FEHR PEERS

TECHNICAL MEMORANDUM

Date: 10.22.18

To: Chris Gray (WRCOG), Chris Tzeng (WRCOG), Sarah Dominguez (SCAG), Mike Gainor (SCAG)

From: Ronald T. Milam, AICP, PTP and Andrew Scher

Subject: SB 743 Implementation Baseline VMT Methodology and Data OC18-0567

This technical memorandum summarizes the baseline VMT methodology and associated data prepared for the WRCOG jurisdictions as part of the SB 743 Implementation Pathway project. Baseline methodology options included the regional SCAG model, the RIVTAM model, and 2010-2012 California Household Travel Survey (CHTS). A key limitation of the two models is that they exclude the VMT associated with internal to external and external to internal trips. For the SCAG and RIVTAM models, the VMT methodology included internal to internal trips for each of the following variable formats.

- Total VMT (all vehicles and all trip purposes)
- Home-based VMT per capita (automobile only)
- Home-based work VMT per worker (automobile only)

The exception to this is the RIVTAM Total VMT, which included internal to external and external to internal trips. The model limited all trip length calculations for these trips to facilities within the SCAG region; therefore, the lengths of these trips are not fully accounted for.

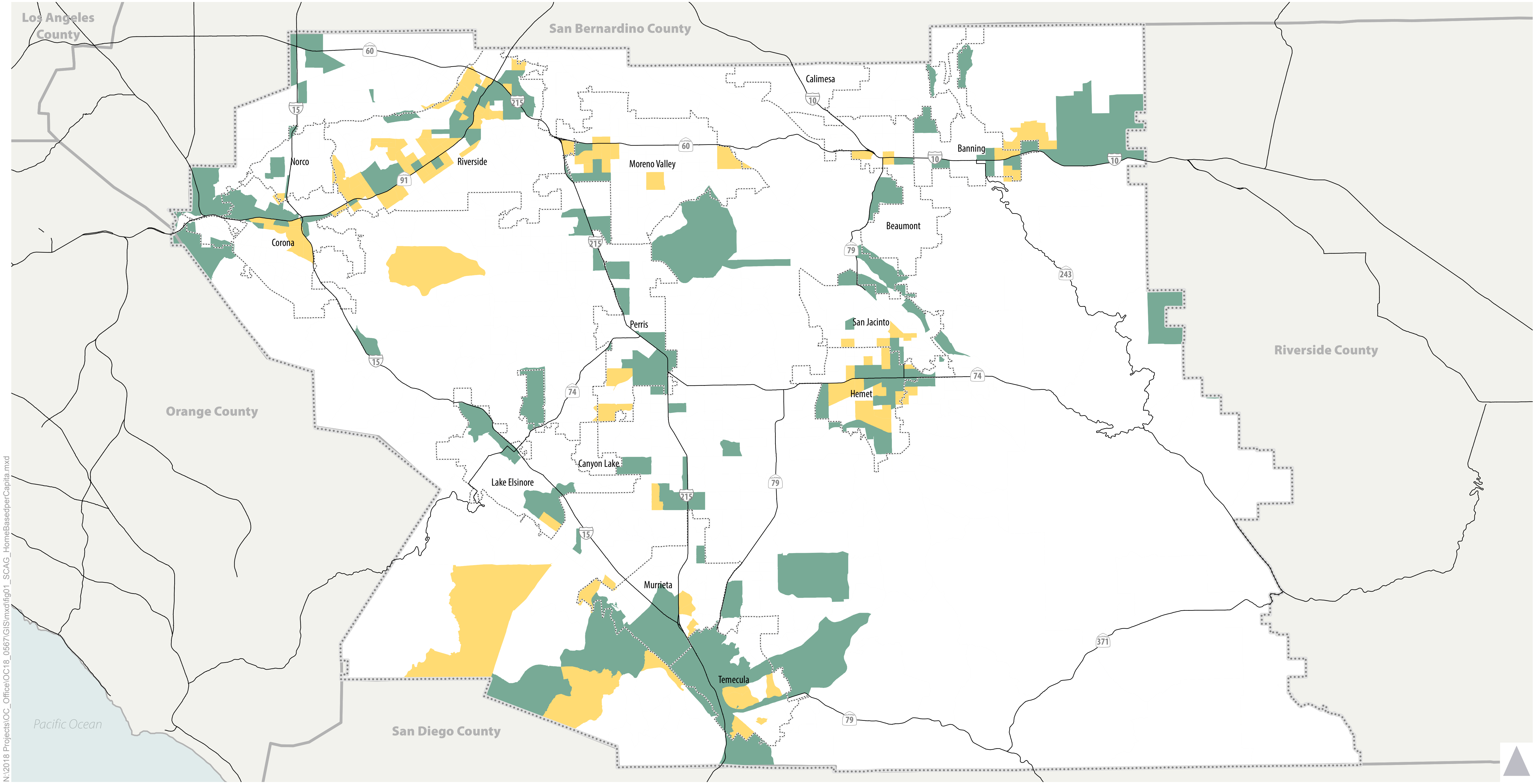
The CHTS data was included for purposes of comparing home-based generated VMT from the two models although it can also be considered a separate methodology since it provides direct VMT generation rates for residential households.

Attachment A contains the 2012 VMT by jurisdiction from the SCAG model in chart and map format while Attachment B contains the same information from the RIVTAM model. For the RIVTAM model, we've also included total VMT data by TUMF district. Attachment C contains comparisons of the SCAG and RIVTAM model results for 2012 conditions.

Baseline conditions for CEQA purposes would be specific to the release date of a project's notice of preparation (NOP). Hence, the project team recommends interpolating between the 2012 and 2040 VMT data to establish specific VMT values associated with a baseline year. Spreadsheets containing the 2012 and 2040 data, and where interpolation calculations can be performed, will be transmitted separately to

WRCOG. Attachment D contains the CHTS VMT data for those jurisdictions in WRCOG where adequate sample sizes were available.

ATTACHMENT A – SCAG VMT Data

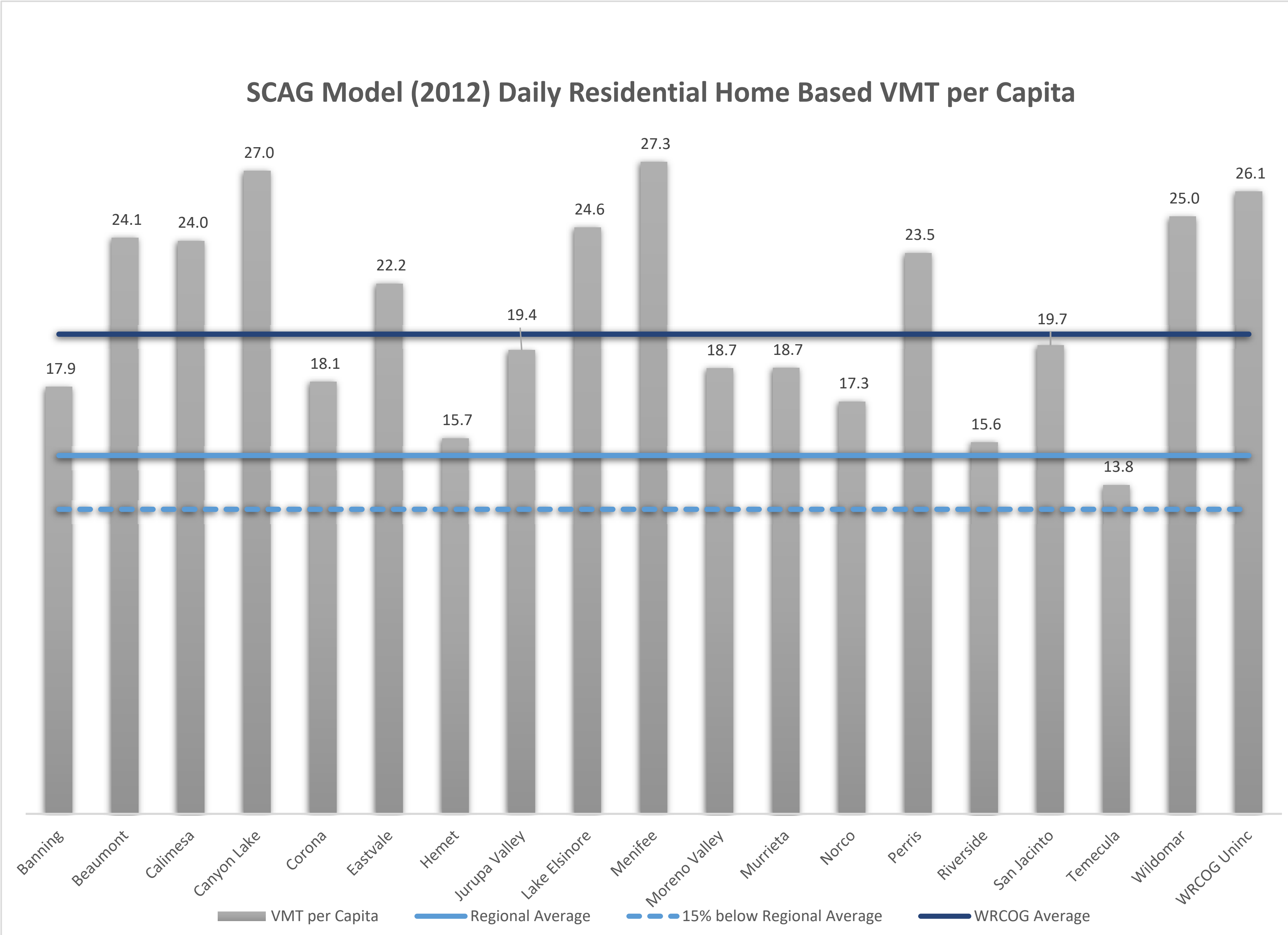


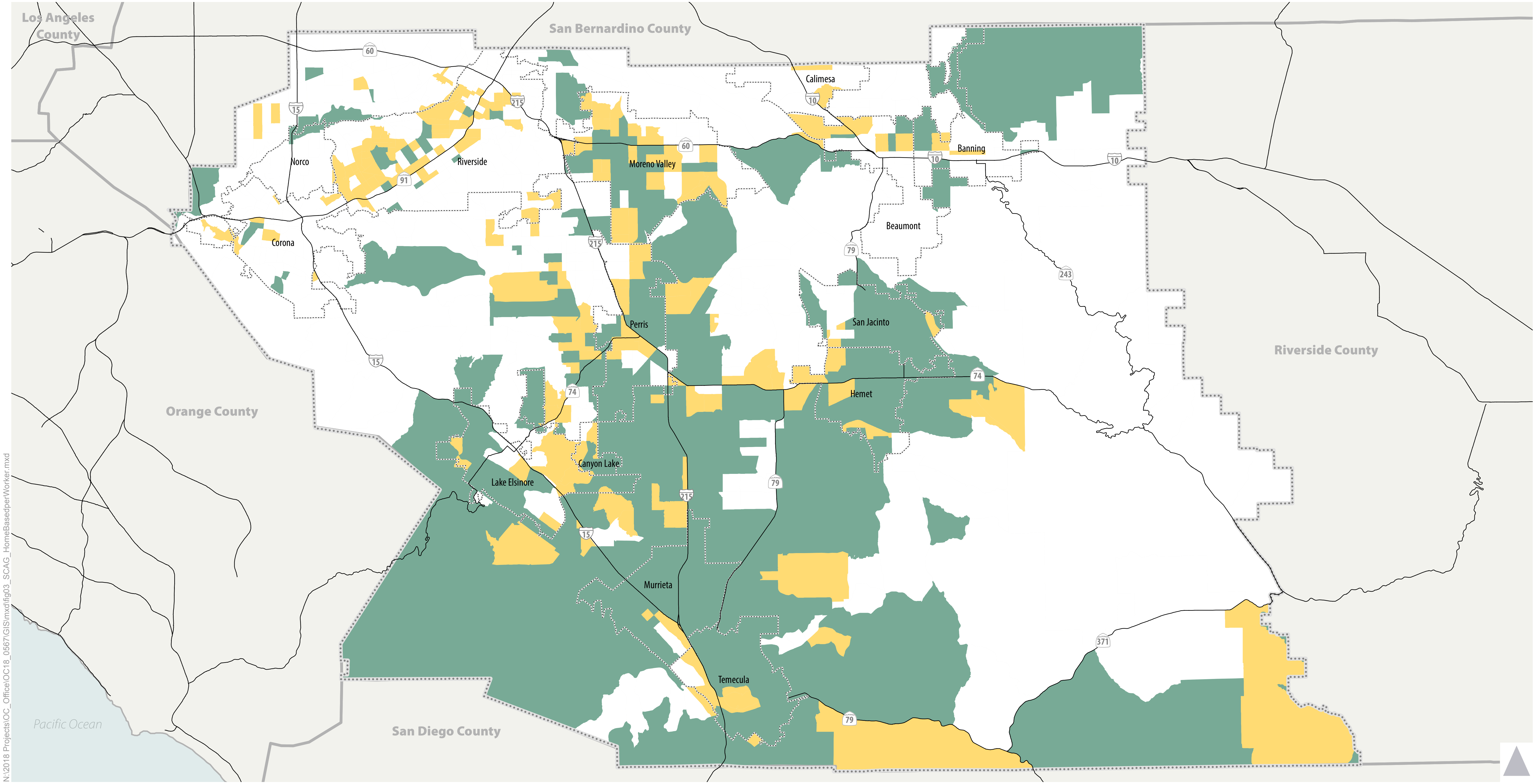
< -15% below SCAG Regional Average *
0 to -15% below SCAG Regional Average
Higher than SCAG Regional Average
WRCOG Boundary
County Boundary
City Limits

* SCAG Regional Average calculated using SCAG Model.

Figure 1

SCAG Model (2012)
Daily Residential Home Based VMT per Capita
Comparison to SCAG Regional Average


SCAG Model (2012) Daily Residential Home Based VMT per Capita
17.9
24.1
24.0
27.0
18.1
22.2
15.7
19.4
24.6
27.3
18.7
18.7
17.3
23.5
15.6
19.7
13.8
25.0
26.1
Banning
Beaumont
Calimesa
Canyon Lake
Corona
Eastvale
Hemet
Jurupa Valley
Lake Elsinore
Menifee
Moreno Valley
Murrieta
Norco
Perris
Riverside
San Jacinto
Temecula
Wildomar
WRCOG Uninc
VMT per Capita
Regional Average
15% below Regional Average
WRCOG Average



< -15% below SCAG Regional Average *

0 to -15% below SCAG Regional Average

Higher than SCAG Regional Average

WRCOG Boundary

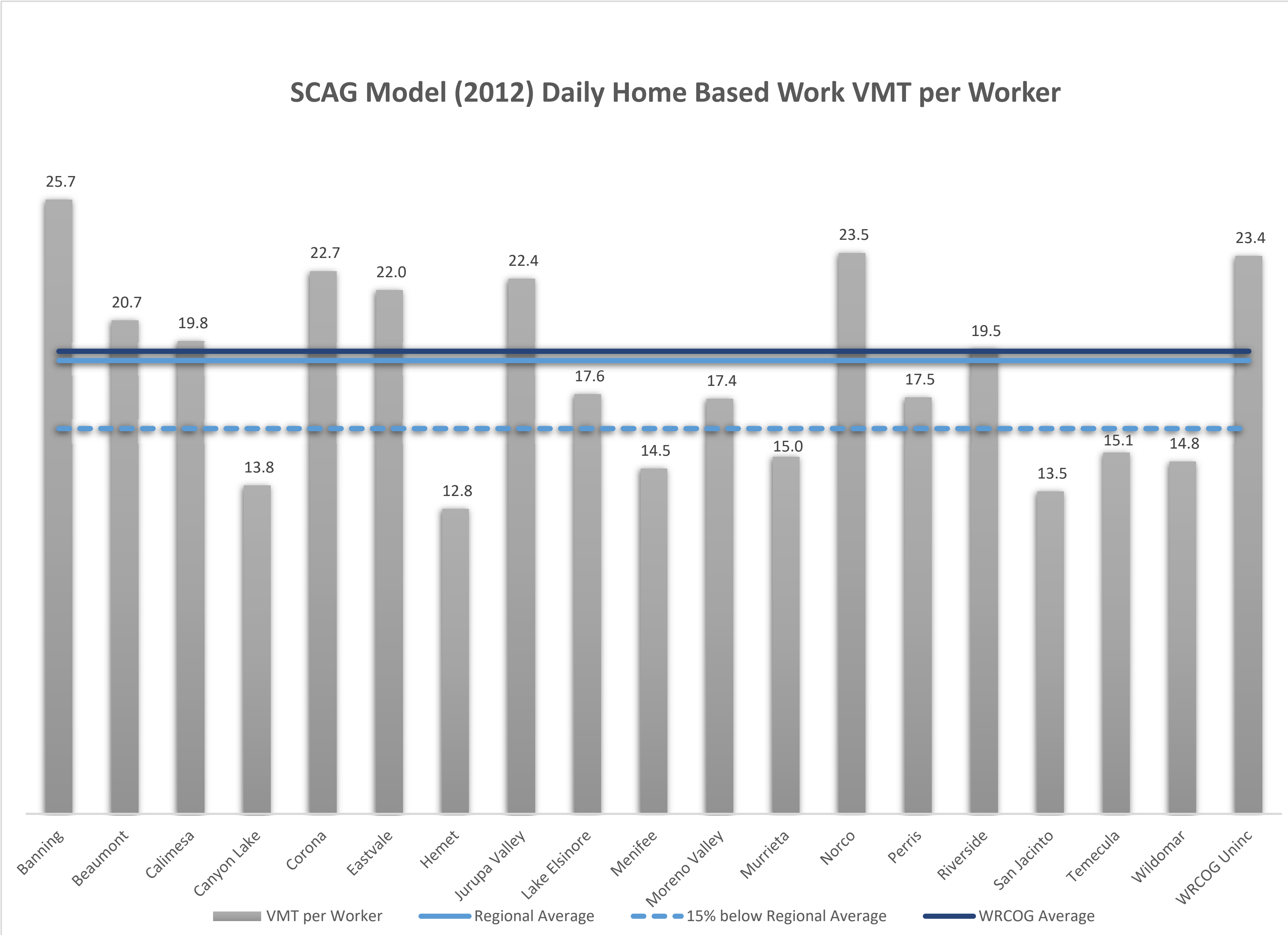
County Boundary

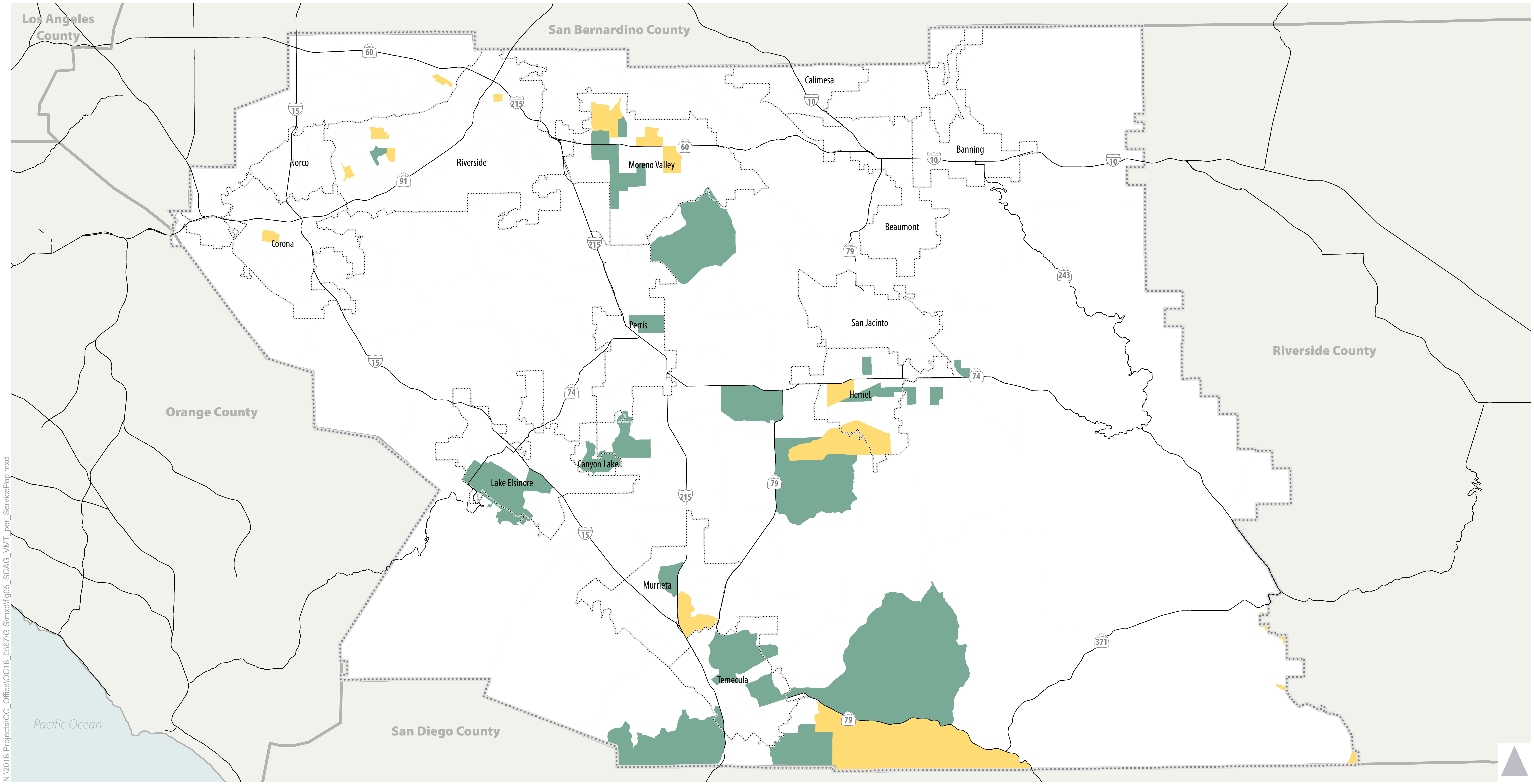
City Limits

* SCAG Regional Average calculated using SCAG Model.

Figure 3

SCAG Model (2012)
Daily Home Based Work VMT per Worker
Comparison to SCAG Regional Average


SCAG Model (2012) Daily Home Based Work VMT per Worker
25.7
20.7
19.8
13.8
22.7
22.0
12.8
22.4
17.6
14.5
17.4
15.0
23.5
17.5
19.5
13.5
15.1
14.8
23.4
Banning
Beaumont
Calimesa
Canyon Lake
Corona
Eastvale
Hemet
Jurupa Valley
Lake Elsinore
Menifee
Moreno Valley
Murrieta
Norco
Perris
Riverside
San Jacinto
Temecula
Wildomar
WRCOG Uninc
VMT per Worker
Regional Average
15% below Regional Average
WRCOG Average



< -15% below SCAG Regional Average *

0 to -15% below SCAG Regional Average

Higher than SCAG Regional Average

WRCOG Boundary

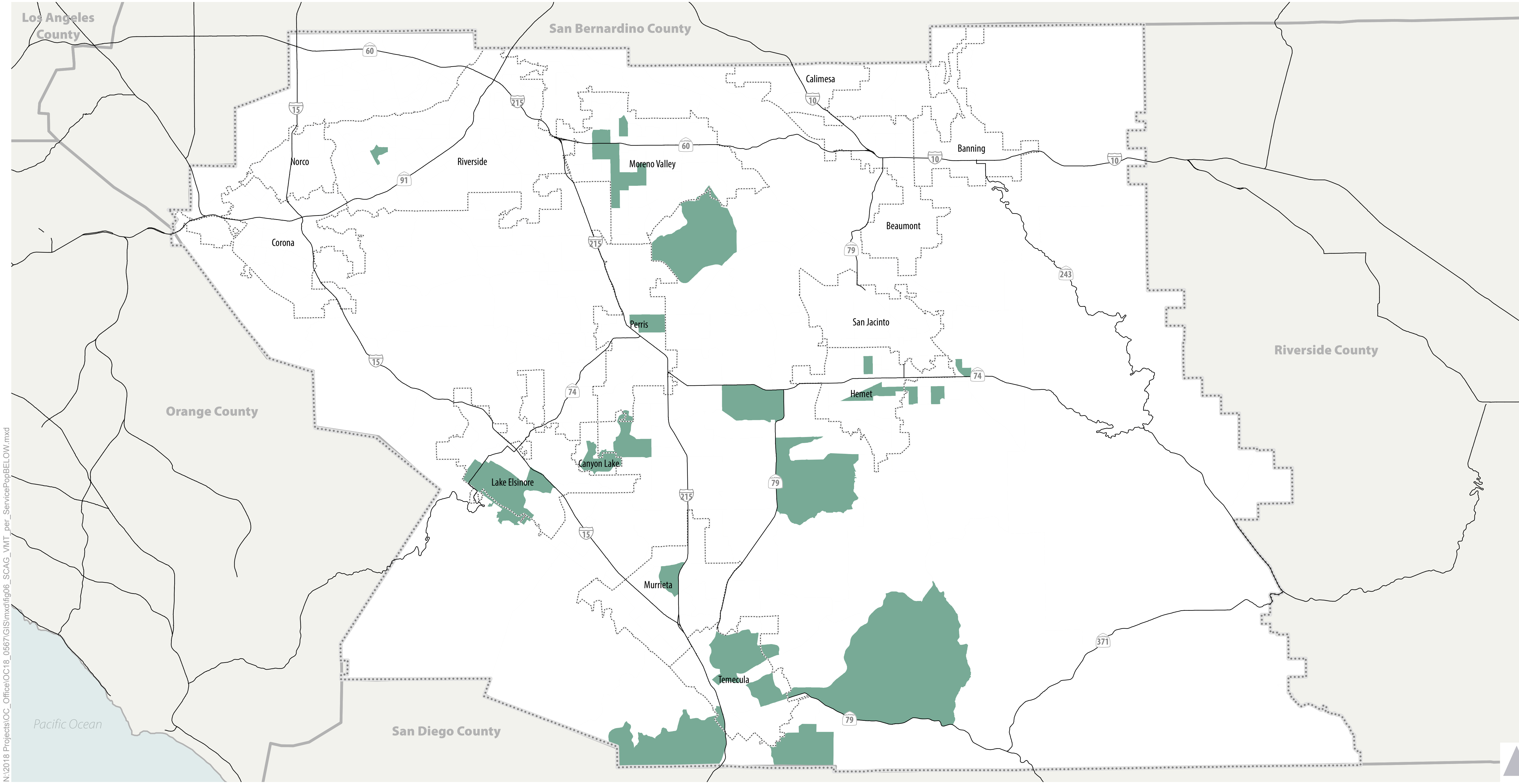
County Boundary

City Limits

* SCAG Regional Average calculated using SCAG Model.

Figure 5

SCAG Model (2012)
Daily Total VMT per Service Population
Comparison to SCAG Regional Average



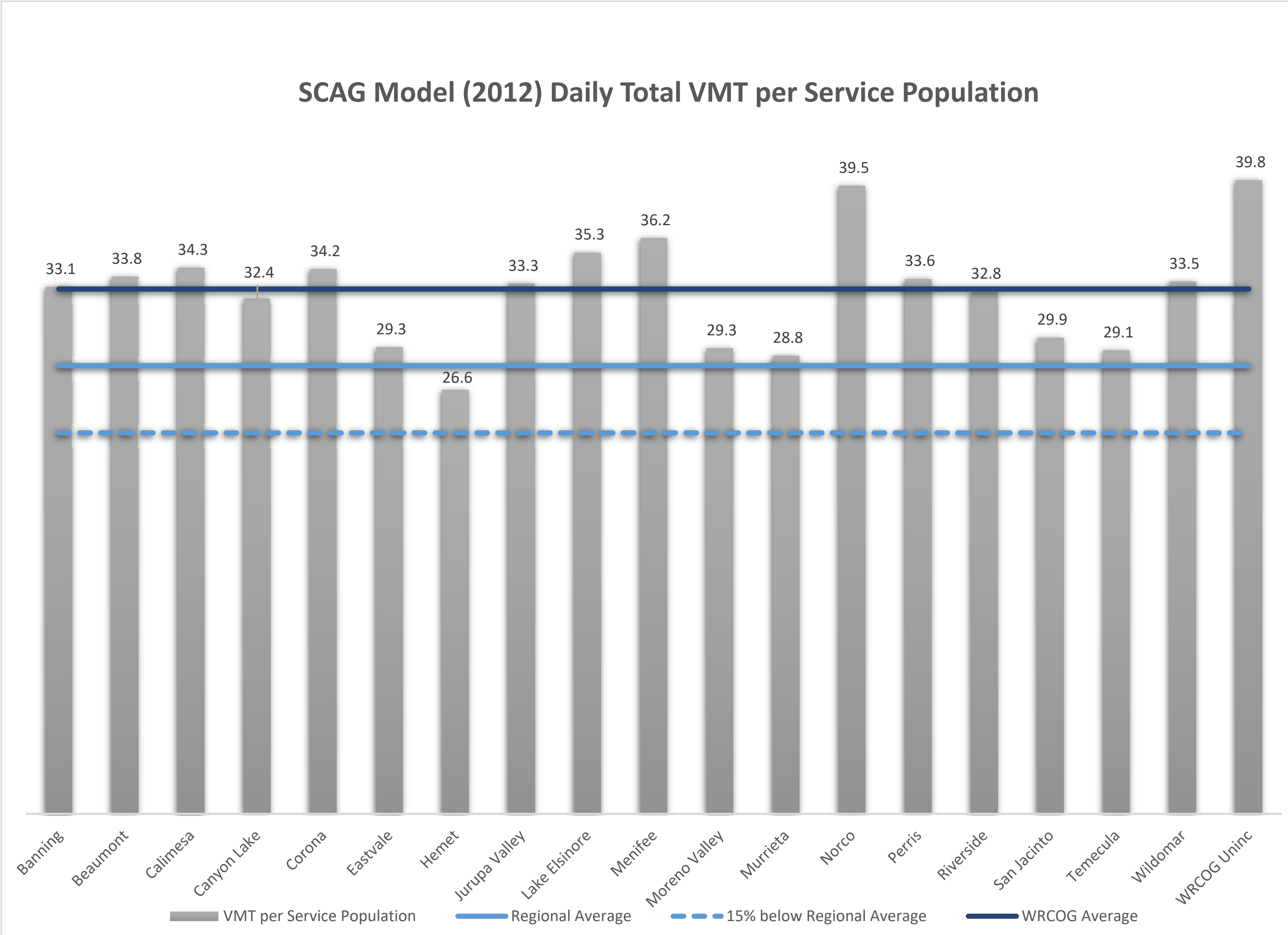
< -15% below SCAG Regional Average *
Higher than SCAG Regional Average
WRCOG Boundary
County Boundary
City Limits

* SCAG Regional Average calculated using SCAG Model.

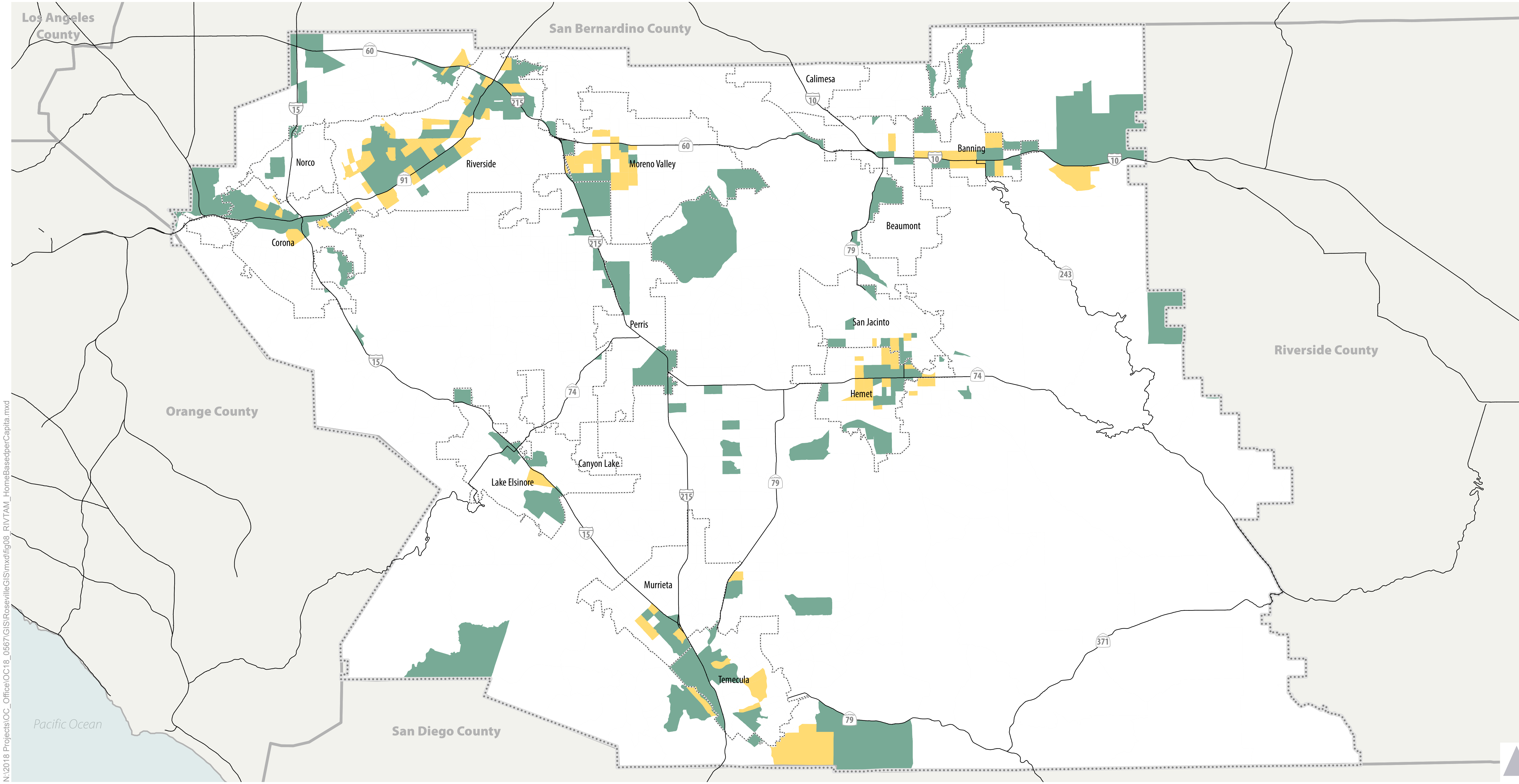
Figure 6

SCAG Model (2012)
TAZs Performing Better than 15% below SCAG Regional Average of Daily VMT per Service Population in only the SCAG Model

N:\2018 Projects\OC_Office\OC18_0567\GIS\mxd\fig06_SCAG_VMT_per_ServicePopBELOW.mxd


SCAG Model (2012) Daily Total VMT per Service Population
33.1
33.8
34.3
32.4
34.2
29.3
26.6
33.3
35.3
36.2
29.3
28.8
39.5
33.6
32.8
29.9
29.1
33.5
39.8
Banning
Beaumont
Calimesa
Canyon Lake
Corona
Eastvale
Hemet
Jurupa Valley
Lake Elsinore
Menifee
Moreno Valley
Murrieta
Norco
Perris
Riverside
San Jacinto
Temecula
Wildomar
WRCOG Uninc
VMT per Service Population
Regional Average
15% below Regional Average
WRCOG Average

ATTACHMENT B – RIVTAM VMT Data



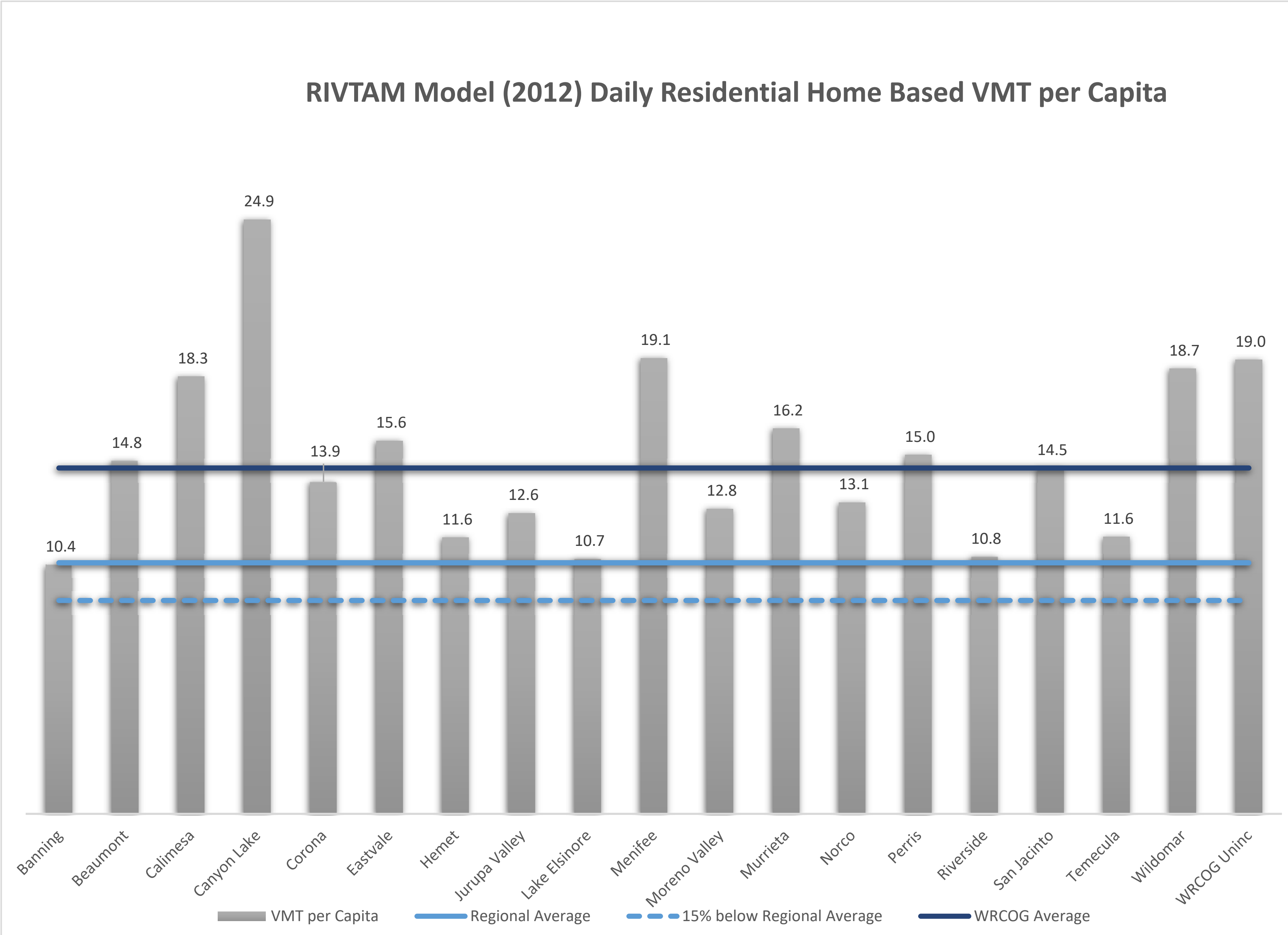
N:\2018 Projects\OC_Office\OC18_0567\GIS\RosevilleGIS\mxd\fig08_RIVTAM_HomeBasedperCapita.mxd

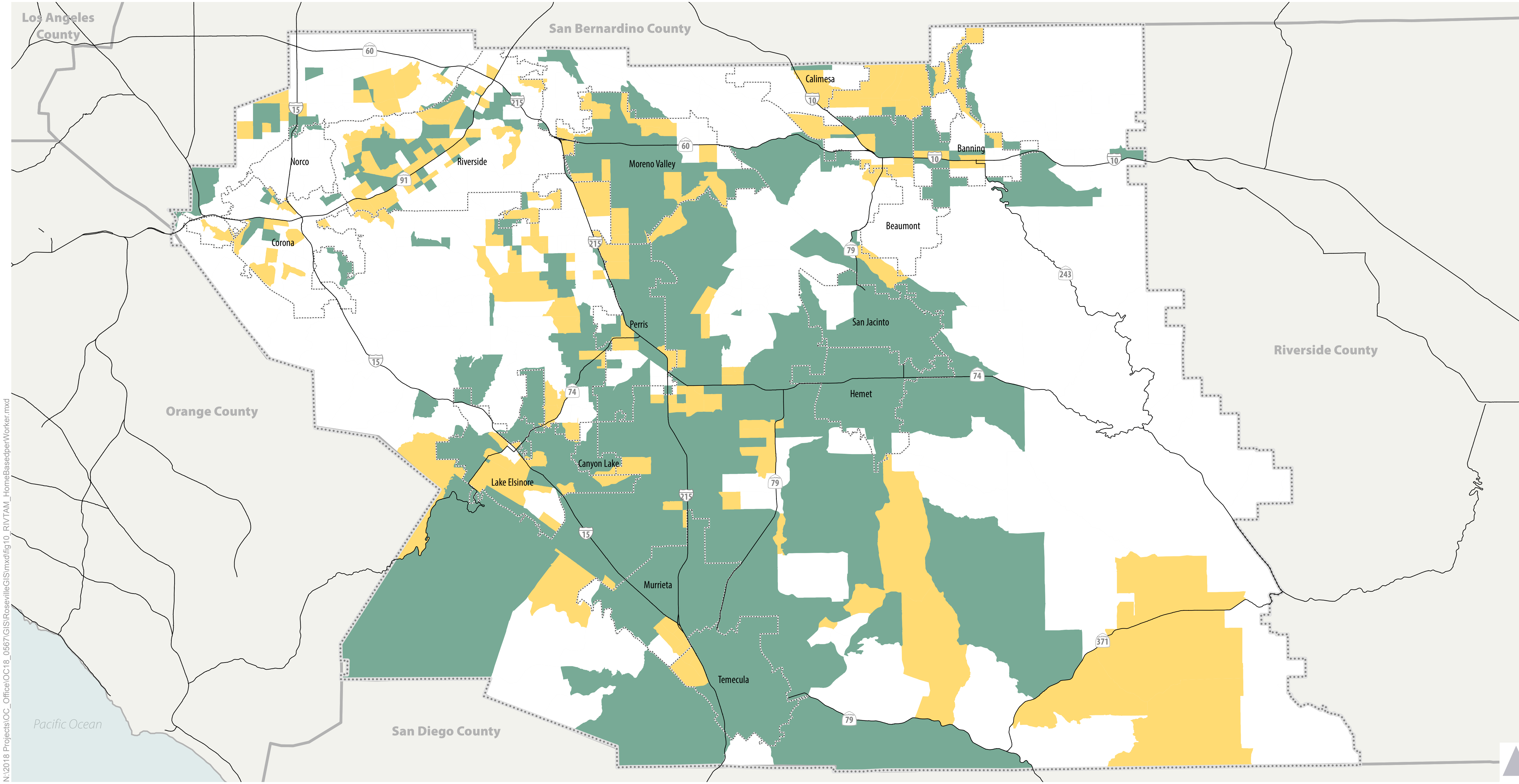
< -15% below SCAG Regional Average *
0 to -15% below SCAG Regional Average
Higher than SCAG Regional Average
WRCOG Boundary
County Boundary
City Limits

* SCAG Regional Average calculated using RIVTAM Model.

Figure 8

RIVTAM Model (2012)
Daily Residential Home Based VMT per Capita
Comparison to SCAG Regional Average


RIVTAM Model (2012) Daily Residential Home Based VMT per Capita
10.4
14.8
18.3
24.9
13.9
15.6
11.6
12.6
10.7
19.1
12.8
16.2
13.1
15.0
10.8
14.5
11.6
18.7
19.0
Banning
Beaumont
Calimesa
Canyon Lake
Corona
Eastvale
Hemet
Jurupa Valley
Lake Elsinore
Menifee
Moreno Valley
Murrieta
Norco
Perris
Riverside
San Jacinto
Temecula
Wildomar
WRCOG Uninc
VMT per Capita
Regional Average
15% below Regional Average
WRCOG Average



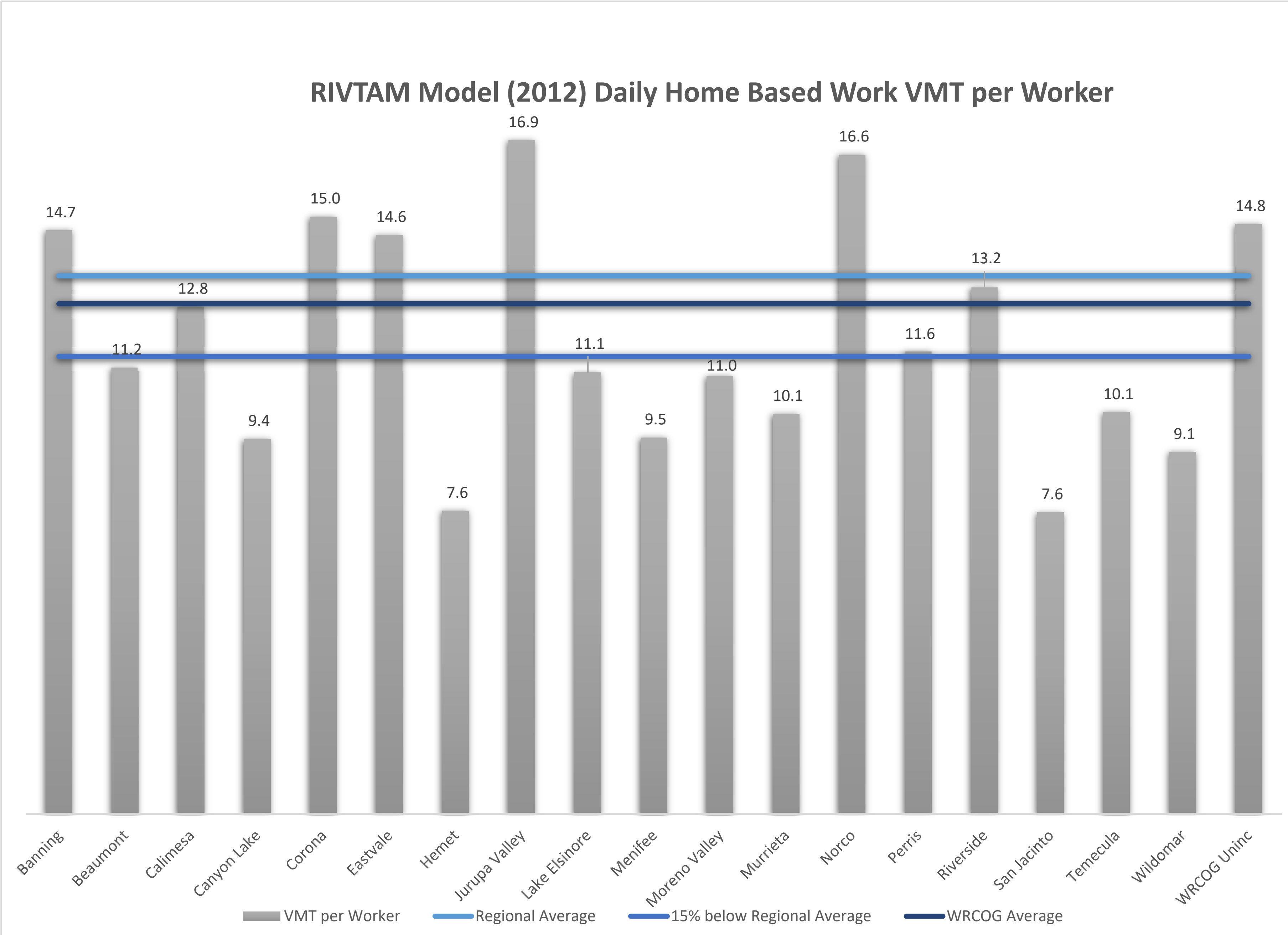
< -15% below SCAG Regional Average *
0 to -15% below SCAG Regional Average
Higher than SCAG Regional Average
WRCOG Boundary
County Boundary
City Limits

* SCAG Regional Average calculated using RIVTAM Model.

Figure 10

RIVTAM Model (2012)
Daily Home Based Work VMT per Worker
comparison to SCAG Regional Average

N:\2018 Projects\OC_Office\OC18_0567\GIS\RosevilleGIS\mxd\fig10_RIVTAM_HomeBasedperWorker.mxd



RIVTAM Model (2012) Daily Home Based Work VMT per Worker
14.7
11.2
12.8
9.4
15.0
14.6
7.6
16.9
11.1
9.5
11.0
10.1
16.6
11.6
13.2
7.6
10.1
9.1
14.8
Banning
Beaumont
Calimesa
Canyon Lake
Corona
Eastvale
Hemet
Jurupa Valley
Lake Elsinore
Menifee
Moreno Valley
Murrieta
Norco
Perris
Riverside
San Jacinto
Temecula
Wildomar
WRCOG Uninc
VMT per Worker
Regional Average
15% below Regional Average
WRCOG Average

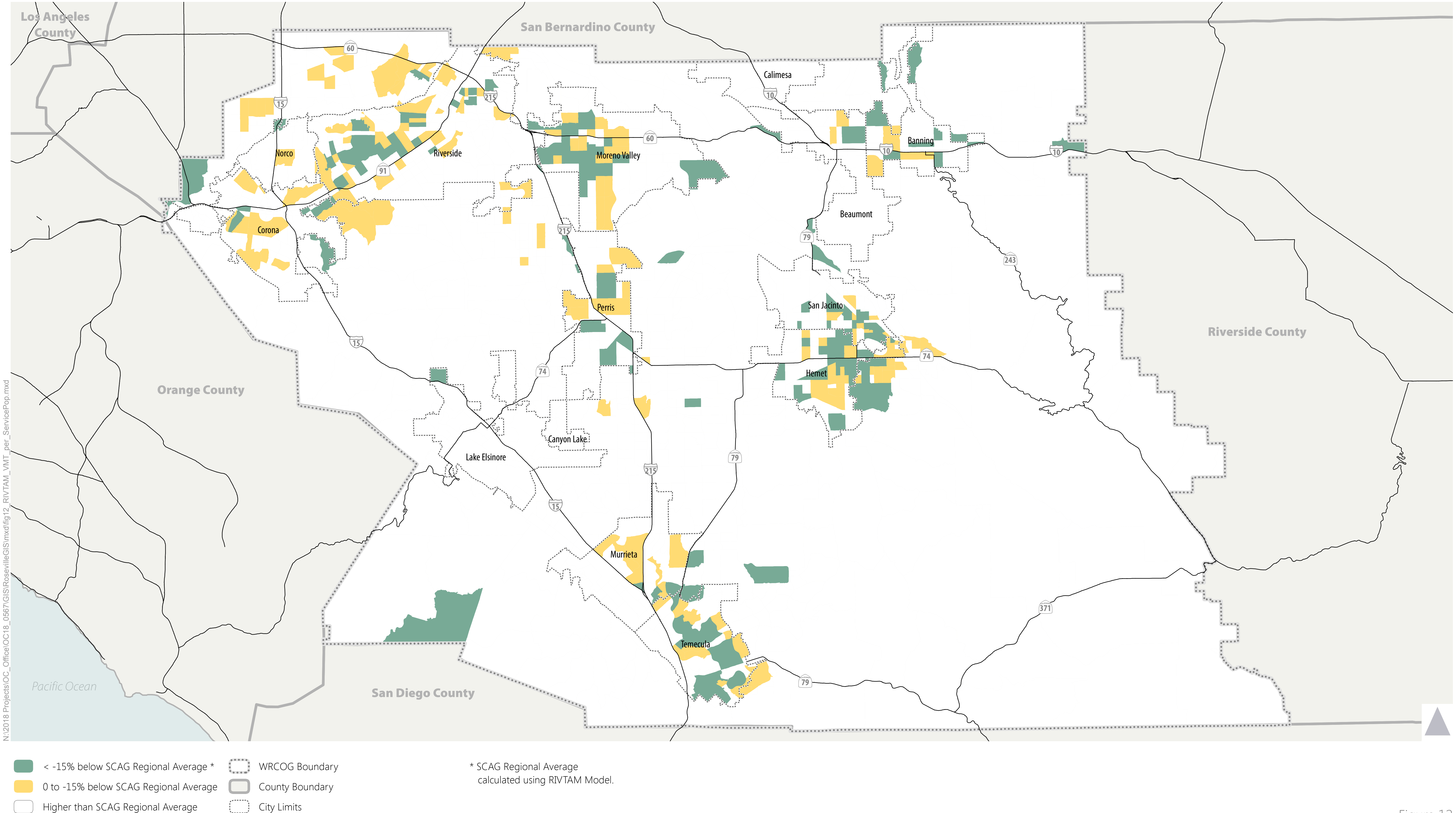
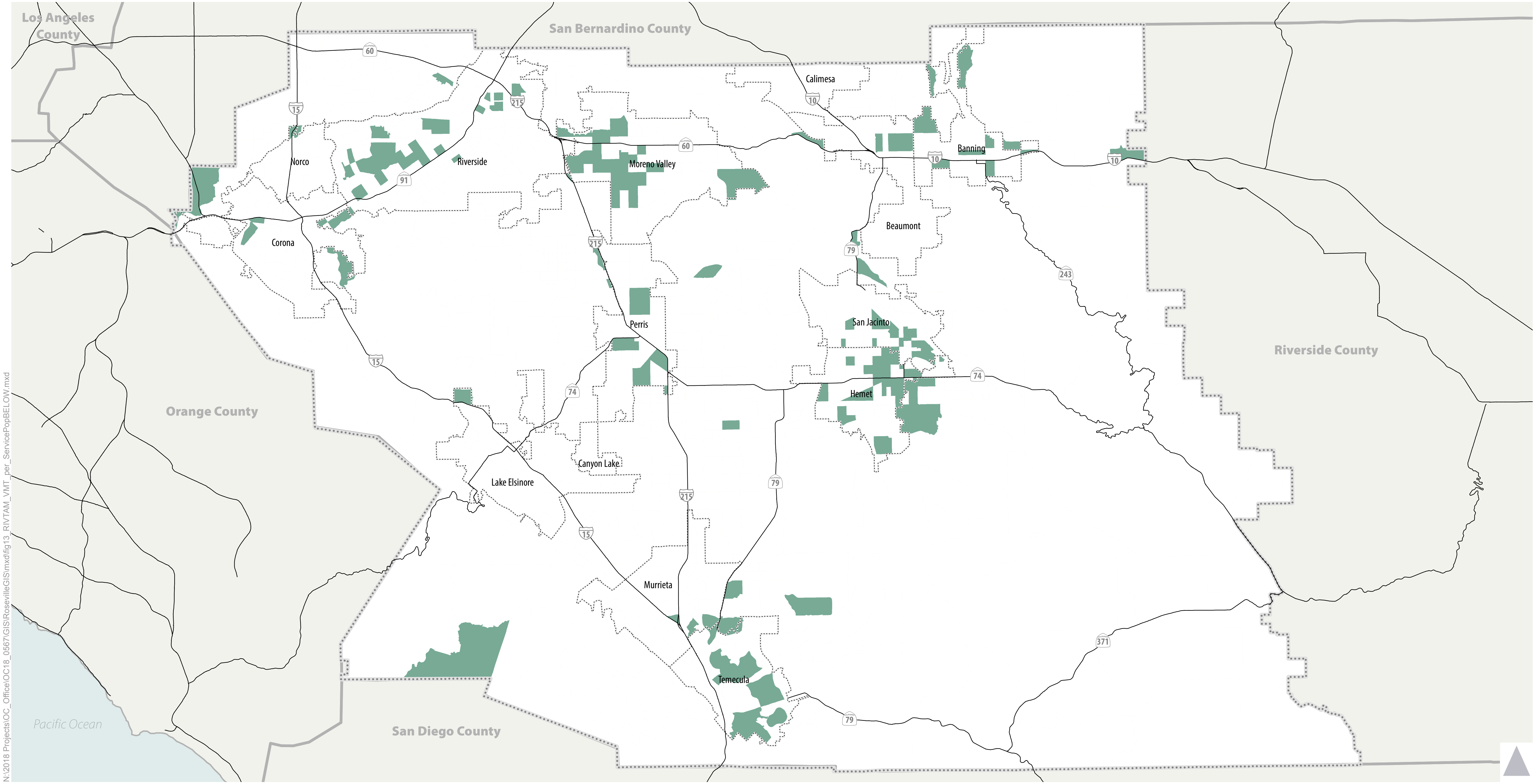


Figure 12

RIVTAM Model (2012)
Daily Total VMT per Service Population
Comparison to SCAG Regional Average



< -15% below SCAG Regional Average *

Higher than SCAG Regional Average

WRCOG Boundary

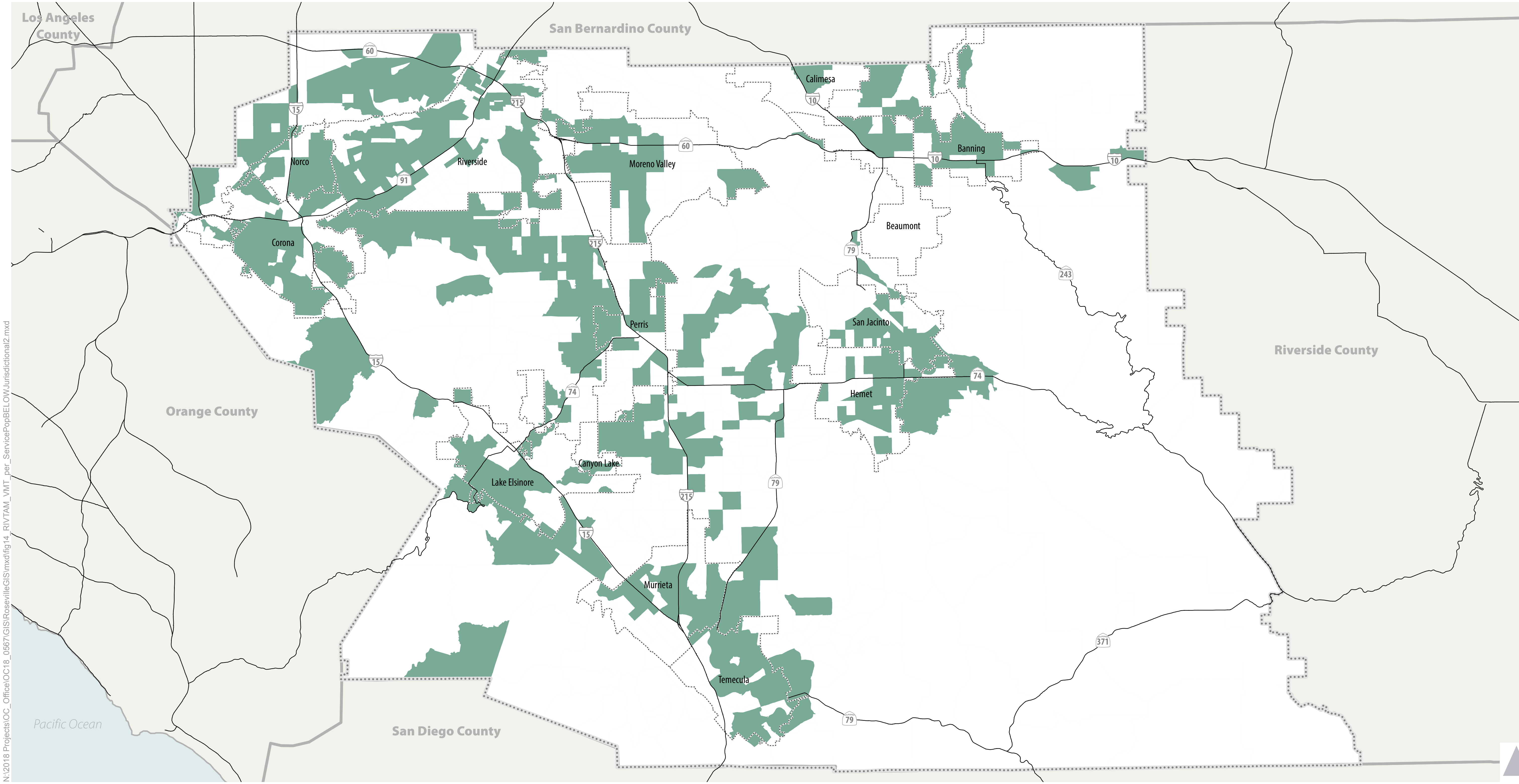
County Boundary

City Limits

* SCAG Regional Average calculated using RIVTAM Model.

Figure 13

RIVTAM Model (2012)
TAZs Performing Better than 15% below SCAG Regional Average of Daily VMT per Service Population in only the RIVTAM Model



N:\2018 Projects\OC_Office\OC18_0567\GIS\RosevilleGIS\mxd\fig14_RIVTAM_VMT_per_ServicePopBELOWJurisdictional2.mxd

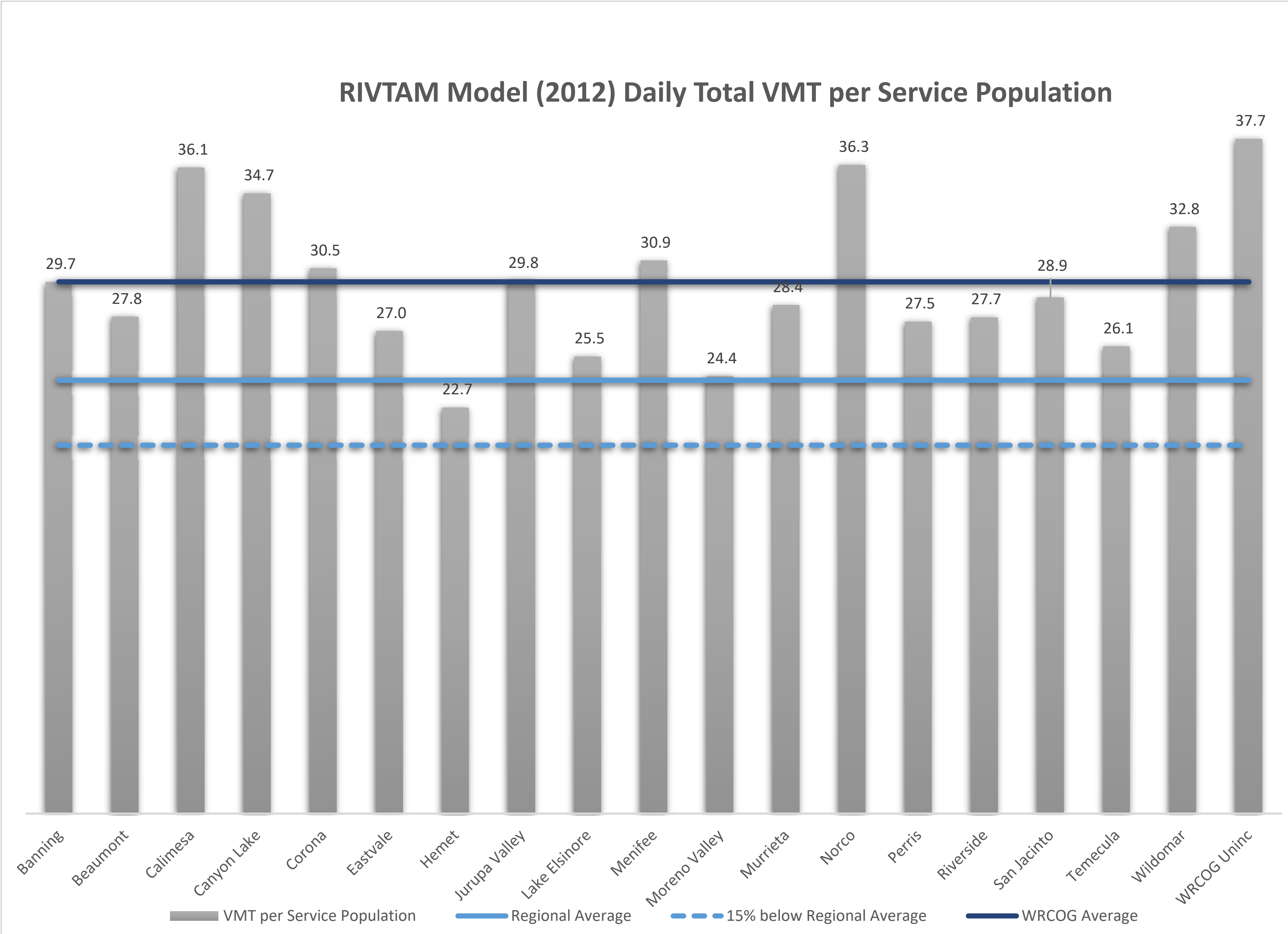
At or below Jurisdictional Average *
Higher than Jurisdictional Average

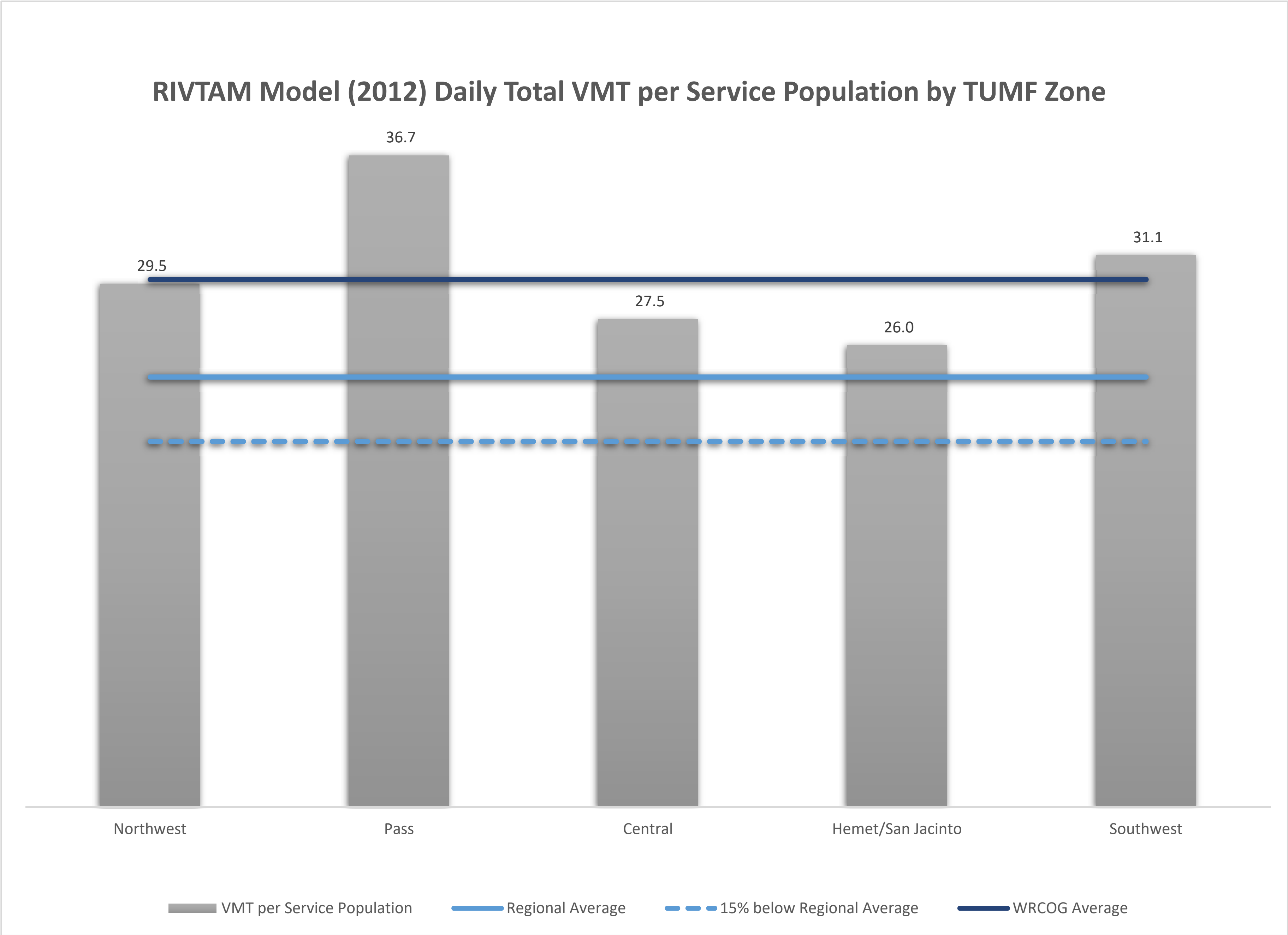
WRCOG Boundary
County Boundary
City Limits

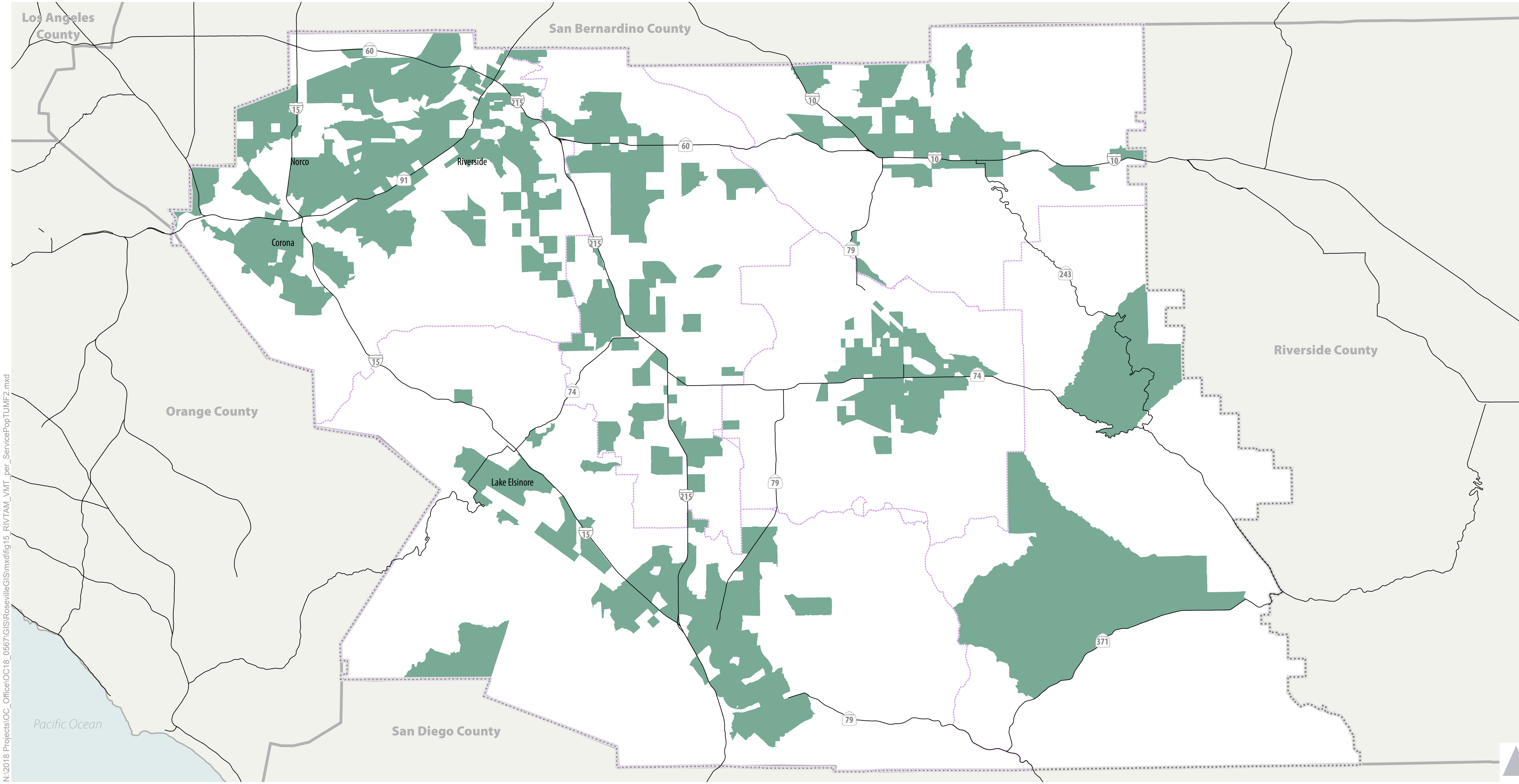
* Jurisdictional Average
calculated using RIVTAM Model.

Figure 14

RIVTAM Model (2012)
TAZs Performing at or below 2012 Jurisdictional Average of Daily VMT Per Service Population in only the RIVTAM Model


RIVTAM Model (2012) Daily Total VMT per Service Population
29.7
27.8
36.1
34.7
30.5
27.0
22.7
29.8
25.5
30.9
24.4
28.4
36.3
27.5
27.7
28.9
26.1
32.8
37.7
Banning
Beaumont
Calimesa
Canyon Lake
Corona
Eastvale
Hemet
Jurupa Valley
Lake Elsinore
Menifee
Moreno Valley
Murrieta
Norco
Perris
Riverside
San Jacinto
Temecula
Wildomar
WRCOG Uninc
VMT per Service Population
Regional Average
15% below Regional Average
WRCOG Average


RIVTAM Model (2012) Daily Total VMT per Service Population by TUMF Zone
29.5
36.7
27.5
26.0
31.1
Northwest
Pass
Central
Hemet/San Jacinto
Southwest
VMT per Service Population
Regional Average
15% below Regional Average
WRCOG Average



At or below TUMF Zonal Average*

Higher than TUMF Zonall Average

WRCOG Boundary

County Boundary

TUMF Zones

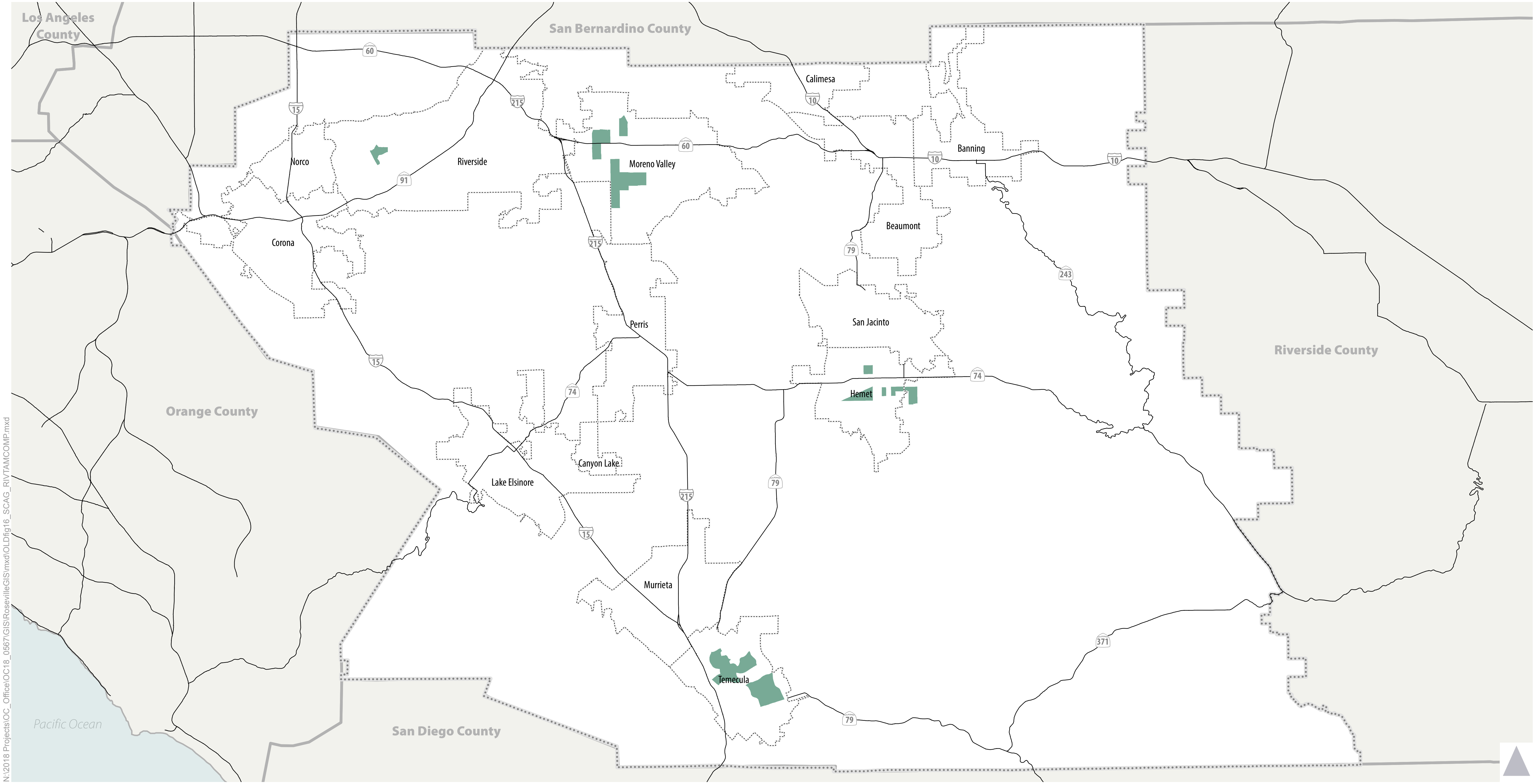
* TUMF Zonal Average calculated using RIVTAM Model.

N:\2018 Projects\OC_Office\OC18_0567\GIS\RosevilleGIS\mxd\fig15_RIVTAM_VMT_per_ServicePopTUMF2.mxd

Figure 15

RIVTAM Model (2012)
TAZs Performing at or below 2012 TUMF Zonal Average of Daily VMT Per Service Population in only the RIVTAM Model

ATTACHMENT C – SCAG and RIVTAM VMT Data Comparisons



< -15% below SCAG Regional Average in both the SCAG and RIVTAM Models

Higher than SCAG Regional Average

WRCOG Boundary

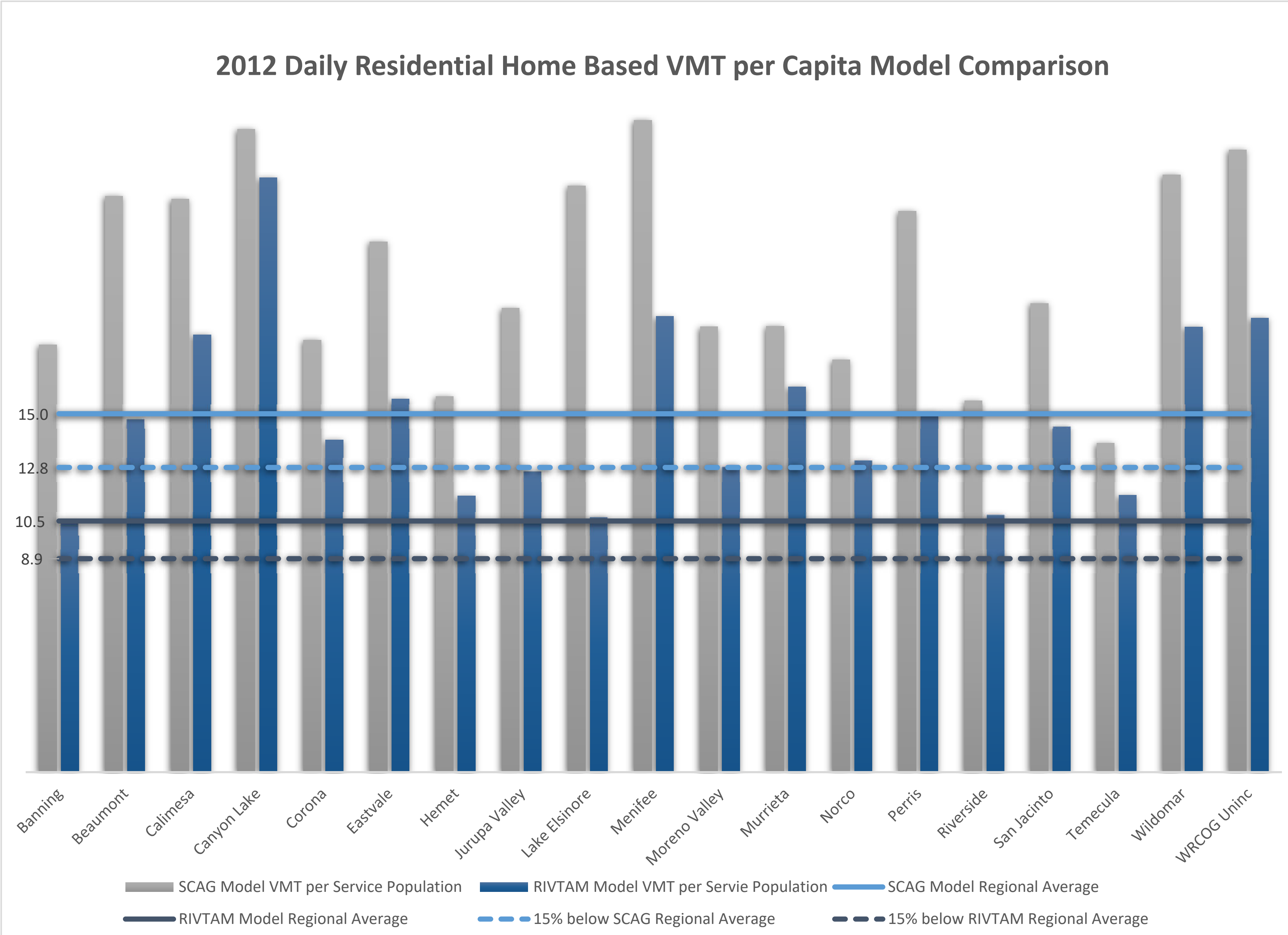
County Boundary

City Limits

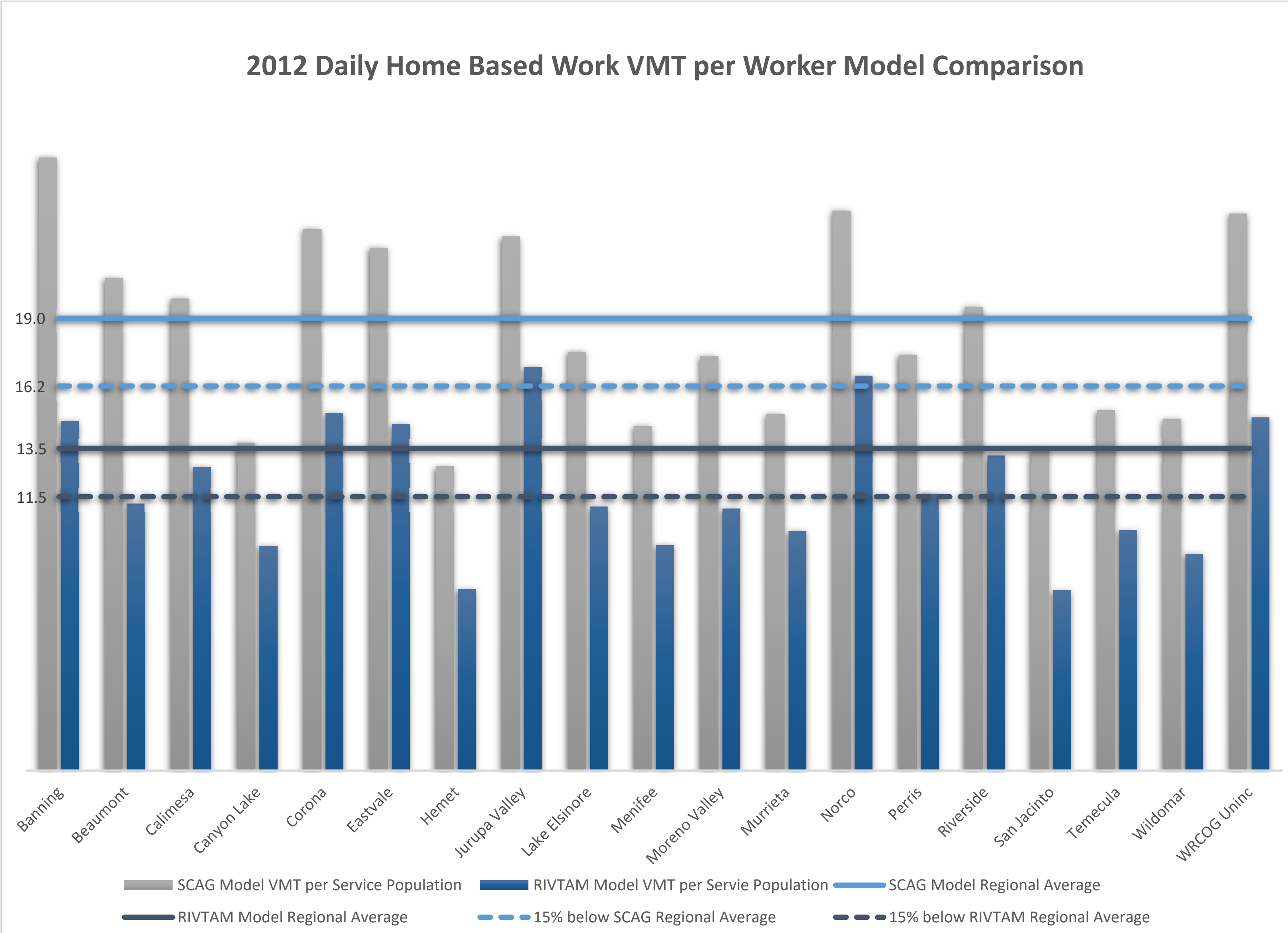
* SCAG Regional Average calculated using SCAG Model.

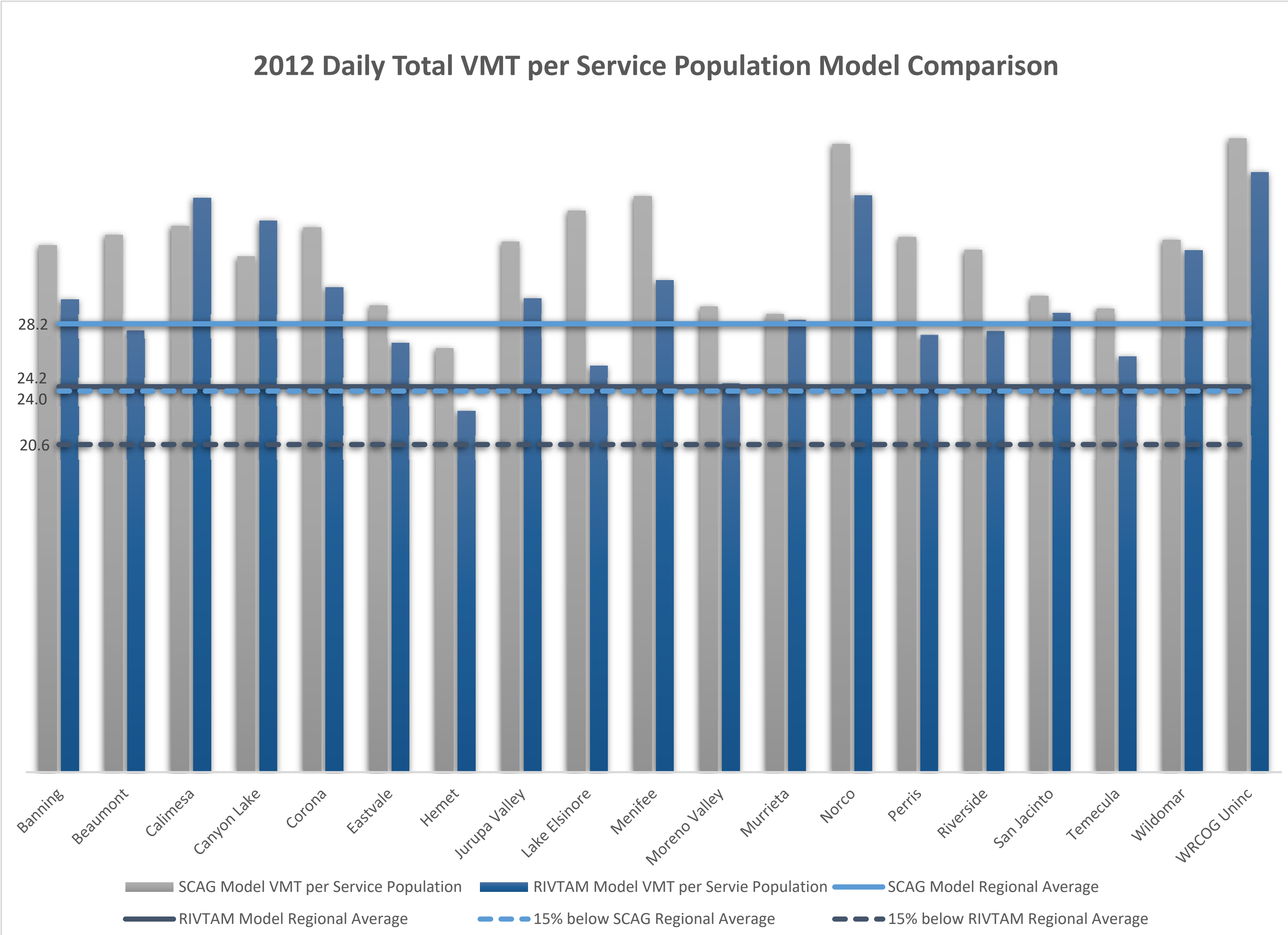
Figure 16

SCAG Model (2012)
TAZs Performing Better than 15% below SCAG Regional Average of Daily VMT per Service Population in both the SCAG and RIVTAM Models



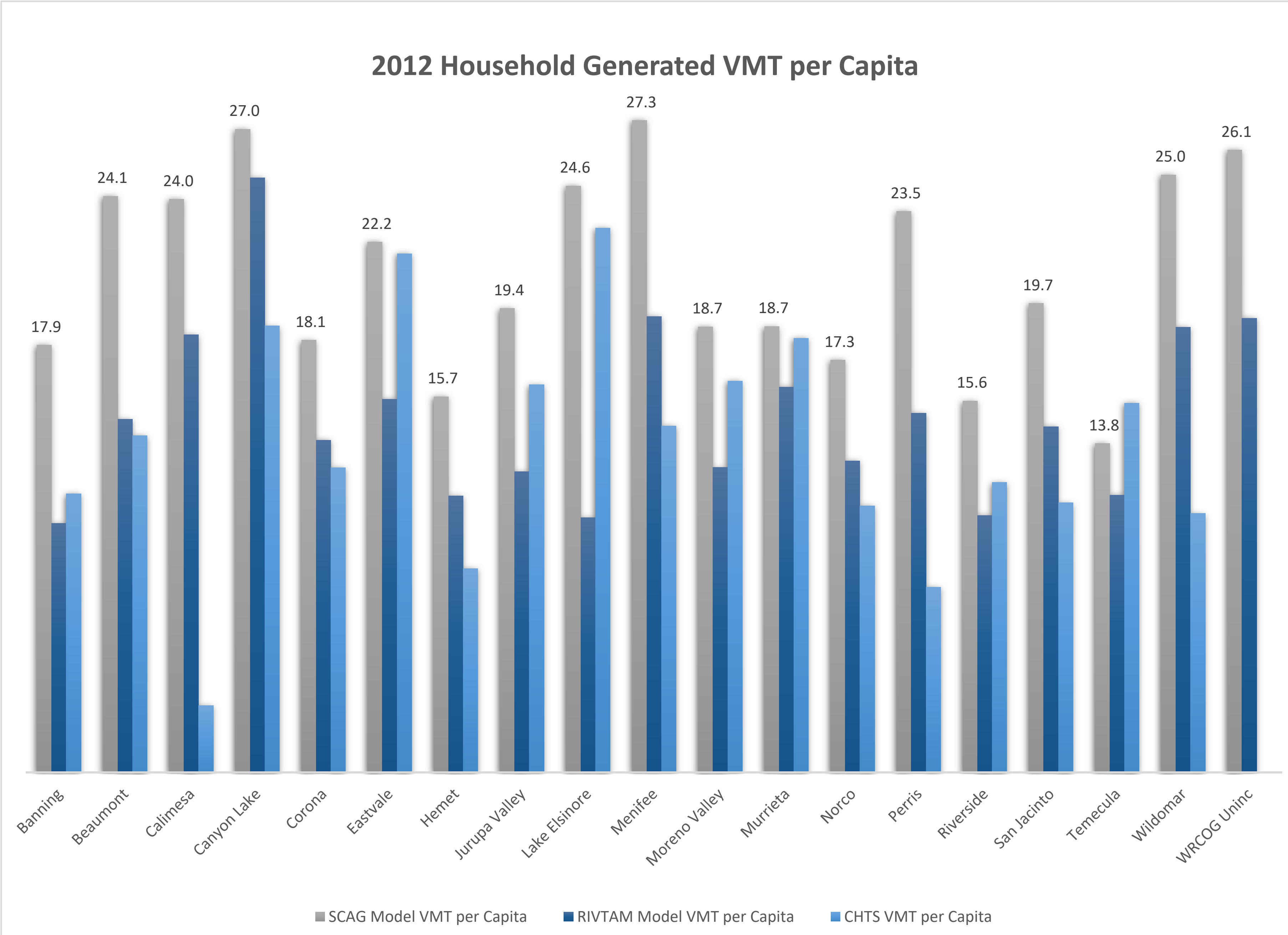
2012 Daily Residential Home Based VMT per Capita Model Comparison
15.0
12.8
10.5
8.9
Banning
Beaumont
Calimesa
Canyon Lake
Corona
Eastvale
Hemet
Jurupa Valley
Lake Elsinore
Menifee
Moreno Valley
Murrieta
Norco
Perris
Riverside
San Jacinto
Temecula
Wildomar
WRCOG Uninc
SCAG Model VMT per Service Population
RIVTAM Model VMT per Servie Population
SCAG Model Regional Average
RIVTAM Model Regional Average
15% below SCAG Regional Average
15% below RIVTAM Regional Average


2012 Daily Home Based Work VMT per Worker Model Comparison
19.0
16.2
13.5
11.5
Banning
Beaumont
Calimesa
Canyon Lake
Corona
Eastvale
Hemet
Jurupa Valley
Lake Elsinore
Menifee
Moreno Valley
Murrieta
Norco
Perris
Riverside
San Jacinto
Temecula
Wildomar
WRCOG Uninc
SCAG Model VMT per Service Population
RIVTAM Model VMT per Servie Population
SCAG Model Regional Average
RIVTAM Model Regional Average
15% below SCAG Regional Average
15% below RIVTAM Regional Average



2012 Daily Total VMT per Service Population Model Comparison
28.2
24.2
24.0
20.6
Banning
Beaumont
Calimesa
Canyon Lake
Corona
Eastvale
Hemet
Jurupa Valley
Lake Elsinore
Menifee
Moreno Valley
Murrieta
Norco
Perris
Riverside
San Jacinto
Temecula
Wildomar
WRCOG Uninc
SCAG Model VMT per Service Population
RIVTAM Model VMT per Servie Population
SCAG Model Regional Average
RIVTAM Model Regional Average
15% below SCAG Regional Average
15% below RIVTAM Regional Average

ATTACHMENT D – CHTS VMT Data



2012 Household Generated VMT per Capita
17.9
24.1
24.0
27.0
18.1
22.2
15.7
19.4
24.6
27.3
18.7
18.7
17.3
23.5
15.6
19.7
13.8
25.0
26.1
Banning
Beaumont
Calimesa
Canyon Lake
Corona
Eastvale
Hemet
Jurupa Valley
Lake Elsinore
Menifee
Moreno Valley
Murrieta
Norco
Perris
Riverside
San Jacinto
Temecula
Wildomar
WRCOG Uninc
SCAG Model VMT per Capita
RIVTAM Model VMT per Capita
CHTS VMT per Capita