the model that represents the zone-to-zone travel distances and travel times for the entire model area.

Daily VMT by zone is calculated by multiplying the origin-destination trip tables by travel distance “skims” from the highway assignment for each time periods separately. Each time period is calculated separately because travel paths between origin and destination (and the resulting VMT) can vary due in congested versus uncongested travel conditions. The time periods are summed together to calculate the daily VMT. VMT is calculated separately to autos and trucks to facilitate air quality analysis which typically need this breakdown. Zone-based VMT is calculated for four different categories:

- Travel wholly within the jurisdiction boundary (Internal to Internal)
- Trips originating within the jurisdiction but ending outside the jurisdiction (Internal to External)
- Trips originating outside the jurisdiction and ending inside the jurisdiction (External to Internal)
- Trips with origins and destinations outside the jurisdiction (External to External)

For the purposes of a CAP the VMT associated with “External to External” trips are not attributable to the jurisdiction. By convention only 50% of the VMT associated with “Internal to External” and “External to Internal” trips are allocated to the jurisdiction itself and the other 50% allocated to the non-jurisdiction (or “external”)

end on the trip. VMT trip matrices are generated for four separate sets of geographies, and daily VMT is summarized as follows:

- Regional (summarized in **Table 2-23**)
- General Plan Districts (summarized in **Table 2-24**)
- Cities (summarized in **Table 2-25**)

As summarized in **Table 2-23**, approximately 9% of VMT within Ventura County is attributed to internal-to-internal trips, and 91% of VMT is associated with internal to external trips. A full summary of air quality data from the model is summarized in **Appendix A**.

Table 2-23: VCTM Base Year Regional Trip VMT (in 1,000s) Matrix

	EXTERNAL *	INTERNAL (VENTURA COUNTY)
External*	N/A	692
Internal (Ventura County)	693	136
Sum of Internal-to-Internal VMT (in 1,000s)		136
Sum of Internal-to-External VMT (in 1,000s)		1,386
%Internal to Internal		9%
%Internal to External		91%
*Note that half of the VMT is attributed to the external area		

Table 2-24: VCTM Base Year District Trip VMT (in 1,000s) Matrix

	Ojai Area	Ventura Area	Oxnard Area	Port Hueneme Area	Santa Paula Area	Las Posas Area	Camarillo Area	Fillmore Area	Moorpark Area	Thousand Oaks Area	Piru Area	Simi Valley Area	Oak Park Area	Ahmanson Ranch Area	Unincorporated Ventura County	Santa Barbara	Non-Ventura County
Ojai Area	39,504	5,313	2,746	188	670	24	519	133	77	346	9	73	5	0	136	478	1,170
Ventura Area	5,428	204,649	67,255	3,549	5,848	327	5,835	986	1,146	4,624	60	1,095	123	2	86	7,042	6,748
Oxnard Area	2,712	66,360	328,614	26,472	3,313	657	19,843	932	1,732	8,071	46	1,757	264	3	30	2,123	11,462
Port Hueneme Area	183	3,509	26,452	6,812	180	26	909	48	133	678	2	99	13	0	2	131	935
Santa Paula Area	702	5,902	3,414	186	34,677	157	866	1,197	386	1,006	42	573	14	0	22	367	2,370
Las Posas Area	24	337	678	27	163	297	1,482	67	621	375	4	209	10	0	1	11	782
Camarillo Area	518	5,914	20,370	932	851	1,434	73,825	422	3,393	16,204	35	2,704	229	5	8	374	10,892
Fillmore Area	136	1,006	949	50	1,220	65	430	13,813	254	1,053	369	791	40	0	35	33	3,785
Moorpark Area	77	1,155	1,749	135	382	607	3,411	338	30,346	10,828	40	12,685	257	3	14	64	9,679
Thousand Oaks Area	347	4,638	8,126	686	991	356	15,854	1,034	10,466	236,079	69	17,310	5,552	30	14	379	74,885
Piru Area	9	61	46	2	43	3	36	370	40	70	964	68	2	0	10	4	968
Simi Valley Area	73	1,094	1,757	100	562	198	2,688	776	11,872	17,417	67	189,991	461	8	10	120	42,702
Oak Park Area	5	123	267	14	14	10	230	40	226	5,666	2	464	3,648	8	0	8	12,541
Ahmanson Ranch Area	0	2	3	0	0	0	6	0	3	31	0	8	9	2	0	0	477
Unincorporated Ventura County Area	143	88	30	2	23	1	9	38	14	14	11	11	0	-	-	-	67
Santa Barbara	479	7,070	2,143	134	365	11	373	33	64	375	4	120	8	0	5	N/A	N/A
Non-Ventura County	1,197	6,793	11,575	957	2,370	762	10,793	3,751	9,491	73,821	949	41,559	12,389	463	67	N/A	N/A

Table 2-25: VCTM Base Year City Trip VMT Matrix

	Camarillo	Fillmore	Moorpark	Ojai	Oxnard	Port Hueneme	San Buenaventura	Santa Paula	Simi Valley	Thousand Oaks	Unincorporated	Non-Ventura County
Camarillo	2,004	95	552	82	2,302	172	1,483	191	1,027	2,612	1,235	53,164
Fillmore	97	87	88	19	200	20	190	85	171	208	167	8,134
Moorpark	548	84	693	37	896	67	628	110	1,138	1,370	565	32,868
Ojai	84	19	37	130	240	26	292	50	97	171	286	7,789
Oxnard	2,326	197	895	236	9,889	874	5,689	567	1,873	3,631	2,742	130,504
Port Hueneme	171	20	67	26	850	144	506	54	161	286	291	10,508
San Buenaventura	1,502	189	632	285	5,634	477	7,608	639	1,462	2,653	2,399	102,426
Santa Paula	199	85	114	50	584	54	644	308	245	356	352	15,334
Simi Valley	1,027	166	1,131	96	1,882	162	1,460	240	5,109	3,121	1,287	103,141
Thousand Oaks	2,485	203	1,378	168	3,564	285	2,604	343	3,091	10,373	2,450	147,774
Unincorporated	1,239	165	572	285	2,744	291	2,416	347	1,292	2,482	2,638	81,851
Non-Ventura County	53,311	8,067	32,963	7,769	130,904	10,561	102,580	15,217	103,644	145,602	81,616	N/A

2.9.2 Link-Based VMT

Traditional VMT calculations are link-based and include all the links within an area. This includes trip generated within that area as well as through trips. An advantage of the link-based methodology compared to the Zone-based method is that VMT by “speed bin” an important input to air quality model, can be calculated.

The VCTC model calculates VMT by speed bin for five miles per hour speed increments for each time period separately then adds together for derive daily VMT by speed bin. Speed bin and summary VMT data is calculated in a spreadsheet tool developed for VCTM. Regional air quality summary data is included in **Table 2-26**. **Table 2-27** summarizes regional VMT by facility type. A full summary of air quality data from the model is summarized in **Appendix A**.

Table 2-26: VCTM Base Year (2025) Regional Air Quality Summary by Speed Bin

SPEED RANGE	AM PEAK PERIOD 6 AM TO 9 AM	MIDDAY PERIOD 9 AM TO 3 PM	PM PEAK PERIOD 3 PM TO 7 PM	EVENING PERIOD 7 PM TO 9 PM	NIGHTTIME PERIOD 9 PM TO 6 AM	AVERAGE DAILY	PERCENT OF TRAVEL
0 - 5 MPH	0	0	0	0	0	0	0.0%
5 - 10 MPH	710	1,344	3,502	0	0	5,557	0.0%
10 - 15 MPH	2,280	5,597	4,356	357	0	12,590	0.1%
15 - 20 MPH	22,633	24,855	35,316	4,993	5,528	93,324	0.6%
20 - 25 MPH	44,006	49,757	60,824	7,891	5,730	168,207	1.1%
25 - 30 MPH	128,748	217,172	216,683	41,217	40,954	644,773	4.3%
30 - 35 MPH	253,630	446,605	413,846	77,262	88,251	1,279,594	8.6%
35 - 40 MPH	430,754	767,578	614,364	178,725	229,520	2,220,941	14.9%
40 - 45 MPH	250,754	455,984	399,549	116,333	132,150	1,354,769	9.1%
45 - 50 MPH	183,488	264,246	300,042	49,468	48,056	845,300	5.7%
50 - 55 MPH	221,348	161,452	392,811	47,608	75,866	899,084	6.0%
55 - 60 MPH	327,494	278,021	400,555	19,233	35,243	1,060,545	7.1%
60 - 65 MPH	1,094,484	2,280,359	1,480,753	534,344	683,709	6,073,649	40.8%
65 - 70 MPH	4,133	19,000	8,695	24,224	182,297	238,349	1.6%
70 - 75 MPH	0	0	0	0	0	0	0.0%
75 - 80 MPH	0	0	0	0	0	0	0.0%
VMT - Total	2,964,461	4,971,970	4,331,295	1,101,654	1,527,304	14,896,683	100.0%

Table 2-27: VCTM Base Year Regional Air Quality Summary by Facility Type

FACILITY TYPE	AM PEAK PERIOD 6 AM TO 9 AM	MIDDAY PERIOD 9 AM TO 3 PM	PM PEAK PERIOD 3 PM TO 7 PM	EVENING PERIOD 7 PM TO 9 PM	NIGHTTIME PERIOD 9 PM TO 6 AM	AVERAGE DAILY	PERCENT OF TRAVEL
Freeway	1,541,873	2,462,764	2,164,903	549,020	850,994	7,569,554	50.8%
HOV	8,496	16,531	15,061	2,029	4,031	46,148	0.3%
Expressway/Parkway	0	0	0	0	0	0	0.0%
Principal Arterial	699,831	1,221,216	1,056,760	277,783	324,036	3,579,626	24.0%
Minor Arterial	444,736	814,153	683,420	176,278	239,282	2,357,869	15.8%
Major Collector	147,368	236,027	225,185	48,032	53,219	709,831	4.8%
Minor Collector	26,750	50,158	42,173	10,636	10,617	140,333	0.9%
Ramp	95,408	171,121	143,793	37,875	45,124	493,322	3.3%
Trucks Only	0	0	0	0	0	0	0.0%
Total	2,964,461	4,971,970	4,331,295	1,101,654	1,527,304	14,896,683	100.0%

2.9.3 SB 743 VMT

Zonal-based VMT for home-based and work-based trips are summarized by City and used for SB 743 analysis. The VCTC model calculates the required model outputs in a spreadsheet tool developed for the updated VCTM. SB 743 VMT data is included in **Table 2-28**, and a complete summary of SB 743 VMT data is summarized in **Appendix B**.

Table 2-28: VCTM Base Year SB 743 VMT

City	Home-based VMT Per Capita	Work-based VMT Per Employee	Total VMT Per Service Population (Capita + Employee)
Camarillo	16.37	17.37	27.78
Fillmore	23.76	15.56	28.69
Moorpark	22.13	16.88	32.15
Ojai	18.87	9.13	26.35
Oxnard	10.29	15.36	20.05
Port Hueneme	12.10	13.28	19.53
San Buenaventura	13.47	16.82	26.34
Santa Paula	16.86	15.60	22.78
Simi Valley	17.34	15.42	26.12
Thousand Oaks	19.39	17.57	31.59
Unincorporated	24.46	14.76	29.93
Overall Ventura County	15.98	16.22	26.12

3 MODEL VALIDATION

The model was validated using available count data and resources and passes all guidelines. The validation was completed for the base year of 2025.

3.1 Assignment Validation

The assignment process is the last and most iterative part of validation of a travel demand model. To validate the model outputs, base-year daily count data were obtained throughout Ventura County to compare the observed versus estimated traffic volumes on the highway network. The primary source for freeway mainline and ramp traffic volume data was obtained from Caltrans (both annual traffic count data as well as Performance Measurement System (PeMS). Additionally, average daily traffic (ADT) volumes for the arterial roadways were provided by the County and Cities within Ventura County. This section of the report documents the assignment validation for the VCTM.

The following list of model modifications were made during the validation process:

- The overall trip generation for Ventura County was reduced by 15% compared with the SCAG 2024 RTP/SCS model
- The overall trip generation for Simi Valley was reduced by 30% compared with the remainder of Ventura County
- Several distribution K factors were adjusted to better balance travel interactions, with some connections reduced and others increased to improve overall model performance
- The speed multiplier for several regional links was changed to represent better speed profile

3.1.1 Screenline Comparison

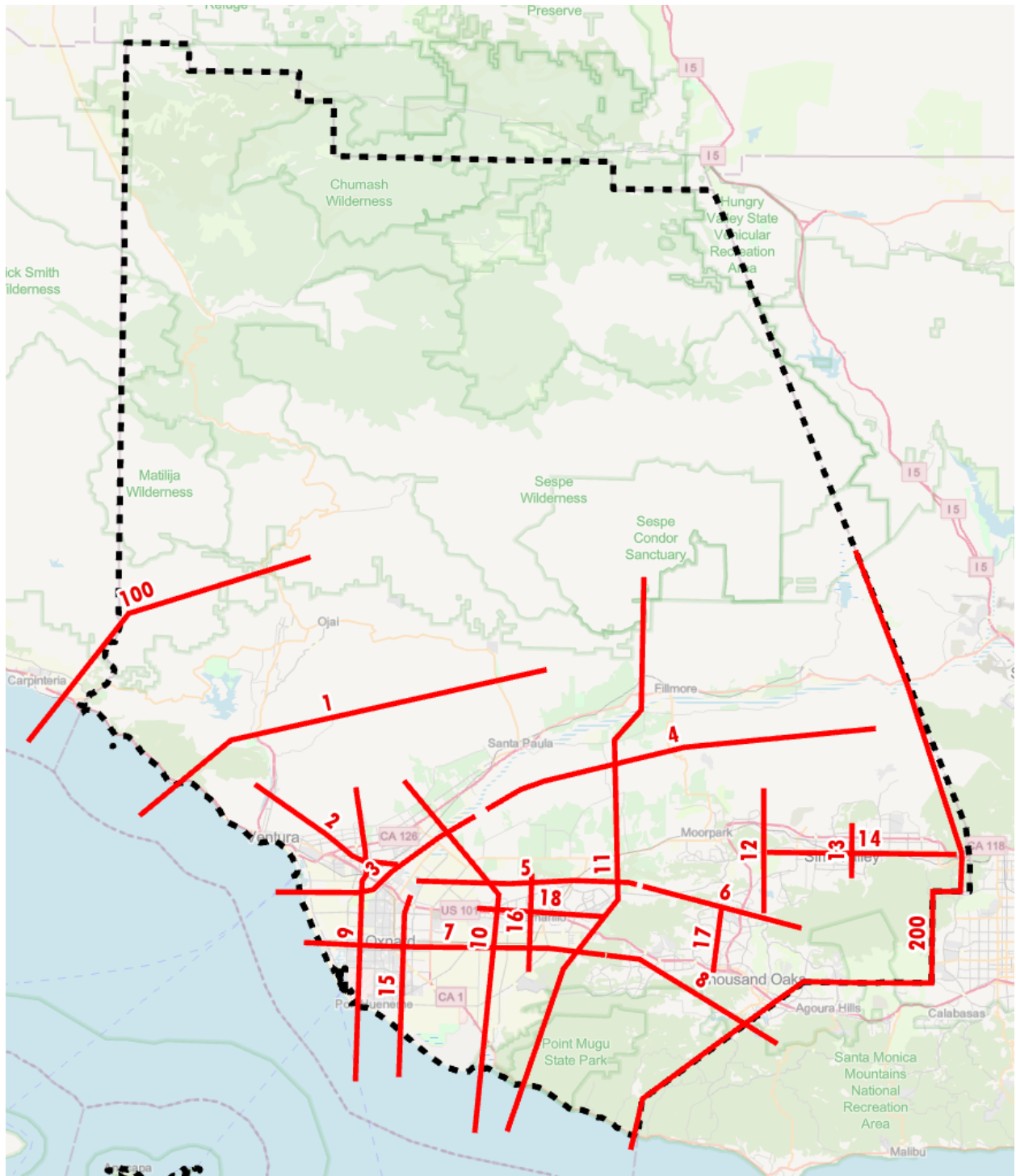
Screenlines are imaginary lines drawn across sections of roadways to assess the overall performance of the model by comparing the total model assigned volumes and total actual counts for specific screenline locations. All model links (segments) cross a screenline form a group of roadways within a corridor for which the total model produced volumes and ground traffic counts are aggregated and compared.

Twenty screenlines (illustrated in **Figure 3-1**) were identified across different locations in the County:

- East-West – South of SR-150 crossing SR-101 and SR-33
- East-West – North of US-101
- East-West – In-between Ventura and Oxnard
- East-West – In-between SR-126 and SR-118 East of Oxnard
- East-West – North of SR-101 and Camarillo
- East-West – North of US-101 and Thousand Oaks
- East-West – US-101
- East-West – South of US-101 and Thousand Oaks
- North-South – From Port Hueneme through Foothill Road
- North-South – From PCH to Foothill Road (East of Wood Road)
- North-South – From PCH to SR-126 (East of Camarillo)
- North-South – From Madera Road (Simi Valley) to SR-126
- North-South – From North of SR-118 to Fitzgerald Road
- East-West – From West End to East End of Simi Valley Border
- North-South – From US-101 to Southern County Border
- North-South – From Las Posas Road to Lewis Road

- North-South – From Olsen Road to US-101
- East-West – North of US-101
- East-West – North of SR-150
- North-South – Ventura County/Los Angeles County Line

Figure 3-1: VCTM Screenline Locations



Individual link volumes were summed from both the model and the ground counts across all screenlines. **Table 3-2** summarizes the existing counts and assigned traffic volume flows across each screenline, and also the percentage difference between the two. As shown in the table, all screenlines have assigned volumes within the acceptable industry validation standards.

Table 3-1: VCTM Screenline Validation

NUMBER	NAME	DIRECTION	NUMBER OF COUNTS	TOTAL SUM OF COUNTS	TOTAL VOLUME AT LOCATIONS WITH COUNTS	VOLUME/COUNT RATIO	PASS/FAIL CRITERIA
1	South of SR 150 Crossing SR 101 and SR 33	EB/WB	5	101,670	103,371	1.7%	PASS
2	North of US-101	EB/WB	9	154,154	121,041	-21.5%	PASS
3	In-between Ventura and Oxnard	EB/WB	3	186,013	217,866	17.1%	PASS
4	In-Between SR-126 and SR-118 East of Oxnard	EB/WB	2	7,853	10,676	35.9%	PASS
5	North of SR101 and Camarillo	EB/WB	4	39,115	34,524	-11.7%	PASS
6	North of US-101 and Thousand Oaks	EB/WB	4	93,512	89,969	-3.8%	PASS
7	South of US-101	EB/WB	11	159,175	139,656	-12.3%	PASS
8	South of US-101 and Thousand Oaks	EB/WB	4	36,039	34,213	-5.1%	PASS
9	From Port Hueneme through Foothill Rd	NB/SB	17	282,935	280,992	-0.7%	PASS
10	From PCH to Foothill Rd (East of Wood Rd)	NB/SB	13	238,530	204,284	-14.4%	PASS
11	From PCH to SR-126 (East of Camarillo)	NB/SB	8	154,706	139,537	-9.8%	PASS
12	From Madera Rd (Simi Valley) to SR-126	NB/SB	4	132,346	137,168	3.6%	PASS
13	From North of SR-118 to Fitzgerald Rd	NB/SB	8	62,805	55,090	-12.3%	PASS
14	From West End to East End of Simi Valley Borde	EB/WB	10	63,682	66,736	4.8%	PASS
15	From US-101 to Southern County Border	NB/SB	9	166,278	173,381	4.3%	PASS
16	From Las Posas Rd to Lewis Rd	NB/SB	5	55,192	34,516	-37.5%	PASS
17	From Olsen Road to US-101	NB/SB	4	33,803	18,286	-45.9%	PASS
18	North of US-101	EB/WB	8	92,283	82,749	-10.3%	PASS
100	North of SR150	EB/WB	2	68,079	73,581	8.1%	PASS
200	Ventura County/Los Angeles County Line	NB/SB	13	370,654	396,566	7.0%	PASS
Combined Screenline Totals			143	2,498,823	2,414,202	-3.40	PASS

3.1.2 Regional Comparison

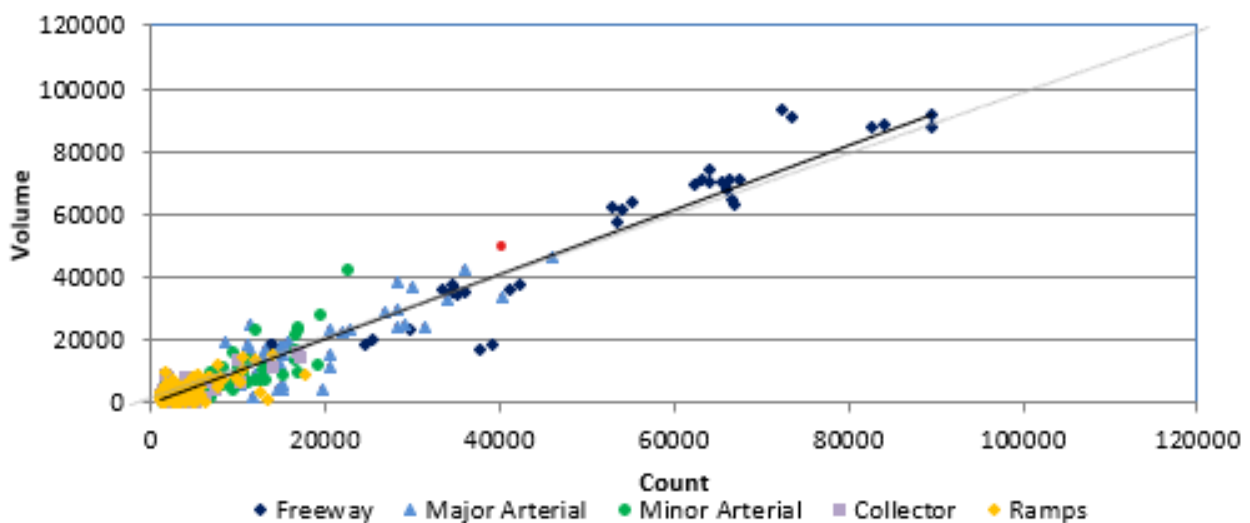
A regional comparison comprised of observed ground counts and modeled volumes is used to determine the validity of the traffic assignment across all points and facility types in the model. **Table 3-3** summarizes the overall difference between the observed counts and model results by facility type. Caltrans and FHWA provide guidance on the levels of errors that should be accepted in these validation metrics. The guidance in overall deviation in modeled volumes compared to traffic counts is summarized in **Table 3-3**.

Table 3-2: Count/Volume Comparison by Facility Type

Caltrans and FHWA Criteria:	PASS/FAIL CRITERIA
Freeways +/- 7%	3%
Major Arterials +/- 10%	-2%
Minor Arterials +/- 15%	-6%
Note: Caltrans Criteria is from the Caltrans Travel Forecasting Guidelines, November 1992. FHWA Criteria was obtained from the Model Validation and Reasonableness Checking Manual.	

Figure 3-2 compares the observed volumes to the daily model output volumes for all roadway and highway segments with available counts. Figure 3-2 illustrates that the count to volume comparison is generally clustered along a 45° fit line which shows good correlation between actual and observed volumes.

Figure 3-2: VCTM Count versus Volume Comparison



3.1.3 Coefficient of Determination (R^2)

Another important measure of comparison for the fit between observed traffic counts and estimated model volumes is the Coefficient of Determination (R^2).

The FHWA recommended value of R^2 is greater than 0.88 (*Model Validation and Reasonableness Checking Manual, Travel Model Improvement Program*). The computed overall value of R^2 is **0.94** for the VCTM, which shows that the model's performance is well within reasonable range, representing an excellent fit.

3.1.4 Root Mean Square Error (RMSE)

RMSE is a quadratic scoring rule which measures the average magnitude of the error between observed traffic counts and model predicted volumes. The equation for RMSE is as follows:

$$\%RMSE = \left[\frac{\sum (Model_i - Count_i)^2 / (Number\ of\ Counts - 1)^{0.5} * 100}{(\sum Count_i / Number\ of\ Counts)} \right]$$

Caltrans has recommended guidance for regional RMSE. Caltrans recommended guidance suggests a %RMSE less than 40. The validated model %RMSE is **35**, which passes Caltrans recommended guidance.

3.2 Conclusion

The results of model validation/calibration process for the VCTM, based on the detailed review of each individual module, indicate a favorable validation for 2025 base year conditions. Traffic assignment summary statistics for the focused model are well within acceptable industry standards. In addition, assignment volumes summed along critical screenlines and travel corridors closely replicate actual ground counts based on established industry standards. It is therefore concluded that the model is ready to be used to develop forecast traffic forecasts assignments for use in various studies.

4 FORECAST YEAR

The forecast year for the VCTM is 2050.

4.1 Transportation Analysis Zones

Table 2-2 reports the major zonal population attributes for the internal zones in 2050.

Table 4-1: Major Zonal Population Attributes for the Forecast Year (2050)

Zonal Attribute	Forecast Year (2050)
Total Household	318,503
Total Population	851,689
Total Employment	340,639
Total K12 Students	112,638
Total College Students	37,385

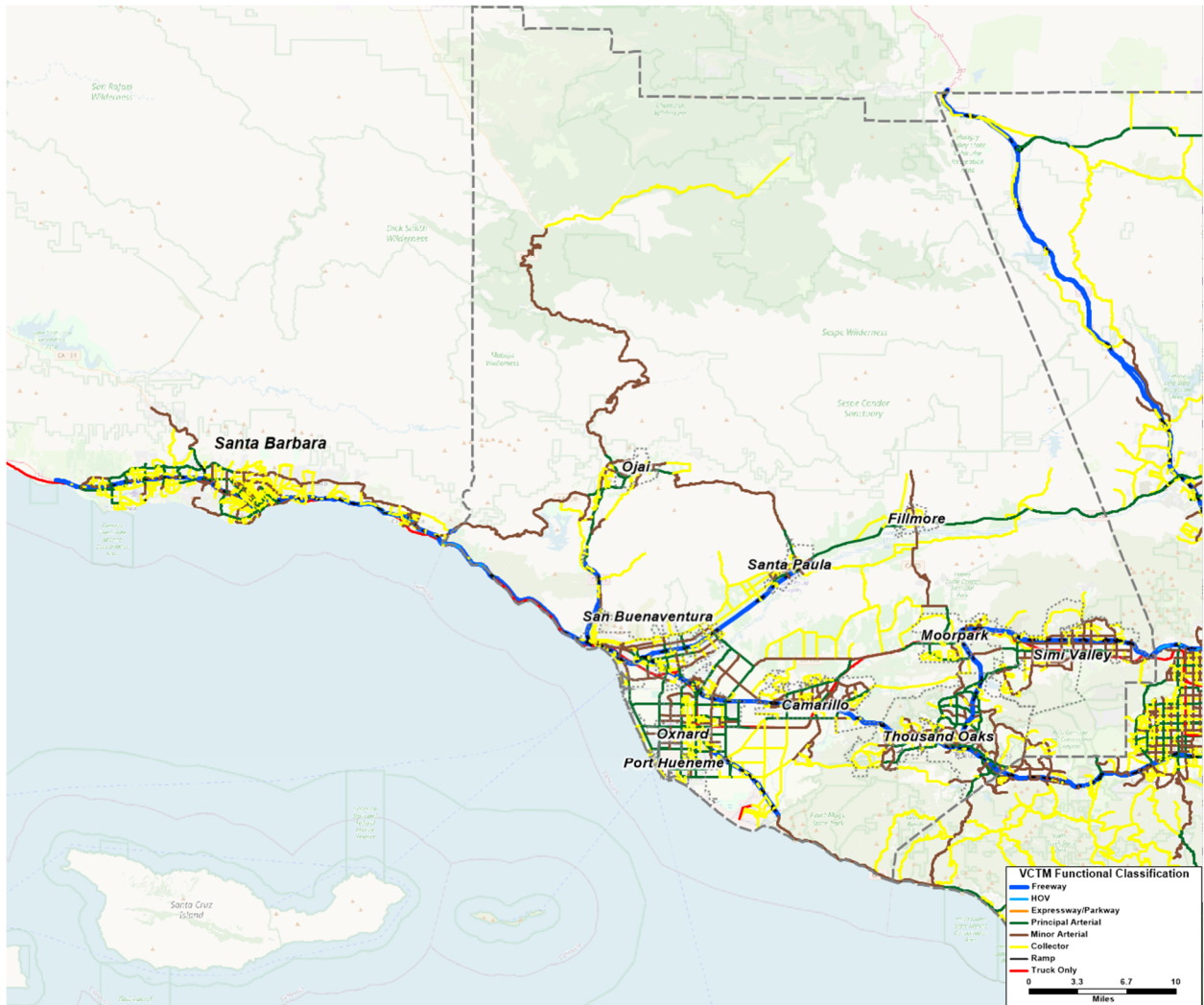
4.2 Networks

The highway and transit networks were obtained from the SCAG 2024 RTP/SCS model and verified against the prior VCTM and current local future planning efforts.

4.2.1 Highway Network

Figure 4-1 illustrates the VCTM forecast year highway network.

Figure 4-1: VCTM Forecast Year (2050) Network



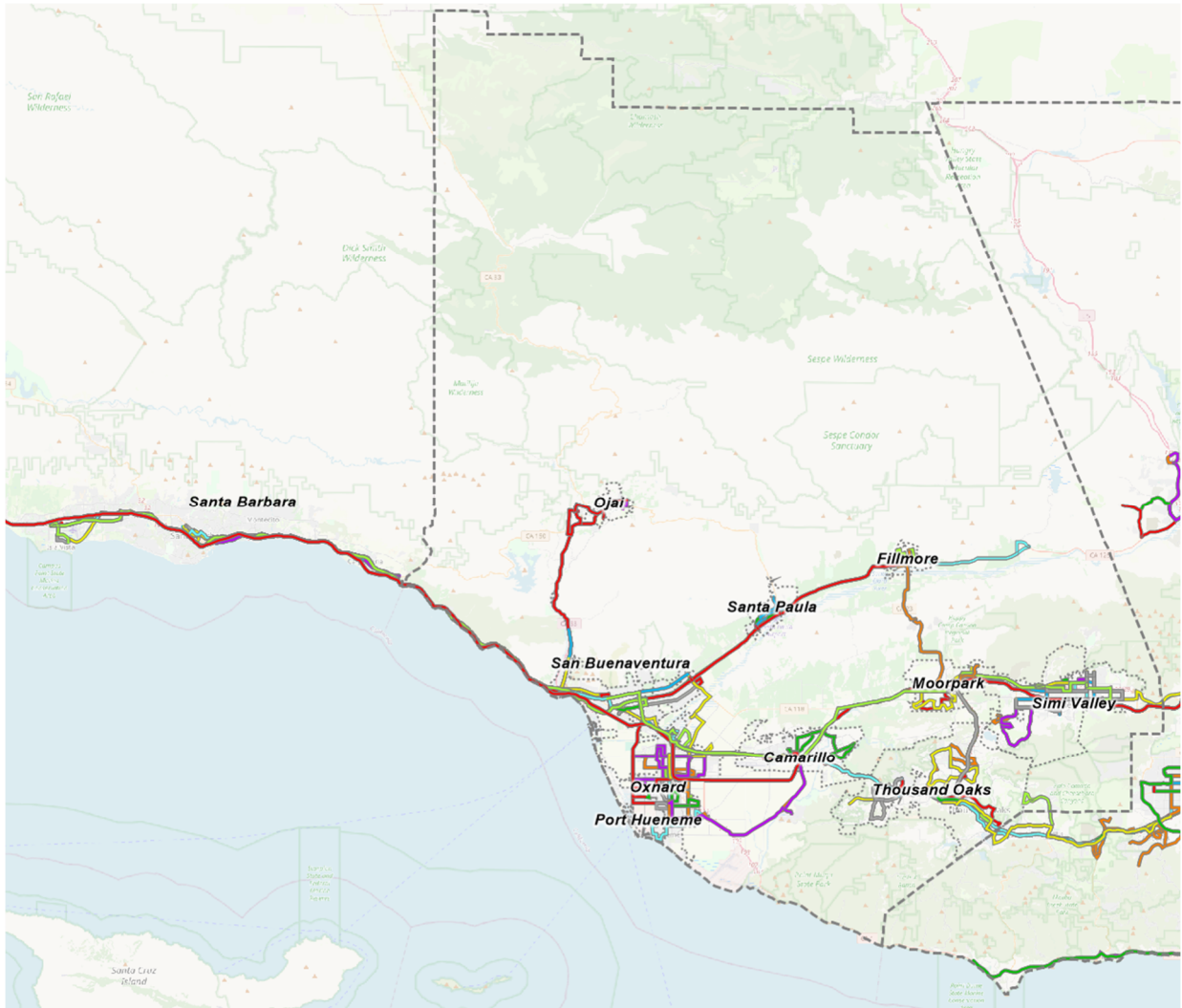
4.2.2 Transit Networks

Table 4-2 summarizes the route information within the forecast year VCTM. Figure 4-2 illustrates the forecast year model transit network within Ventura County.

Table 4-2: Forecast Year Transit Route Summary

TRANSIT AUTHORITY	NUMBER OF ROUTES
Amtrak	2
Camarillo Area Transit	1
Commuter Express	2
Gold Coast Transit	19
Kanan Shuttle	1
Metro	1
Metrolink	1
Moorpark City Transit	2
Ojai Trolley	2
Simi Valley Transit	4
Thousand Oaks Transit	5
Valley Express Transit Services	7
VCTC Intercity Transit	6

Figure 4-2: Forecast Year Transit Network



4.3 Mode Choice

The mode choice model results for the forecast year by trip purpose and mode are presented in **Table 4-3** and **Table 4-4**.

Table 4-3: Daily Trips by Mode (2050)

Mode	HBW	HBSC	HBCU	HBNW	OBO	WBO	Total
Drive Alone	534,084	14,502	11,040	583,982	345,120	127,120	1,615,848
Shared Ride 2	54,514	32,957	3,497	402,499	233,173	22,957	749,597
Shared Ride 3+	19,202	49,849	1,590	345,449	172,267	11,279	599,637
Drive to Local Bus	192	10	7	56	25	44	334
Drive to Express Bus	25	1	2	5	1	3	37
Drive to BRT	115	0	13	9	1	3	142
Drive to Urban Rail	30	0	13	1	1	2	48
Drive to Commuter Rail	1,779	0	20	141	22	53	2,016
Drive to High Speed Rail	0	0	0	0	0	0	0
Walk to Local Bus	4,445	237	1,411	2,872	379	474	9,819

Mode	HBW	HBSC	HBCU	HBNW	OBO	WBO	Total
Walk to Express Bus	304	22	647	137	24	45	1,179
Walk to BRT	490	10	106	392	75	183	1,255
Walk to Urban Rail	48	0	235	30	51	126	490
Walk to Commuter Rail	377	0	14	61	120	173	744
Walk to High Speed Rail	0	0	0	0	0	0	0
Walk	11,215	45,851	1,574	88,106	59,572	10,739	217,058
Bike	600	5,136	94	5,578	3,186	3,816	18,410
Total	627,420	148,576	20,263	1,429,319	814,018	177,017	3,216,612

Table 4-4: Daily Shares of Trips by Mode (2050)

Mode	HBW	HBSC	HBCU	HBNW	OBO	WBO	Total
Drive Alone	85.1%	9.8%	54.5%	40.9%	42.4%	71.8%	85.1%
Shared Ride 2	8.7%	22.2%	17.3%	28.2%	28.6%	13.0%	8.7%
Shared Ride 3+	3.1%	33.6%	7.8%	24.2%	21.2%	6.4%	3.1%
Drive to Local Bus	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Drive to Express Bus	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Drive to BRT	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Drive to Urban Rail	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Drive to Commuter Rail	0.3%	0.0%	0.1%	0.0%	0.0%	0.0%	0.3%
Drive to High Speed Rail	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Walk to Local Bus	0.7%	0.2%	7.0%	0.2%	0.0%	0.3%	0.7%
Walk to Express Bus	0.0%	0.0%	3.2%	0.0%	0.0%	0.0%	0.0%
Walk to BRT	0.1%	0.0%	0.5%	0.0%	0.0%	0.1%	0.1%
Walk to Urban Rail	0.0%	0.0%	1.2%	0.0%	0.0%	0.1%	0.0%
Walk to Commuter Rail	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%
Walk to High Speed Rail	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Walk	1.8%	30.9%	7.8%	6.2%	7.3%	6.1%	1.8%
Bike	0.1%	3.5%	0.5%	0.4%	0.4%	2.2%	0.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

4.4 Air Quality Data Module

4.4.1 Zone-Based VMT

VMT trip matrices are generated for four separate sets of geographies, and daily VMT is summarized as follows:

- Regional (summarized in **Table 4-5**)
- General Plan Districts (summarized in **Table 4-6**)
- Cities (summarized in **Table 4-7**)

As summarized in **Table 4-5**, approximately 9% of VMT within Ventura County is attributed to internal-to-internal trips, and 91% of VMT is associated with internal to external trips. A full summary of air quality data from the model is summarized in **Appendix A**.

Table 4-5: VCTM Forecast Year Regional Trip VMT (in 1,000s) Matrix

	EXTERNAL*	INTERNAL (VENTURA COUNTY)
External*	N/A	760
Internal (Ventura County)	761	144
Sum of Internal-to-Internal VMT (in 1,000s)		144
Sum of Internal-to-External VMT (in 1,000s)		1,521
%Internal to Internal		9%
%Internal to External		91%
*Note that half of the VMT is attributed to the external area		

Table 4-6: VCTM Forecast Year District Trip VMT Matrix

	Ojai Area	Ventura Area	Oxnard Area	Port Hueneme Area	Santa Paula Area	Las Posas Area	Camarillo Area	Fillmore Area	Moorpark Area	Thousand Oaks Area	Piru Area	Simi Valley Area	Oak Park Area	Ahmanson Ranch Area	Unincorporated Ventura County	Santa Barbara	Non-Ventura County
Ojai Area	34,498	5,435	3,123	198	686	25	592	136	82	410	10	85	5	0	111	406	1,467
Ventura Area	5,516	205,673	75,485	3,688	6,322	350	6,582	1,117	1,274	5,213	64	1,309	124	2	69	5,665	7,767
Oxnard Area	3,089	74,554	371,017	26,376	3,827	718	23,504	1,107	2,028	9,586	50	2,261	283	5	27	1,713	13,701
Port Hueneme Area	194	3,641	26,277	6,279	195	27	1,047	52	140	739	2	115	13	0	1	97	987
Santa Paula Area	714	6,396	3,919	200	31,212	156	1,013	1,157	401	1,154	43	718	13	0	15	239	3,005
Las Posas Area	25	359	736	28	162	261	1,330	68	578	373	4	216	9	0	1	8	726
Camarillo Area	591	6,706	24,199	1,075	1,003	1,287	79,377	483	3,598	18,300	37	3,000	232	7	7	312	12,470
Fillmore Area	141	1,137	1,123	53	1,180	66	489	13,407	266	1,167	360	870	37	0	30	22	4,701
Moorpark Area	81	1,281	2,042	142	398	561	3,597	348	29,629	11,264	41	12,614	222	3	10	49	10,988
Thousand Oaks Area	413	5,226	9,644	748	1,145	355	17,833	1,152	10,898	242,084	69	18,484	4,878	36	11	320	80,221
Piru Area	10	65	51	2	44	3	38	362	40	70	895	77	2	0	7	3	1,044
Simi Valley Area	85	1,306	2,254	116	706	204	2,974	859	11,891	18,599	75	189,697	438	9	8	94	48,016
Oak Park Area	5	124	284	13	13	9	232	37	201	4,957	2	438	2,482	8	0	5	11,685
Ahmanson Ranch Area	0	2	5	0	0	0	7	0	3	36	0	9	9	2	0	0	618
Unincorporated Ventura County Area	117	70	27	1	16	1	7	32	10	11	8	9	0	-	-	-	57
Santa Barbara	398	5,666	1,725	99	234	8	309	21	49	316	3	94	5	0	4	N/A	N/A
Non-Ventura County	1,499	7,797	13,794	1,004	3,011	699	12,295	4,674	10,790	79,146	1,016	46,835	11,573	604	57	N/A	N/A

Table 4-7: VCTM Forecast Year City Trip VMT Matrix

	Camarillo	Fillmore	Moorpark	Ojai	Oxnard	Port Hueneme	San Buenaventura	Santa Paula	Simi Valley	Thousand Oaks	Unincorporated	Non-Ventura County
Camarillo	2,486	106	559	91	2,912	177	1,580	228	1,142	2,914	1,348	64,211
Fillmore	111	102	91	21	234	22	204	95	193	230	189	10,995
Moorpark	560	82	632	37	947	64	589	112	1,090	1,300	554	32,264
Ojai	92	21	37	142	272	27	301	54	101	179	288	8,668
Oxnard	2,931	228	942	268	11,877	903	6,043	653	2,121	4,026	3,084	158,497
Port Hueneme	176	22	63	27	881	138	482	54	155	280	293	10,545
San Buenaventura	1,598	201	591	293	6,009	456	7,275	656	1,431	2,563	2,369	104,025
Santa Paula	237	94	116	54	676	53	664	327	264	401	372	18,062
Simi Valley	1,147	177	1,084	100	2,137	156	1,433	254	5,236	3,128	1,305	108,599
Thousand Oaks	2,789	214	1,298	177	3,970	281	2,523	387	3,079	10,468	2,475	153,278
Unincorporated	1,352	183	559	286	3,088	292	2,382	366	1,309	2,506	2,605	92,071
Non-Ventura County	64,429	10,775	32,359	8,638	159,124	10,600	104,247	17,940	109,121	151,134	91,915	N/A

4.4.2 Link-Based VMT

Regional air quality summary data is included in **Table 4-8**. **Table 4-9** summarizes regional VMT by facility type. A full summary of air quality data from the model is summarized in **Appendix A**.

Table 4-8: VCTM Forecast Year (2050) Regional Air Quality Summary by Speed Bin

SPEED RANGE	AM PEAK PERIOD 6 AM TO 9 AM	MIDDAY PERIOD 9 AM TO 3 PM	PM PEAK PERIOD 3 PM TO 7 PM	EVENING PERIOD 7 PM TO 9 PM	NIGHTTIME PERIOD 9 PM TO 6 AM	AVERAGE DAILY	PERCENT OF TRAVEL
0 - 5 MPH	851	0	707	0	0	1,558	0.0%
5 - 10 MPH	2,187	2,142	5,199	0	0	9,528	0.1%
10 - 15 MPH	6,640	7,911	7,295	377	0	22,223	0.1%
15 - 20 MPH	27,124	33,349	47,780	5,947	5,767	119,967	0.7%
20 - 25 MPH	42,852	45,085	71,549	5,745	1,975	167,207	1.0%
25 - 30 MPH	153,674	251,215	249,037	44,652	45,004	743,583	4.3%
30 - 35 MPH	266,153	421,661	402,723	83,072	77,010	1,250,619	7.3%
35 - 40 MPH	391,077	692,312	565,681	160,076	186,537	1,995,682	11.7%
40 - 45 MPH	353,818	544,752	478,093	130,894	149,338	1,656,894	9.7%
45 - 50 MPH	240,303	251,846	289,881	58,037	53,657	893,725	5.2%
50 - 55 MPH	191,467	210,852	298,748	55,074	92,981	849,122	5.0%
55 - 60 MPH	247,292	119,717	308,631	27,687	51,748	755,074	4.4%
60 - 65 MPH	1,587,021	3,074,538	2,262,798	636,791	803,488	8,364,636	48.9%
65 - 70 MPH	5,802	13,289	8,715	29,550	211,979	269,336	1.6%
70 - 75 MPH	0	0	0	0	0	0	0.0%
75 - 80 MPH	0	0	0	0	0	0	0.0%
VMT - Total	3,516,261	5,668,670	4,996,836	1,237,901	1,679,484	17,099,152	100.0%

Table 4-9: VCTM Forecast Year Regional Air Quality Summary by Facility Type

FACILITY TYPE	AM PEAK PERIOD 6 AM TO 9 AM	MIDDAY PERIOD 9 AM TO 3 PM	PM PEAK PERIOD 3 PM TO 7 PM	EVENING PERIOD 7 PM TO 9 PM	NIGHTTIME PERIOD 9 PM TO 6 AM	AVERAGE DAILY	PERCENT OF TRAVEL
Freeway	1,784,721	2,703,403	2,420,923	599,725	972,148	8,480,920	49.6%
HOV	177,844	371,204	282,074	56,387	27,748	915,257	5.4%
Expressway/Parkway	0	0	0	0	0	0	0.0%
Principal Arterial	782,719	1,366,226	1,162,963	311,384	364,849	3,988,139	23.3%
Minor Arterial	443,574	734,362	658,674	166,840	197,774	2,201,224	12.9%
Major Collector	180,078	253,970	257,207	51,361	56,024	798,640	4.7%
Minor Collector	36,450	53,537	52,862	11,243	11,413	165,505	1.0%
Ramp	110,875	185,968	162,133	40,961	49,528	549,465	3.2%
Trucks Only	0	0	0	0	0	0	0.0%
Total	3,516,261	5,668,670	4,996,836	1,237,901	1,679,484	17,099,152	100.0%

4.4.3 SB 743 VMT

SB 743 VMT data is included in **Table 4-10**, and a complete summary of SB 743 VMT data is summarized in **Appendix B**.

Table 4-10: VCTM Forecast Year SB 743 VMT

City	Home-based VMT Per Capita	Work-based VMT Per Employee	Total VMT Per Service Population (Capita + Employee)
Camarillo	17.85	20.96	29.82
Fillmore	27.31	17.71	32.73
Moorpark	24.78	19.94	35.43
Ojai	21.55	10.35	28.67
Oxnard	11.01	18.02	21.28
Port Hueneme	13.38	16.24	22.14
San Buenaventura	14.41	19.02	27.95
Santa Paula	20.42	17.41	26.33
Simi Valley	20.17	18.60	29.12
Thousand Oaks	20.86	20.80	34.09
Unincorporated	26.41	18.51	32.42
Overall Ventura County	17.51	19.14	28.21



APPENDIX A – AIR QUALITY SUMMARIES

2025 Base Year

	Total Trips						VMT (SB 375)					
	Average Daily	AM Peak Period	Midday Period 9 AM to 3 PM	PM Peak Period	Evening Period	Nighttime Period	Average Daily	AM Peak Period	Midday Period 9 AM to 3 PM	PM Peak Period	Evening Period	Nighttime Period
	VENTURA COUNTY						VENTURA COUNTY					
Ventura County	1,844,269	329,296	693,197	541,165	141,156	139,455	828,582	126,634	315,842	141,942	52,095	192,068
Imperial County	33	6	13	6	2	6	8,637	1,444	3,430	1,619	501	1,643
LA County	172,234	35,254	56,989	50,558	13,022	16,410	367,492	55,605	139,112	62,633	23,415	86,727
Orange County	3,418	736	952	823	272	635	123,338	17,898	45,121	20,791	8,367	31,162
Riverside County	973	190	294	219	69	200	81,197	11,714	29,539	13,689	5,562	20,693
San Bernardino County	1,542	339	427	388	110	278	86,729	13,089	32,461	15,033	5,654	20,492
Santa Barbara County	11,162	2,564	3,265	3,444	806	1,083	25,469	3,899	9,745	4,344	1,589	5,893
Outside of Ventura County	189,363	39,089	61,942	55,438	14,282	18,612	692,863	103,649	259,407	118,108	45,088	166,611
Total	2,033,631	368,386	755,138	596,603	155,438	158,067	1,521,445	230,283	575,249	260,050	97,184	358,679
	CITIES						CITIES					
Camarillo	116,903	21,180	43,486	34,280	8,939	9,018	64,955	9,867	24,662	11,087	4,115	15,224
Fillmore	22,962	4,466	7,935	6,928	1,831	1,803	9,420	1,447	3,601	1,621	589	2,162
Moorpark	67,853	12,250	24,974	19,671	5,338	5,621	39,062	6,057	15,093	6,696	2,389	8,826
Ojai	26,118	4,467	10,345	7,567	1,970	1,768	9,203	1,398	3,485	1,579	586	2,155
Oxnard	441,133	79,434	164,174	130,409	33,930	33,186	159,555	23,967	60,017	27,160	10,291	38,121
Port Hueneme	40,179	7,246	14,684	11,913	3,222	3,113	13,110	2,029	5,030	2,271	814	2,965
San Buenaventura	307,152	53,072	119,029	89,186	23,101	22,764	126,003	19,071	47,678	21,503	8,036	29,716
Santa Paula	49,360	9,119	17,810	14,736	3,926	3,768	18,238	2,767	6,907	3,122	1,161	4,281
Simi Valley	263,968	47,804	97,751	77,959	20,393	20,061	119,067	18,567	46,132	20,519	7,245	26,604
Thousand Oaks	369,028	63,310	143,656	107,349	27,695	27,018	173,793	26,459	66,168	29,628	10,949	40,588
Unincorporated	139,613	26,949	49,353	41,165	10,811	11,336	96,175	15,004	37,068	16,758	5,920	21,424
Outside of Ventura County	189,363	39,089	61,942	55,438	14,282	18,612	692,863	103,649	259,407	118,108	45,088	166,611
Total	2,033,632	368,386	755,138	596,603	155,438	158,067	1,521,445	230,283	575,249	260,050	97,184	358,679
	VENTURA COUNTY DISTRICTS						VENTURA COUNTY DISTRICTS					
Ojai Area	51,464	9,020	19,490	15,060	4,076	3,818	28,116	4,536	11,025	5,047	1,673	5,836
Ventura Area	314,408	54,459	121,584	91,288	23,662	23,416	141,271	21,352	53,376	24,115	9,035	33,393
Oxnard Area	475,283	86,454	176,064	140,539	36,384	35,842	182,927	27,507	68,862	31,152	11,780	43,625
Port Hueneme Area	40,179	7,246	14,684	11,913	3,222	3,113	13,110	2,029	5,030	2,271	814	2,965
Santa Paula Area	51,777	9,613	18,649	15,430	4,107	3,978	19,868	3,021	7,537	3,403	1,261	4,647
Las Posas Area	5,012	1,004	1,730	1,469	387	423	2,164	343	847	376	129	470
Camarillo Area	137,610	25,106	50,833	40,299	10,553	10,819	74,246	11,304	28,234	12,688	4,689	17,331
Fillmore Area	24,004	4,662	8,298	7,234	1,917	1,891	10,077	1,552	3,859	1,735	628	2,303
Moorpark Area	71,018	12,791	26,215	20,581	5,574	5,857	42,181	6,538	16,295	7,228	2,581	9,540
Thousand Oaks Area	376,738	64,778	146,393	109,615	28,295	27,656	181,541	27,651	69,140	30,956	11,430	42,364
Piru Area	2,685	414	1,098	778	205	189	3,436	537	1,339	588	206	766
Simi Valley Area	269,705	48,917	99,700	79,683	20,861	20,545	121,445	18,944	47,065	20,932	7,386	27,118
Oak Park Area	23,145	4,603	8,018	6,916	1,805	1,803	6,071	958	2,365	1,058	365	1,325
Ahmanson Ranch Area	534	110	179	159	42	43	185	31	74	33	10	36
Unincorporated Ventura County	445	82	156	131	38	39	1,903	326	777	354	103	343
Santa Barbara	11,160	2,563	3,264	3,443	806	1,083	25,448	3,895	9,737	4,340	1,588	5,888
Outside of Ventura County	178,201	36,525	58,676	51,994	13,476	17,529	667,394	99,751	249,662	113,765	43,500	160,718
Total	2,033,366	368,347	755,031	596,532	155,412	158,044	1,521,382	230,273	575,223	260,039	97,180	358,667

Air Quality - Ventura County

Travel Model Development BaseYear2025

Vehicle Miles Traveled

Speed Ranges	AM Peak Period 6 AM to 9 AM	Midday Period 9 AM to 3 PM	PM Peak Period 3 PM to 7 PM	Evening Period 7 PM to 9 PM	Nighttime Period 9 PM to 6 AM	Average Daily	Percent of Travel
0 - 5 mph	0	0	0	0	0	0	0.0%
5 - 10 mph	710	1,344	3,502	0	0	5,557	0.0%
10 - 15 mph	2,280	5,597	4,356	357	0	12,590	0.1%
15 - 20 mph	22,633	24,855	35,316	4,993	5,528	93,324	0.6%
20 - 25 mph	44,006	49,757	60,824	7,891	5,730	168,207	1.1%
25 - 30 mph	128,748	217,172	216,683	41,217	40,954	644,773	4.3%
30 - 35 mph	253,630	446,605	413,846	77,262	88,251	1,279,594	8.6%
35 - 40 mph	430,754	767,578	614,364	178,725	229,520	2,220,941	14.9%
40 - 45 mph	250,754	455,984	399,549	116,333	132,150	1,354,769	9.1%
45 - 50 mph	183,488	264,246	300,042	49,468	48,056	845,300	5.7%
50 - 55 mph	221,348	161,452	392,811	47,608	75,866	899,084	6.0%
55 - 60 mph	327,494	278,021	400,555	19,233	35,243	1,060,545	7.1%
60 - 65 mph	1,094,484	2,280,359	1,480,753	534,344	683,709	6,073,649	40.8%
65 - 70 mph	4,133	19,000	8,695	24,224	182,297	238,349	1.6%
70 - 75 mph	0	0	0	0	0	0	0.0%
75 - 80 mph	0	0	0	0	0	0	0.0%
VTM - Total	2,964,461	4,971,970	4,331,295	1,101,654	1,527,304	14,896,683	100.0%

*Note: Travel statistics do not include travel on centroids or local roads which are not included in the model.

Travel Model Development BaseYear2025

Total Vehicle Miles Traveled (VMT) by Facility Classification

Functional Classification	AM Peak Period 6 AM to 9 AM	Midday Period 9 AM to 3 PM	PM Peak Period 3 PM to 7 PM	Evening Period 7 PM to 9 PM	Nighttime Period 9 PM to 6 AM	Average Daily	Percent of Travel
Freeway	1,541,873	2,462,764	2,164,903	549,020	850,994	7,569,554	50.8%
HOV	8,496	16,531	15,061	2,029	4,031	46,148	0.3%
Expressway/Parkway	0	0	0	0	0	0	0.0%
Principal Arterial	699,831	1,221,216	1,056,760	277,783	324,036	3,579,626	24.0%
Minor Arterial	444,736	814,153	683,420	176,278	239,282	2,357,869	15.8%
Major Collector	147,368	236,027	225,185	48,032	53,219	709,831	4.8%
Minor Collector	26,750	50,158	42,173	10,636	10,617	140,333	0.9%
Ramp	95,408	171,121	143,793	37,875	45,124	493,322	3.3%
Trucks Only	0	0	0	0	0	0	0.0%
Total	2,964,461	4,971,970	4,331,295	1,101,654	1,527,304	14,896,683	100.0%

2050 Forecast Year

	Total Trips						VMT (SB 375)					
	Average Daily	AM Peak Period	Midday Period 9 AM to 3 PM	PM Peak Period	Evening Period	Nighttime Period	Average Daily	AM Peak Period	Midday Period 9 AM to 3 PM	PM Peak Period	Evening Period	Nighttime Period
	VENTURA COUNTY						VENTURA COUNTY					
Ventura County	1,947,380	351,393	727,091	570,355	148,569	149,972	904,355	137,626	343,532	154,733	57,246	211,218
Imperial County	32	5	13	6	2	6	8,412	1,391	3,316	1,565	496	1,645
LA County	189,007	39,529	61,395	55,453	14,246	18,383	392,911	59,220	148,219	66,931	25,203	93,338
Orange County	3,912	905	1,018	1,012	294	683	135,463	19,642	49,524	22,832	9,200	34,265
Riverside County	1,184	232	356	266	88	242	92,771	13,378	33,737	15,639	6,359	23,657
San Bernardino County	1,988	421	563	465	163	376	101,455	15,175	37,758	17,487	6,681	24,354
Santa Barbara County	8,935	1,910	2,888	2,673	626	840	29,736	4,545	11,360	5,073	1,861	6,897
Outside of Ventura County	205,059	43,003	66,233	59,874	15,420	20,530	760,749	113,351	283,914	129,527	49,800	184,156
Total	2,152,439	394,396	793,323	630,229	163,989	170,502	1,665,103	250,977	627,446	284,259	107,046	395,375
	CITIES						CITIES					
Camarillo	128,994	23,405	48,239	37,507	9,762	10,082	77,831	11,764	29,437	13,261	4,967	18,402
Fillmore	23,880	4,624	8,221	7,174	1,926	1,935	12,346	1,863	4,650	2,115	794	2,923
Moorpark	68,966	12,626	25,138	20,021	5,411	5,770	38,280	5,936	14,784	6,568	2,344	8,649
Ojai	23,652	4,154	9,283	6,822	1,755	1,638	10,158	1,531	3,826	1,735	654	2,412
Oxnard	497,000	89,573	184,148	146,496	38,516	38,267	191,849	28,738	71,975	32,656	12,435	46,045
Port Hueneme	39,914	7,264	14,520	11,800	3,182	3,149	13,143	2,025	5,029	2,270	821	2,998
San Buenaventura	318,030	55,746	122,293	92,342	23,786	23,863	127,595	19,294	48,244	21,770	8,149	30,139
Santa Paula	47,309	8,874	16,868	14,081	3,761	3,724	21,223	3,201	8,001	3,624	1,363	5,034
Simi Valley	271,684	49,902	99,680	80,058	20,923	21,120	124,998	19,446	48,329	21,533	7,639	28,052
Thousand Oaks	384,772	66,872	149,110	111,824	28,540	28,426	180,033	27,378	68,467	30,693	11,368	42,128
Unincorporated	143,180	28,353	49,591	42,229	11,008	11,998	106,898	16,450	40,792	18,508	6,711	24,436
Outside of Ventura County	205,059	43,003	66,233	59,874	15,420	20,530	760,749	113,351	283,914	129,527	49,800	184,156
Total	2,152,439	394,396	793,323	630,229	163,989	170,502	1,665,103	250,977	627,446	284,259	107,046	395,375
	VENTURA COUNTY DISTRICTS						VENTURA COUNTY DISTRICTS					
Ojai Area	47,323	8,554	17,652	13,817	3,692	3,607	27,867	4,452	10,861	4,969	1,679	5,906
Ventura Area	325,829	57,277	124,992	94,612	24,378	24,570	151,208	22,702	56,831	25,756	9,768	36,151
Oxnard Area	534,775	97,423	197,026	157,703	41,265	41,357	217,374	32,598	81,620	37,015	14,067	52,074
Port Hueneme Area	39,914	7,264	14,520	11,800	3,182	3,149	13,143	2,025	5,029	2,270	821	2,998
Santa Paula Area	50,256	9,503	17,833	14,957	3,982	3,980	22,801	3,446	8,610	3,896	1,460	5,388
Las Posas Area	4,807	989	1,638	1,423	363	394	2,183	346	856	379	130	472
Camarillo Area	151,955	27,820	56,293	44,199	11,551	12,091	87,998	13,336	33,344	15,013	5,597	20,709
Fillmore Area	25,031	4,849	8,606	7,514	2,022	2,039	13,073	1,981	4,938	2,243	837	3,075
Moorpark Area	72,575	13,262	26,511	21,062	5,685	6,055	41,188	6,385	15,907	7,064	2,522	9,309
Thousand Oaks Area	393,472	68,606	152,081	114,400	29,212	29,173	188,154	28,624	71,576	32,083	11,874	43,997
Piru Area	2,696	424	1,093	786	202	190	3,652	568	1,419	624	221	820
Simi Valley Area	277,082	50,994	101,456	81,669	21,359	21,603	127,464	19,836	49,293	21,961	7,786	28,588
Oak Park Area	20,412	4,190	6,957	6,047	1,569	1,649	6,255	986	2,434	1,090	377	1,368
Ahmanson Ranch Area	685	141	219	201	57	66	162	27	65	29	9	32
Unincorporated Ventura County	362	66	128	107	30	31	1,794	307	733	334	97	323
Santa Barbara	8,933	1,909	2,887	2,672	626	839	29,715	4,542	11,352	5,069	1,860	6,893
Outside of Ventura County	196,124	41,093	63,345	57,202	14,794	19,690	731,012	108,806	272,554	124,454	47,939	177,259
Total	2,152,230	394,367	793,238	630,173	163,969	170,485	1,665,042	250,967	627,421	284,249	107,042	395,363

Air Quality - Ventura County

Travel Model Development Forecast 2050

Vehicle Miles Traveled

Speed Ranges	AM Peak Period 6 AM to 9 AM	Midday Period 9 AM to 3 PM	PM Peak Period 3 PM to 7 PM	Evening Period 7 PM to 9 PM	Nighttime Period 9 PM to 6 AM	Average Daily	Percent of Travel
0 - 5 mph	851	0	707	0	0	1,558	0.0%
5 - 10 mph	2,187	2,142	5,199	0	0	9,528	0.1%
10 - 15 mph	6,640	7,911	7,295	377	0	22,223	0.1%
15 - 20 mph	27,124	33,349	47,780	5,947	5,767	119,967	0.7%
20 - 25 mph	42,852	45,085	71,549	5,745	1,975	167,207	1.0%
25 - 30 mph	153,674	251,215	249,037	44,652	45,004	743,583	4.3%
30 - 35 mph	266,153	421,661	402,723	83,072	77,010	1,250,619	7.3%
35 - 40 mph	391,077	692,312	565,681	160,076	186,537	1,995,682	11.7%
40 - 45 mph	353,818	544,752	478,093	130,894	149,338	1,656,894	9.7%
45 - 50 mph	240,303	251,846	289,881	58,037	53,657	893,725	5.2%
50 - 55 mph	191,467	210,852	298,748	55,074	92,981	849,122	5.0%
55 - 60 mph	247,292	119,717	308,631	27,687	51,748	755,074	4.4%
60 - 65 mph	1,587,021	3,074,538	2,262,798	636,791	803,488	8,364,636	48.9%
65 - 70 mph	5,802	13,289	8,715	29,550	211,979	269,336	1.6%
70 - 75 mph	0	0	0	0	0	0	0.0%
75 - 80 mph	0	0	0	0	0	0	0.0%
VTM - Total	3,516,261	5,668,670	4,996,836	1,237,901	1,679,484	17,099,152	100.0%

*Note: Travel statistics do not include travel on centroids or local roads which are not included in the model.

Travel Model Development Forecast 2050

Total Vehicle Miles Traveled (VTM) by Facility Classification

Functional Classification	AM Peak Period 6 AM to 9 AM	Midday Period 9 AM to 3 PM	PM Peak Period 3 PM to 7 PM	Evening Period 7 PM to 9 PM	Nighttime Period 9 PM to 6 AM	Average Daily	Percent of Travel
Freeway	1,784,721	2,703,403	2,420,923	599,725	972,148	8,480,920	49.6%
HOV	177,844	371,204	282,074	56,387	27,748	915,257	5.4%
Expressway/Parkway	0	0	0	0	0	0	0.0%
Principal Arterial	782,719	1,366,226	1,162,963	311,384	364,849	3,988,139	23.3%
Minor Arterial	443,574	734,362	658,674	166,840	197,774	2,201,224	12.9%
Major Collector	180,078	253,970	257,207	51,361	56,024	798,640	4.7%
Minor Collector	36,450	53,537	52,862	11,243	11,413	165,505	1.0%
Ramp	110,875	185,968	162,133	40,961	49,528	549,465	3.2%
Trucks Only	0	0	0	0	0	0	0.0%
Total	3,516,261	5,668,670	4,996,836	1,237,901	1,679,484	17,099,152	100.0%



APPENDIX B – SB743 VMT SUMMARIES

2025 Base Year

City	Home-based VMT/Capita	Work-based VMT/Employee	Total VMT/Service Population
Camarillo	16.37	17.37	27.78
Fillmore	23.76	15.56	28.69
Moorpark	22.13	16.88	32.15
Ojai	18.87	9.13	26.35
Oxnard	10.29	15.36	20.05
Port Hueneme	12.10	13.28	19.53
San Buenaventura	13.47	16.82	26.34
Santa Paula	16.86	15.60	22.78
Simi Valley	17.34	15.42	26.12
Thousand Oaks	19.39	17.57	31.59
Unincorporated	24.46	14.76	29.93
Overall Ventura County	15.98	16.22	26.12

City	Population	Employee	Service Population
Camarillo	75,423	32,288	107,711
Fillmore	17,414	2,468	19,882
Moorpark	34,688	10,811	45,499
Ojai	9,445	6,525	15,970
Oxnard	218,381	63,617	281,998
Port Hueneme	22,643	4,187	26,830
San Buenaventura	105,848	60,983	166,831
Santa Paula	32,266	6,356	38,622
Simi Valley	128,241	44,350	172,591
Thousand Oaks	129,030	78,989	208,019
Unincorporated	64,237	22,932	87,169
Overall Ventura County	837,616	333,506	1,171,122

Camarillo			
ID	Purpose	Productions	Attractions
1	Home-based Work	666,655	459,533
2	Home-based School	21,285	17,839
3	Home-based Non-Work	535,092	504,348
4	Home-based University	11,927	74
5	Work-Based Other	101,415	71,563
6	Other Based Other	330,505	272,402
Total VMT		1,666,879	1,325,759
Total Home-based VMT			1,234,959
Total Work-based VMT			560,947
Total Population		75,423	
Total Employees		32,288	
Total Home-based VMT/Capita		16.37	
Total Work-based VMT/Employee		17.37	
Total VMT/Service Population		27.78	

Fillmore			
ID	Purpose	Productions	Attractions
1	Home-based Work	229,741	31,059
2	Home-based School	3,774	2,926
3	Home-based Non-Work	176,239	45,695
4	Home-based University	3,999	-
5	Work-Based Other	7,334	3,075
6	Other Based Other	53,042	13,450
Total VMT		474,129	96,205
Total Home-based VMT			413,753
Total Work-based VMT			38,392
Total Population		17,414	
Total Employees		2,468	
Total Home-based VMT/Capita		23.76	
Total Work-based VMT/Employee		15.56	
Total VMT/Service Population		28.69	

Moorpark			
ID	Purpose	Productions	Attractions
1	Home-based Work	400,845	153,208
2	Home-based School	13,667	8,431
3	Home-based Non-Work	350,414	186,303
4	Home-based University	2,821	47,932
5	Work-Based Other	29,334	21,495
6	Other Based Other	156,697	91,658
Total VMT		953,778	509,027
Total Home-based VMT			767,747
Total Work-based VMT			182,542
Total Population		34,688	
Total Employees		10,811	
Total Home-based VMT/Capita		22.13	
Total Work-based VMT/Employee		16.88	
Total VMT/Service Population		32.15	

Ojai			
ID	Purpose	Productions	Attractions
1	Home-based Work	113,629	48,304
2	Home-based School	1,062	30,799
3	Home-based Non-Work	60,763	70,568
4	Home-based University	2,728	-
5	Work-Based Other	11,299	6,112
6	Other Based Other	44,007	31,561
Total VMT		233,487	187,344
Total Home-based VMT			178,181
Total Work-based VMT			59,603
Total Population		9,445	
Total Employees		6,525	
Total Home-based VMT/Capita		18.87	
Total Work-based VMT/Employee		9.13	
Total VMT/Service Population		26.35	

Oxnard			
ID	Purpose	Productions	Attractions
1	Home-based Work	1,194,522	847,225
2	Home-based School	54,636	40,293
3	Home-based Non-Work	978,390	1,179,939
4	Home-based University	19,699	9,715
5	Work-Based Other	129,753	142,190
6	Other Based Other	475,893	580,806
Total VMT		2,852,893	2,800,168
Total Home-based VMT			2,247,247
Total Work-based VMT			976,978
Total Population		218,381	
Total Employees		63,617	
Total Home-based VMT/Capita		10.29	
Total Work-based VMT/Employee		15.36	
Total VMT/Service Population		20.05	

Port Hueneme			
ID	Purpose	Productions	Attractions
1	Home-based Work	146,216	47,048
2	Home-based School	6,248	2,001
3	Home-based Non-Work	119,380	94,127
4	Home-based University	2,063	-
5	Work-Based Other	8,575	9,943
6	Other Based Other	50,389	37,957
Total VMT		332,872	191,076
Total Home-based VMT			273,908
Total Work-based VMT			55,623
Total Population		22,643	
Total Employees		4,187	
Total Home-based VMT/Capita		12.10	
Total Work-based VMT/Employee		13.28	
Total VMT/Service Population		19.53	

San Buenaventura			
ID	Purpose	Productions	Attractions
1	Home-based Work	754,322	905,824
2	Home-based School	32,121	34,942
3	Home-based Non-Work	631,112	864,997
4	Home-based University	7,924	29,166
5	Work-Based Other	119,756	125,089
6	Other Based Other	424,181	464,985
Total VMT		1,969,416	2,425,003
Total Home-based VMT			1,425,479
Total Work-based VMT			1,025,580
Total Population		105,848	
Total Employees		60,983	
Total Home-based VMT/Capita		13.47	
Total Work-based VMT/Employee		16.82	
Total VMT/Service Population		26.34	

Santa Paula			
ID	Purpose	Productions	Attractions
1	Home-based Work	320,132	78,594
2	Home-based School	12,044	5,770
3	Home-based Non-Work	205,624	101,187
4	Home-based University	6,358	-
5	Work-Based Other	20,561	8,848
6	Other Based Other	84,161	36,426
Total VMT		648,880	230,824
Total Home-based VMT			544,158
Total Work-based VMT			99,155
Total Population		32,266	
Total Employees		6,356	
Total Home-based VMT/Capita		16.86	
Total Work-based VMT/Employee		15.60	
Total VMT/Service Population		22.78	

Simi Valley			
ID	Purpose	Productions	Attractions
1	Home-based Work	1,209,010	546,709
2	Home-based School	39,043	29,632
3	Home-based Non-Work	954,841	698,979
4	Home-based University	21,068	-
5	Work-Based Other	137,072	74,058
6	Other Based Other	484,565	312,851
Total VMT		2,845,599	1,662,230
Total Home-based VMT			2,223,962
Total Work-based VMT			683,782
Total Population		128,241	
Total Employees		44,350	
Total Home-based VMT/Capita		17.34	
Total Work-based VMT/Employee		15.42	
Total VMT/Service Population		26.12	

Thousand Oaks			
ID	Purpose	Productions	Attractions
1	Home-based Work	1,287,215	1,164,840
2	Home-based School	41,407	40,184
3	Home-based Non-Work	1,154,323	1,110,523
4	Home-based University	19,228	6,784
5	Work-Based Other	222,720	172,329
6	Other Based Other	740,058	612,101
Total VMT		3,464,950	3,106,760
Total Home-based VMT			2,502,172
Total Work-based VMT			1,387,560
Total Population		129,030	
Total Employees		78,989	
Total Home-based VMT/Capita		19.39	
Total Work-based VMT/Employee		17.57	
Total VMT/Service Population		31.59	

Unincorporated			
ID	Purpose	Productions	Attractions
1	Home-based Work	752,805	276,885
2	Home-based School	31,762	37,094
3	Home-based Non-Work	769,265	234,348
4	Home-based University	17,200	20,856
5	Work-Based Other	61,622	33,302
6	Other Based Other	274,388	99,441
Total VMT		1,907,043	701,927
Total Home-based VMT			1,571,033
Total Work-based VMT			338,508
Total Population		64,237	
Total Employees		22,932	
Total Home-based VMT/Capita		24.46	
Total Work-based VMT/Employee		14.76	
Total VMT/Service Population		29.93	

Ventura County			
ID	Purpose	Productions	Attractions
1	Home-based Work	7,075,091	4,559,229
2	Home-based School	257,049	249,912
3	Home-based Non-Work	5,935,444	5,091,015
4	Home-based University	115,015	114,526
5	Work-Based Other	849,440	668,005
6	Other Based Other	3,117,886	2,553,637
Total VMT		17,349,924	13,236,324
Total Home-based VMT			13,382,599
Total Work-based VMT			5,408,669
Total Population		837,616	
Total Employees		333,506	
Total Home-based VMT/Capita		15.98	
Total Work-based VMT/Employee		16.22	
Total VMT/Service Population		26.12	

2050 Forecast Year

City	Home-based VMT/Capita	Work-based VMT/Employee	Total VMT/Service Population
Camarillo	17.85	20.96	29.82
Fillmore	27.31	17.71	32.73
Moorpark	24.78	19.94	35.43
Ojai	21.55	10.35	28.67
Oxnard	11.01	18.02	21.28
Port Hueneme	13.38	16.24	22.14
San Buenaventura	14.41	19.02	27.95
Santa Paula	20.42	17.41	26.33
Simi Valley	20.17	18.60	29.12
Thousand Oaks	20.86	20.80	34.09
Unincorporated	26.41	18.51	32.42
Overall Ventura County	17.51	19.14	28.21

City	Population	Employee	Service Population
Camarillo	73,517	35,157	108,674
Fillmore	18,062	2,508	20,570
Moorpark	34,878	10,252	45,130
Ojai	9,178	6,557	15,735
Oxnard	234,072	68,438	302,510
Port Hueneme	20,170	4,272	24,442
San Buenaventura	108,243	61,285	169,528
Santa Paula	32,798	5,660	38,458
Simi Valley	127,165	43,796	170,961
Thousand Oaks	128,674	80,919	209,593
Unincorporated	64,932	21,795	86,727
Overall Ventura County	851,689	340,639	1,192,328

Camarillo			
ID	Purpose	Productions	Attractions
1	Home-based Work	755,995	611,715
2	Home-based School	17,717	15,783
3	Home-based Non-Work	528,604	473,314
4	Home-based University	10,318	68
5	Work-Based Other	125,031	80,952
6	Other Based Other	355,597	266,021
Total VMT		1,793,262	1,447,854
Total Home-based VMT			1,312,634
Total Work-based VMT			736,746
Total Population		73,517	
Total Employees		35,157	
Total Home-based VMT/Capita		17.85	
Total Work-based VMT/Employee		20.96	
Total VMT/Service Population		29.82	

Fillmore			
ID	Purpose	Productions	Attractions
1	Home-based Work	290,726	35,622
2	Home-based School	3,764	3,068
3	Home-based Non-Work	194,950	50,279
4	Home-based University	3,836	-
5	Work-Based Other	8,806	3,626
6	Other Based Other	62,730	15,948
Total VMT		564,811	108,544
Total Home-based VMT			493,276
Total Work-based VMT			44,428
Total Population		18,062	
Total Employees		2,508	
Total Home-based VMT/Capita		27.31	
Total Work-based VMT/Employee		17.71	
Total VMT/Service Population		32.73	

Moorpark			
ID	Purpose	Productions	Attractions
1	Home-based Work	495,164	171,265
2	Home-based School	12,114	7,630
3	Home-based Non-Work	354,637	183,949
4	Home-based University	2,194	43,511
5	Work-Based Other	33,121	23,154
6	Other Based Other	172,532	99,860
Total VMT		1,069,762	529,367
Total Home-based VMT			864,109
Total Work-based VMT			204,386
Total Population		34,878	
Total Employees		10,252	
Total Home-based VMT/Capita		24.78	
Total Work-based VMT/Employee		19.94	
Total VMT/Service Population		35.43	

Ojai			
ID	Purpose	Productions	Attractions
1	Home-based Work	140,282	54,098
2	Home-based School	847	29,446
3	Home-based Non-Work	54,379	65,233
4	Home-based University	2,286	-
5	Work-Based Other	13,794	6,906
6	Other Based Other	49,168	34,652
Total VMT		260,757	190,335
Total Home-based VMT			197,795
Total Work-based VMT			67,893
Total Population		9,178	
Total Employees		6,557	
Total Home-based VMT/Capita		21.55	
Total Work-based VMT/Employee		10.35	
Total VMT/Service Population		28.67	

Oxnard			
ID	Purpose	Productions	Attractions
1	Home-based Work	1,435,628	1,086,334
2	Home-based School	50,082	34,119
3	Home-based Non-Work	1,072,240	1,245,936
4	Home-based University	18,400	8,907
5	Work-Based Other	146,799	167,064
6	Other Based Other	524,948	646,784
Total VMT		3,248,098	3,189,143
Total Home-based VMT			2,576,350
Total Work-based VMT			1,233,134
Total Population		234,072	
Total Employees		68,438	
Total Home-based VMT/Capita		11.01	
Total Work-based VMT/Employee		18.02	
Total VMT/Service Population		21.28	

Port Hueneme			
ID	Purpose	Productions	Attractions
1	Home-based Work	158,981	59,678
2	Home-based School	4,297	1,820
3	Home-based Non-Work	105,124	93,789
4	Home-based University	1,571	-
5	Work-Based Other	9,705	11,239
6	Other Based Other	53,543	41,346
Total VMT		333,221	207,872
Total Home-based VMT			269,973
Total Work-based VMT			69,383
Total Population		20,170	
Total Employees		4,272	
Total Home-based VMT/Capita		13.38	
Total Work-based VMT/Employee		16.24	
Total VMT/Service Population		22.14	

San Buenaventura			
ID	Purpose	Productions	Attractions
1	Home-based Work	891,227	1,032,435
2	Home-based School	29,312	30,805
3	Home-based Non-Work	632,584	861,439
4	Home-based University	7,156	26,501
5	Work-Based Other	132,950	137,297
6	Other Based Other	456,330	500,651
Total VMT		2,149,559	2,589,128
Total Home-based VMT			1,560,279
Total Work-based VMT			1,165,385
Total Population		108,243	
Total Employees		61,285	
Total Home-based VMT/Capita		14.41	
Total Work-based VMT/Employee		19.02	
Total VMT/Service Population		27.95	

Santa Paula			
ID	Purpose	Productions	Attractions
1	Home-based Work	420,741	78,626
2	Home-based School	11,882	5,354
3	Home-based Non-Work	231,798	101,601
4	Home-based University	5,318	-
5	Work-Based Other	19,909	9,239
6	Other Based Other	90,458	37,503
Total VMT		780,106	232,324
Total Home-based VMT			669,739
Total Work-based VMT			98,535
Total Population		32,798	
Total Employees		5,660	
Total Home-based VMT/Capita		20.42	
Total Work-based VMT/Employee		17.41	
Total VMT/Service Population		26.33	

Simi Valley			
ID	Purpose	Productions	Attractions
1	Home-based Work	1,544,316	664,351
2	Home-based School	32,970	27,223
3	Home-based Non-Work	969,300	669,726
4	Home-based University	18,695	-
5	Work-Based Other	150,458	77,648
6	Other Based Other	500,523	323,933
Total VMT		3,216,261	1,762,882
Total Home-based VMT			2,565,281
Total Work-based VMT			814,809
Total Population		127,165	
Total Employees		43,796	
Total Home-based VMT/Capita		20.17	
Total Work-based VMT/Employee		18.60	
Total VMT/Service Population		29.12	

Thousand Oaks			
ID	Purpose	Productions	Attractions
1	Home-based Work	1,523,991	1,437,403
2	Home-based School	34,581	37,120
3	Home-based Non-Work	1,107,624	1,075,356
4	Home-based University	18,404	5,535
5	Work-Based Other	245,771	194,390
6	Other Based Other	787,504	677,261
Total VMT		3,717,875	3,427,065
Total Home-based VMT			2,684,600
Total Work-based VMT			1,683,174
Total Population		128,674	
Total Employees		80,919	
Total Home-based VMT/Capita		20.86	
Total Work-based VMT/Employee		20.80	
Total VMT/Service Population		34.09	

Unincorporated			
ID	Purpose	Productions	Attractions
1	Home-based Work	944,231	331,393
2	Home-based School	29,213	33,664
3	Home-based Non-Work	728,410	217,077
4	Home-based University	13,193	18,391
5	Work-Based Other	71,973	34,771
6	Other Based Other	287,347	102,226
Total VMT		2,074,368	737,521
Total Home-based VMT			1,715,048
Total Work-based VMT			403,366
Total Population		64,932	
Total Employees		21,795	
Total Home-based VMT/Capita		26.41	
Total Work-based VMT/Employee		18.51	
Total VMT/Service Population		32.42	

Ventura County			
ID	Purpose	Productions	Attractions
1	Home-based Work	8,601,283	5,562,921
2	Home-based School	226,779	226,032
3	Home-based Non-Work	5,979,650	5,037,700
4	Home-based University	101,372	102,912
5	Work-Based Other	958,317	746,286
6	Other Based Other	3,340,680	2,746,184
Total VMT		19,208,080	14,422,034
Total Home-based VMT			14,909,083
Total Work-based VMT			6,521,238
Total Population		851,689	
Total Employees		340,639	
Total Home-based VMT/Capita		17.51	
Total Work-based VMT/Employee		19.14	
Total VMT/Service Population		28.21	

