



Western Riverside Council of Governments Public Works Committee

AGENDA

**NOTE
START TIME**

**Thursday, November 14, 2019
1:00 p.m.**

**Western Riverside Council of Governments
Citrus Tower
3390 University Avenue, Suite 450
Riverside, CA 92501**

In compliance with the Americans with Disabilities Act and Government Code Section 54954.2, if special assistance is needed to participate in the Public Works Committee meeting, please contact WRCOG at (951) 405-6703. Notification of at least 48 hours prior to meeting time will assist staff in assuring that reasonable arrangements can be made to provide accessibility at the meeting. In compliance with the Government Code Section 54957.5, agenda materials distributed within 72 hours prior to the meeting, which are public records relating to an open session agenda items, will be available for inspection by members of the public prior to the meeting at 3390 University Avenue, Suite 450, Riverside, CA, 92501.

The Public Works Committee may take any action on any item listed on the agenda, regardless of the Requested Action.

- 1. CALL TO ORDER (Kristen Jensen, Chair)**
- 2. SELF INTRODUCTIONS**
- 3. PLEDGE OF ALLEGIANCE**
- 4. PUBLIC COMMENTS**

At this time members of the public can address the Public Works Committee regarding any items with the subject matter jurisdiction of the Committee that are not separately listed on this agenda. Members of the public will have an opportunity to speak on agenda items at the time the item is called for discussion. No action may be taken on items not listed on the agenda unless authorized by law. Whenever possible, lengthy testimony should be presented to the Committee in writing and only pertinent points presented orally.

5. MINUTES

- A. Summary Minutes from the October 10, 2019, Public Works Committee Meeting
are Available for Consideration.**

P. 1

Requested Action: 1. *Approve the Summary Minutes from the October 10, 2019, Public Works Committee meeting.*

6. CONSENT CALENDAR

All items listed under the Consent Calendar are considered to be routine and may be enacted by one motion. Prior to the motion to consider any action by the Committee, any public comments on any of the Consent Items will be heard. There will be no separate action unless members of the Committee request specific items be removed from the Consent Calendar.

A. WRCOG Committees and Agency Activities Update *Chris Gray* P. 5

Requested Action: 1. *Receive and file.*

B. TUMF Revenue and Expenditures Update *Andrew Ruiz* P. 19

Requested Action: 1. *Receive and file.*

C. Approval of Public Works Directors Committee 2020 Meeting Schedule *Chris Gray* P. 27

Requested Action: 1. *Approve the schedule of Public Works Committee meetings for 2020.*

7. REPORTS / DISCUSSION

A. TUMF Nexus Study Principles and Goal Discussion *Chris Gray, WRCOG* P. 29

Requested Action: 1. *Discuss and provide input.*

B. Vehicle Miles Traveled Mitigation Bank or Exchange *Chris Gray, WRCOG* P. 33

Requested Action: 1. *Discuss and provide input.*

C. Understanding the Transportation Analysis Implications of Senate Bill 743 *Chris Gray, WRCOG* P. 35

Requested Action: 1. *Receive and file.*

D. Regional Streetlight Program Activities Update *Daniel Soltero, WRCOG* P. 133

Requested Action: 1. *Receive and file.*

8. REPORT FROM THE DIRECTOR OF TRANSPORTATION & PLANNING

9. ITEMS FOR FUTURE AGENDAS

Members

Members are invited to suggest additional items to be brought forward for discussion at future Public Works Committee meetings.

10. GENERAL ANNOUNCEMENTS

Members

Members are invited to announce items / activities which may be of general interest to the Public Works Committee.

- 11. NEXT MEETING:** The next Public Works Committee meeting will be held on Thursday, December 12, 2019, at 2:00 p.m., at WRCOG's office located at 3390 University Avenue, Suite 450, Riverside.

12. ADJOURNMENT

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1. CALL TO ORDER

The meeting of the Public Works Committee was called to order at 2:02 p.m. by 2nd Vice-Chair Brad Brophy at WRCOG's office, Citrus Conference Room.

2. ROLL CALL

Members present:

Lori Askew, City of Calimesa (2:05 arrival)
Rosalva Ureno, City of Corona (2:12 p.m. arrival)
Mike Myers, City of Jurupa Valley
Yu Tagai, City of Lake Elsinore
Carlos Geronimo, City of Menifee
Michael Wolfe, City of Moreno Valley
Sam Nelson, City of Norco
Brad Brophy, Cities of Canyon Lake, Perris, and San Jacinto, 2nd Vice-Chair
Chris Scully, City of Riverside
Amer Attar, City of Temecula
Alvin Medina, County of Riverside
Jennifer Nguyen, Riverside Transit Agency

Staff present:

Chris Gray, Director of Transportation & Planning
Christopher Tzeng, Program Manager
Tyler Masters, Program Manager
Ivana Medina, Staff Analyst
Daniel Soltero, Staff Analyst
Suzy Nelson, Administrative Assistant

Guests present:

Darren Henderson, WSP / WRCOG consultant
Arnold San Miguel, SCAG
Paul Mittaca, Mark Thomas
Rachel Yazawa, Mark Thomas
Kuaji Asyaku, Caltrans
Andrea Howard, PlaceWorks

3. PLEDGE OF ALLEGIANCE

2nd Vice-Chair Brad Brophy led the members and guests in the Pledge of Allegiance.

4. PUBLIC COMMENTS

Tyler Masters shared information about the upcoming 2019 SoCal AltCar Conference, Expo, and Ride & Drive taking place on October 16, 2019, at the Riverside Convention Center.

5. MINUTES (Moreno Valley / Jurupa Valley) 12 yes; 0 no; 0 abstention. Item 5.A was approved. The Cities of Banning, Beaumont, Corona, Eastvale, Hemet, Murrieta, and Wildomar, March JPA and RCTC were not present.

A. Summary Minutes from the September 12, 2019, Public Works Committee Meeting are Available for Consideration.

Action: 1. Approved Summary Minutes from the September 12, 2019, Public Works Committee meeting.

6. CONSENT CALENDAR (Menifee / Calimesa) 12 yes; 0 no; 0 abstention. Items 6.A thru 6.C were approved. The Cities of Banning, Beaumont, Corona, Eastvale, Hemet, Murrieta, and Wildomar, March JPA and RCTC were not present.

A. WRCOG Committees and Agency Activities Update

Action: 1. Received and filed.

B. TUMF Revenue and Expenditures Update

Action: 1. Received and filed.

C. Regional Streetlight Program Activities Update

Action: 1. Received and filed.

7. REPORTS / DISCUSSION

A. Connect SoCal

Arnold San Miguel provided a presentation on the Southern California Association of Governments' (SCAG) long-range, multi-generational, land use and transportation plan known as a Regional Transportation Plan (RTP) / Sustainable Community Strategy (SCS). Every four years, each metropolitan planning organization in California is required to prepare an RTP/SCS. The RTP/SCS includes lists of roadway and transit projects developed through input of SCAGs member agencies. As part of the Plan, it will also include strategies designed to reduce the impacts of future projects and development in the region.

Mr. San Miguel shared examples of scenario development over a 25-year time frame on how the transportation and transit change will affect the region, as well as the goals of the Plan.

SCAG has held a series of workshops to gather input from local agencies and the public to develop a draft Plan. After the draft is developed, it is due to be released for public comment in December 2019 with the adoption in April 2020.

Action: 1. Received and filed.

B. TUMF Zone Revenue Update for Fiscal Year 2018/2019

Ivana Medina provided an update on TUMF collections and funding allocations per zones. Since the inception of the Program, Fiscal Year 2018/2019 experienced the highest amount of revenues with \$63 million collected. The numbers listed on the charts are based on collections prior to allocation to the other agencies included in the TUMF Administrative Plan.

Committee member Mike Myers asked if there were any revenue projections for the next year.

Ms. Medina responded that numbers are projected to increase.

Committee member Carlos Geronimo asked how these results projected from last year.

Chris Gray added that we have already met the projections.

Action: 1. *Received and filed.*

C. TUMF Calculation and Collection Portal Update

Ivana Medina provided an update and demonstration of the new live TUMF Calculation and Collection Portal. As of October 1, 2019, the Portal is active and jurisdictional staff have the option of utilizing it. Staff will be following up with each individual member agency to schedule one-on-one training and to answer any outstanding questions.

Action: 1. *Received and filed.*

D. Review of Statewide Study on Residential Development Impact Fees

Chris Gray provided an overview of a recent statewide study of residential development impact fees (DIF). This Study was commissioned in 2017 by the Turner Center for Housing Innovation and was to provide an overview of DIF as it relates to housing. The Study was released in March 2018 and concluded that fees varied from 8% to 18% of the total cost of a multi-family or single-family units. The researchers analyzed fees in six jurisdictions statewide that included the Cities of Fremont, Irvine, Los Angeles, Oakland, Roseville, and Sacramento. DIF were found to range from \$10,000 per multi-family unit to nearly \$160,000 per unit.

WRCOG has reviewed this study against the recently updated Fee Comparison Study done in April 2019 and found several inconsistencies. WRCOG has completed a supplemental analysis to normalize the calculations by removing the utility connection fees from WRCOG's fee estimate and the Planning and Building fees from the Turner Center estimates. Based on the comparison, staff can conclude that WRCOG's fees are within the range of comparable jurisdictions, such as the City of Roseville in which the median home price is compared to Western Riverside County.

Since the completion of the Turner Center's work in 2018, several legislators have used that to justify additional regulations of impact fees. For example, AB 1484, would limit the application of DIF to housing projects. This bill did not pass out of the State Senate, but is likely to be considered again in January 2020. Staff expect future bills addressing similar issues to be introduced but is working with its partners, such as, League of California Cities, to oppose these and any bills that limit the imposition of impact fees.

Action: 1. *Received and filed.*

E. Resilient IE Activities Update

Andrea Howard provided an update on the Caltrans grant-funded Regional Climate Adaptation Toolkit project known as Resilient IE. In October 2017, in coordination with San Bernardino County Transportation Commission (SBCTA), WRCOG submitted an application to the Caltrans Adaptation Planning Grant Program seeking funding to develop a toolkit to support regional efforts preparing for and mitigating risks associated with climate adaptation and transportation infrastructure. The total awarded was \$683,431 for the project to include multiple components.

After sharing updates on five separate components of Resilient IE, Ms. Howard provided an update on the next steps. The conclusion of the Project will be by the end of February 2020.

Action: 1. *Received and filed.*

9. REPORT FROM THE DIRECTOR OF TRANSPORTATION & PLANNING

There was no report from the Director of Transportation & Planning.

10. ITEMS FOR FUTURE AGENDAS

There were no items for future agendas.

11. GENERAL ANNOUNCEMENTS

Committee member Carlos Geronimo shared that between October 18 and 21, 2019, Scott Road interchange will be switching traffic to the new bridge, so avoid it if you can.

12. NEXT MEETING

The next Public Works Committee meeting is scheduled for Thursday, November 14, 2019, 2:00 p.m., at WRCOG's office located at 3390 University Avenue, Suite 450, Riverside.

13. ADJOURNMENT

The meeting of the Public Works Committee adjourned at 3:02 p.m.



Western Riverside Council of Governments Public Works Committee

Staff Report

Subject: WRCOG Committees and Agency Activities Update

Contact: Chris Gray, Director of Transportation & Planning, cgray@wrcog.us, (951) 405-6710

Date: November 14, 2019

The purpose of this item is to provide updates on noteworthy actions and discussions held in recent standing Committee meetings, and to provide general project updates.

Requested Action:

1. Receive and file.

Attached are summary recaps of actions and activities from recent WRCOG standing Committee meetings that occurred during the month of October.

Prior Action:

November 4, 2019: The Executive Committee received and filed.

Fiscal Impact:

This item is for informational purposes only; therefore, there is no fiscal impact.

Attachment:

1. Summary recaps from October Committee meetings.

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Item 6.A

WRCOG Committees and Agency
Activities Update

Attachment 1

Summary recaps from October
Committee meetings

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**Western Riverside Council of Governments
Executive Committee
Meeting Recap
October 7, 2019**

Following is a summary of key items discussed at the last Executive Committee meeting. To review the full agenda and staff reports for all items, please click [here](#). To review the meetings PowerPoint presentation, please click [here](#).

Western Riverside Energy Partnership Program Partnership Approved

- The Executive Committee approved a public-private partnership to develop bid packets for Southern California Edison's solicitations for public sector energy programs.

Personnel Policies and Procedures Amended

- The Executive Committee adopted the Amended Personnel Policies and Procedures to include language on processes to be undertaken when a job-related vehicle incident occurs.

MOU approved for TUMF Revenue Disbursement

- The Executive Committee approved an updated MOU which revises the process by which WRCOG provides funding to the Riverside Conservation Agency (RCA) and clarifies the process by which RCA's percentage of TUMF is allocated.

First Amendment to PSA Approved

- The Executive Committee approved a multi-year contract for continued Information Technology and Audio / Visual services to the Agency.

PACE Update

- The Executive Committee deferred the judicial foreclosure proceedings on delinquent residential parcels of the 2018/2019 Tax Year and assigned WRCOG's collection rights to a third party for 630 delinquent parcels.
- The Executive Committee approved a Purchase and Sale Agreement for the purchase of delinquent assessment receivables.

RHNA Update

- Staff provided an update that the Southern California Association of Government's Regional Housing Needs Assessment (RHNA) subcommittee met on October 7, 2019.
- The RHNA subcommittee voted to move forward with Option 4, a newer option prepared by SCAG which allocates a total of 180,069 units to the WRCOG region for the 2021 – 2029 planning period. The subcommittee motioned to take Option 4 to the Community, Economic, and Human Development (CEHD) Committee on October 21, 2019.
- The Regional Council will discuss RHNA on November 7, 2019 at SCAG's LA office.
- WRCOG will provide updates as needed.

Public Service Fellowship Update

- WRCOG's Public Service Fellowship Program is now in its fourth round. Round IV Fellows have been invited to present a project assigned to one of WRCOG's policy committees. Presentations are tentatively scheduled to take place in late 2019 / early 2020.
- Planning and preparation for the fifth round of the Fellowship Program is currently underway with recruitment scheduled for fall 2019 through early 2020.

CALPERS Unfunded Accrued Liability Update

- Per the most recent actuarial valuation, WRCOG's pension plan is approximately 76% funded.
- Staff was directed by the Administration & Finance Committee to establish a Section 115 trust with PARS for WRCOG's Unfunded Accrued Liability in the amount of \$1M.

TUMF Program Update

- The TUMF Program has collected over \$63 million dollars in the 2018/2019 Fiscal Year. This is one of the highest since the inception of the Program in 2003.
- The Program is currently providing funding to approximately 50 projects across the region.
- The online TUMF Collection Portal will soon be accessible and will provide developers the option to pay TUMF electronically. Staff will be following up with each member agency to discuss the portal and answer any outstanding questions.

Executive Director's Contract Extended

- The Executive Director's employment contract has been extended to September 16, 2022.

Next Meeting

The next Executive Committee meeting is scheduled for Monday, November 4, 2019, at 2:00 p.m., at the County of Riverside Administrative Center, 1st Floor Board Chambers.



Western Riverside Council of Governments
Administration & Finance Committee
Meeting Recap
October 9, 2019

Following is a summary of key items discussed at the last Administration & Finance Committee meeting. To review the full agenda and staff reports, please click [here](#). To review the meeting PowerPoint presentation, please click [here](#).

PACE Programs Activity Update

- Staff provided an overview of refunding WRCOG PACE bonds. Over the coming months, staff will work with PACE partners to prepare an offering statement and will return to the Admin & Finance Committee with a complete overview of the proposed bond refunding plan.
- Previous territory that was exclusive to other PACE providers under the CSCDA Open PACE Program became available for Renovate America to compete in. WRCOG is authorizing Renovate America to use a different bond issuer for projects completed outside the HERO and California HERO Programs.
- Renovate America has agreed to compensate WRCOG with a 0.25% fee based on the principal amount of all new PACE assessments levied in new jurisdictions as well as amend the previous agreement that covered territories in Los Angeles County.
- The committee recommended that the Executive Committee approve and authorize the Executive Director to execute First Amendment to WRCOG HERO Program and California HERO Program Administration Agreement and Addendum No. 2 to the WRCOG HERO Program and California HERO Program Administration Agreement.

TUMF Construction Cost Index Adjustment

- The Construction Cost Index (CCI) is an administrative element of the TUMF Program that is intended to keep the dollar value of the TUMF Program whole. Each year, staff is required to bring CCI adjustment information to the WRCOG committee structure.
- Per the recommendation of the PWC and TAC Committees, the Administration & Finance Committee recommended the Executive Committee implement the TUMF CCI adjustment with a single-family residential phase-in and no increase to the retail fee.

Land Use Type	Units	July 1, 2020 TUMF (with CCI)	January 1, 2021 TUMF (with CCI)
Single-Family Residential	DU	\$ 9,478	\$ 9,810
Multi-Family Residential	DU	\$ 6,389	\$ 6,389
Retail	SF	\$ 7.50	\$ 7.50
Service	SF	\$ 4.75	\$ 4.75
Industrial	SF	\$ 1.81	\$ 1.81

Experience Subregional Innovation Center

- Consultants from the Network for Global Innovation (NGIN) provided an update on Phase II of the Experience Subregional Innovation Center where they completed a four-stage plan including: (1) Concept Refinement and Review, (2) Discovery and Socialization, (3) Funding Development Plan, and an (4) Organization and Action Plan.

- A core component of the Experience Subregional Innovation Center is the hub-and-spoke model, which would establish a regional framework for leveraging resources and facilitate participation of all interested parties across the region.
- Looking forward, NGIN consultants will be largely focused on forging relations with others committed to the hub-and-spoke model and seeking funding for moving forward.

Next Meeting

The next Administration & Finance Committee meeting is scheduled for Wednesday, November 13, 2019, at 12:00 p.m. in WRCOG's office, located at 3390 University Avenue, Suite 450, Riverside.



**Western Riverside Council of Governments
Planning Directors Committee
Meeting Recap
October 10, 2019**

Following is a summary of key items discussed at the last Planning Directors Committee meeting. To review the full agenda and staff reports, please click [here](#). To review the meeting PowerPoint presentation, please click [here](#).

Connect SoCal Presentation

- Arnold San Miguel, Regional Affairs Officer from SCAG, provided an update on Connect SoCal Development, which is SCAG's long-range RTP/SCS for 2020-2045.
- SCAG is preparing a draft RTP/SCS, which is scheduled to be distributed for public comment in November 2019, pending approval from the SCAG Regional Council. The RTP/SCS is scheduled for adoption in May 2020.
- The RTP/SCS will focus on the challenges the southern California region faces, such as improving coordination of land use and transportation planning, improving mobility options and accessibility, and analyzing the effectiveness of transportation investments.

RHNA Methodology Update

- SCAG developed three RHNA allocation methodologies and received hundreds of comments from member agencies, COGs, and other stakeholders. Based on the comments provided, a fourth option was developed.
- The new methodology option is a hybrid that incorporates elements of previous options and considers regional jobs accessibility. SCAG's RHNA Subcommittee approved this new option to be forwarded to the October 21st meeting of the SCAG's Community, Economic, and Human Development Committee and the November 7th meeting of the Regional Council.
- WRCOG staff will be conducting a detailed review of the various methodologies prior to the November 7th meetings, meet with the San Bernardino Council of Governments to develop a joint approach, meet with other COGs to discuss concerns, and continue to provide information to WRCOG member jurisdictions.

Resilient IE Update

- Project consultants provided an update on Resilient IE, the toolkit intended to fortify the region's transportation infrastructure against climate adaptation.
- Resilient IE has produced three major deliverables for the WRCOG subregion: (1) Vulnerability Assessment Update, (2) Resilient Infrastructure Guidebook, and (3) City-level Hazard and Evacuation Maps.
- All project components will be completed in early 2020.

Statewide Study on Residential Development Impact Fees (DIF)

- As a result of discussions by the State's Legislature, the Turner Center for Housing Innovation undertook a study in 2017 to provide a statewide overview of DIF as it relates to housing.
- The researchers analyzed fees on residential units in six jurisdictions statewide including the Cities of Fremont, Irvine, Los Angeles, Oakland, Roseville, and Sacramento.
- The Study concluded that fees vary from 8% to 18% of the total cost of a multi-family or single-family unit and are difficult to estimate and are often set without coordination between city departments.

TUMF Calculation and Collection Portal is Live

- Staff presented an overview of the new, fully developed TUMF Calculation & Collection Portal, which allows additional TUMF payment options for developers.
- The Portal offers a convenient all-in-one location for member agency staff to view the project payment status of all development projects in their jurisdiction.
- Looking forward, staff will coordinate meetings to transition member agency staff to use the fee Portal as the primary method of fee collection. Staff anticipates the full transition of all member agencies in early 2020.

SB 1000 Workshop Planned

- There will be a workshop on Senate Bill (SB) 1000 implementation. The workshop will be held on Tuesday, October 29, at Community Action Partnership (2038 Iowa Avenue, Riverside) from 9:30 a.m. – 3:00 p.m.
- SB 1000 implies that communities must fulfill the requirement of addressing environmental justice in their general plans.

Next Meeting

The next Planning Directors Committee meeting is scheduled for Thursday, November 14, 2019, at **9:30 a.m.** at WRCOG's office, located at 3390 University Avenue, Suite 450, Riverside.



**Western Riverside Council of Governments
Public Works Committee
Meeting Recap
October 10, 2019**

Following is a summary of key items discussed at the last Public Works Committee meeting. To review the full agenda and staff reports, please click [here](#). To review the meeting PowerPoint presentation, please click [here](#).

Connect SoCal Presentation

- Arnold San Miguel, Regional Affairs Officer from SCAG, provided an update on Connect SoCal Development, which is SCAG's Long-Range RTP/SCS for 2020-2045.
- SCAG is preparing a Draft Plan, which is scheduled to be distributed for public comment in November 2019, pending approval from the SCAG Regional Council. The Plan is scheduled for adoption in May 2020.
- The Plan will focus on the challenges the Southern California region faces, such as improving coordination of land use and transportation planning, improving mobility options and accessibility, and analyzing the effectiveness of transportation investments.

TUMF Zone Revenue Update

- In Fiscal Year 2018/2019 the TUMF Program collected \$63 million, one of the highest annual amounts since the inception of the Program in 2003.

TUMF Calculation and Collection Portal is Live

- Staff presented an overview of the new, fully developed TUMF Calculation & Collection Portal, which allows additional TUMF payment options for developers.
- The Portal offers a convenient all-in-one location for member agency staff to view the project payment status of all development projects in their jurisdiction.
- Looking forward, staff will coordinate meetings to transition member agency staff to use the fee Portal as the primary method of fee collection. Staff anticipates the full transition of all member agencies in early 2020.

Statewide Study on Residential Development Impact Fees (DIF)

- As a result of discussions from State Legislature, the Turner Center for Housing Innovation undertook a study in 2017 to provide a Statewide overview of DIF as it relates to housing.
- Researchers analyzed fees on residential units in six jurisdictions statewide including the Cities of Los Angeles, Sacramento, Roseville, Oakland, Irvine, and Fremont.
- The study concluded that fees vary from 8% to 18% of the total cost of a multi-family or single-family unit and are difficult to estimate and are often set without coordination between City departments.

Resilient IE Update

- Project consultants provided an update on Resilient IE, the toolkit intended to fortify the region's transportation infrastructure against climate adaptation.
- Resilient IE has produced three major deliverables for the WRCOG subregion: (1) Vulnerability Assessment Update (2) Resilient Infrastructure Guidebook, (3) City-level Hazard and Evacuation Maps.
- All project components will be completed in early 2020.

Next Meeting

The next Public Works Committee meeting is scheduled for Thursday, November 14, 2019, at 2:00 p.m., in WRCOG's office, located at 3390 University Avenue, Suite 450, Riverside.



**Western Riverside Council of Governments
Finance Directors Committee
Meeting Recap
October 24, 2019**

Following is a summary of major items discussed at the last Finance Directors Committee meeting. To review the full agenda and staff reports, please click [here](#). To review the meeting PowerPoint Presentation, please click [here](#).

1st Quarter Draft Budget Amendment for Fiscal Year 2019/2020

- Staff provided an update on the 1st quarter draft budget amendment for Fiscal Year 2019/2020. The single largest amendment was to the Energy Department expenditures that experienced an increase of \$11,344 related to legal costs.

Presentation by CalPERS

- Randy Dziubek, Deputy Chief, Actuary of Valuation Services with CalPERS, provided a presentation and future projection on CalPERS contribution rates.
- Mr. Dziubek also shared a recently published analysis on the fiscal health of the state's cities. Access the document [here](#).

Presentation on the Economy and Financial Markets

- Richard Babbe from Public Financial Management presented on the national economy and highlighted that unemployment is at a 49-year low and basic market conditions remain favorable. However, he also noted that trade concerns, higher interest rates, and geo-political events could impact long-term economic growth.

TUMF Zone Revenue Update

- In Fiscal Year 2018/2019, the TUMF Program collected over \$63 million dollars, which is one of the highest collection years since the Program's inception in 2003.

Next Meeting

The next meeting of the Finance Directors Committee is scheduled for Thursday, January 23, 2020, at 1:00 p.m., at WRCOG's office located at 3390 University Avenue, Suite 450, Riverside.

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Western Riverside Council of Governments

Public Works Committee

Staff Report

Subject: TUMF Revenue and Expenditures Update

Contact: Andrew Ruiz, Chief Financial Officer, aruiz@wrcoq.us, (951) 405-6741

Date: November 14, 2019

The purpose of this item is to provide an update on the TUMF revenues, expenditures, and reimbursements for the current month and since Program inception.

Requested Action:

1. Receive and file.

For the month of August 2019, the TUMF Program received \$5,016,241 in revenue.

To date, revenues received into the TUMF Program total \$845,146,303. Interest amounts to \$35,250,563, for a total collection of \$880,396,866.

WRCOG has dispersed a total of \$412,029,742 primarily through project reimbursements and refunds, and \$26,680,040 in administrative expenses.

The Riverside County Transportation Commission share payments have totaled \$383,982,914 through September 30, 2019.

Prior Action:

October 10, 2019: The Public Works Committee received and filed.

Fiscal Impact:

This item is for informational purposes only; therefore, there is no fiscal impact.

Attachment:

1. Summary TUMF Program revenues.

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Item 6.B

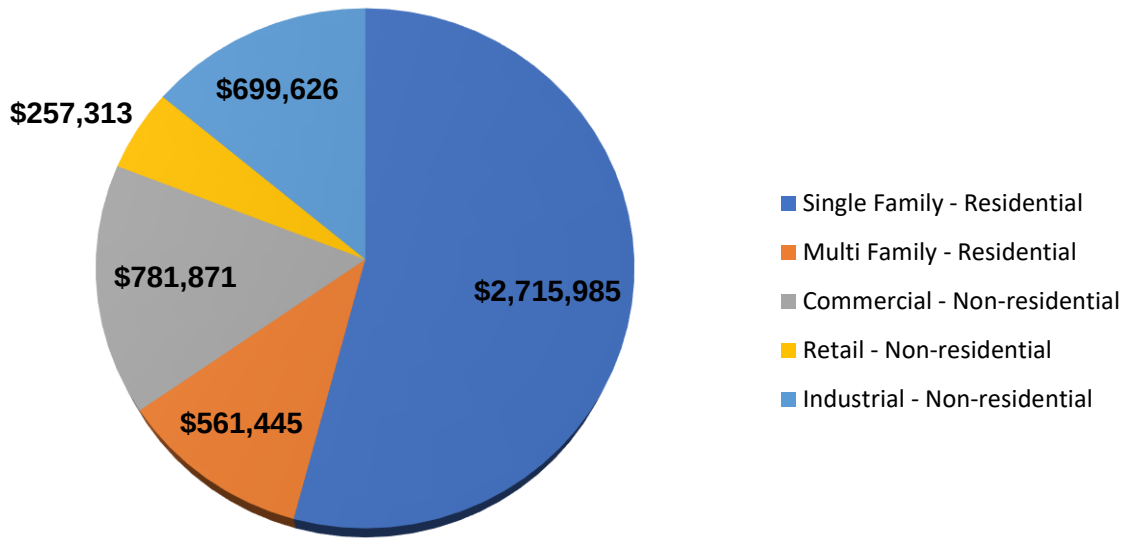
TUMF Revenue and Expenditures
Update

Attachment 1

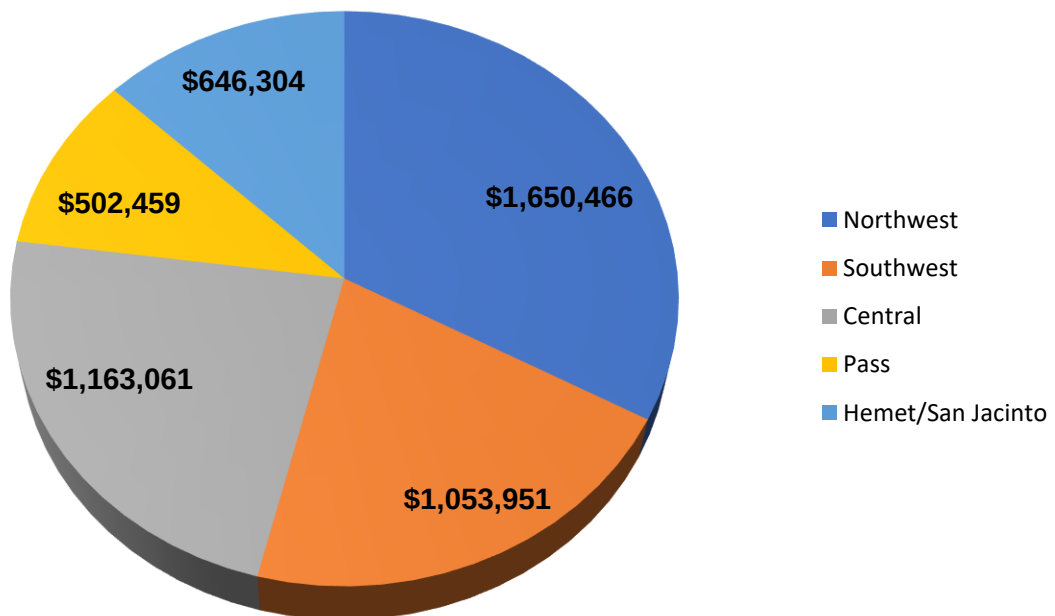
Summary TUMF Program revenues

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August 2019 TUMF revenues by land-use type

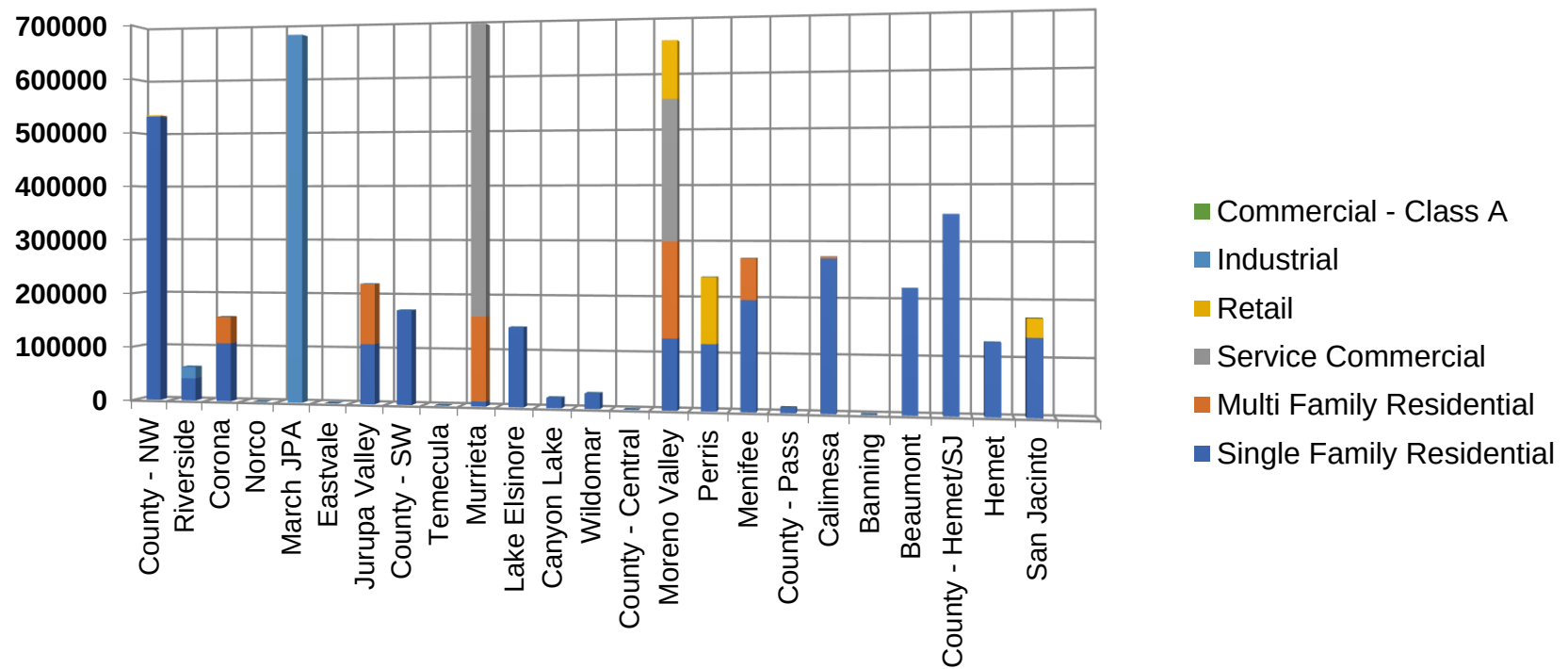


August 2019 TUMF Revenues by Zone



August 2019 TUMF Revenues by Jurisdiction

Total Revenue - \$5,016,241



	Fiscal Year	2018		Fiscal Year
Jurisdiction	18-19	July	August	19-20
Banning	\$26,619	\$18,292	\$0	\$18,292
Beaumont	\$2,481,344	\$118,898	\$219,504	\$338,402
Calimesa	\$412,642	\$0	\$273,809	\$273,809
Canyon Lake	\$97,603	\$27,438	\$18,292	\$45,730
Corona	\$5,768,375	\$337,370	\$156,640	\$494,010
Eastvale	\$1,989,529	\$245,360	\$0	\$245,360
Hemet	\$540,485	\$109,752	\$128,044	\$237,796
Jurupa Valley	\$4,315,180	\$1,015,950	\$220,164	\$1,236,114
Lake Elsinore	\$1,996,048	\$9,146	\$143,879	\$153,025
March JPA	\$2,638,664	\$0	\$678,386	\$678,386
Menifee	\$5,755,261	\$415,437	\$270,568	\$686,004
Moreno Valley	\$9,827,741	\$581,300	\$655,625	\$1,236,925
Murrieta	\$2,538,546	\$104,278	\$691,834	\$796,112
Norco	\$1,145,827	\$103,845	\$0	\$103,845
Perris	\$1,728,254	\$111,757	\$236,869	\$348,626
Riverside	\$6,613,993	\$626,829	\$62,438	\$689,267
San Jacinto	\$2,153,474	\$155,482	\$170,048	\$325,530
Temecula	\$1,533,124	\$0	\$0	\$0
Wildomar	\$424,084	\$89,727	\$27,438	\$117,165
County Central	\$2,185,271	\$9,146	\$0	\$9,146
County Hemet/S.J.	\$1,597,374	\$0	\$348,212	\$348,212
County Northwest	\$3,070,662	\$326,574	\$532,838	\$859,412
County Pass	\$141,968	\$0	\$9,146	\$9,146
County Southwest	\$4,933,120	\$263,995	\$172,508	\$436,502
Total	\$ 63,915,185	\$ 4,670,576	\$5,016,241	\$9,686,817

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Western Riverside Council of Governments

Public Works Committee

Staff Report

Subject: Approval of Public Works Committee 2020 Meeting Schedule

Contact: Chris Gray, Director of Transportation & Planning, cgray@wrcog.us, (951) 405-6710

Date: November 14, 2019

The purpose of this item is to provide and obtain approval of a meeting schedule for 2020.

Requested Action:

1. Approve the schedule of Public Works Committee meetings for 2020.

Below are the proposed meeting dates for the 2020 Public Works Committee. All meeting dates are proposed for the second Thursday of the month and are scheduled to begin at 2:00 p.m. at WRCOG's office, 3390 University Avenue, Suite #450, Riverside.

	Day	Time	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Public Works Committee	2nd Thurs.	2:00 p.m.	9	13	12	9	14	11	9	13	10	8	12	10

Prior Action:

None.

Fiscal Impact:

This item is for informational purposes only; therefore, there is no fiscal impact.

Attachment:

None.

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Western Riverside Council of Governments

Public Works Committee

Staff Report

Subject: TUMF Nexus Study Principles and Goal Discussion

Contact: Chris Gray, Director of Transportation & Planning, cgray@wrcog.us, (951) 405-6710

Date: November 14, 2019

The purpose of this item is to engage members of the Committee regarding key principles and goals related to an upcoming update of the Transportation Uniform Mitigation Fee (TUMF) Nexus Study.

Requested Action:

1. Discuss and provide input.

WRCOG's TUMF Program is a regional fee program designed to provide transportation and transit infrastructure that mitigates the impact of new growth in Western Riverside County.

Nexus Study Principles & Goals

WRCOG anticipates that it will initiate a comprehensive update of the TUMF Nexus Study in the summer of 2020. The update process will follow the Southern California Association of Governments' (SCAG) update of the Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS) document since the TUMF Nexus Study will be using the same growth forecasts as the SCAG RTP/SCS for consistency purposes. This schedule is also consistent with previous direction from the WRCOG Executive Committee.

As part of this Nexus Study, staff will be soliciting input from member agencies regarding facilities to include in the TUMF Program, which is a key determinant in the overall program cost and resulting fee levels. Prior to meeting with member agencies, staff believe it is advisable to first obtain direction on key principles, which will then be refined and adopted by the various WRCOG Committees prior to the formal beginning of the Nexus Study. Staff would also like committee feedback about project costs member agencies are observing in their jurisdiction, which will also help guide the direction and goals for the update of the Nexus.

The following topics are presented for discussion and described in further detail below.

Topic #1 - Should TUMF continue to focus on higher value regional projects?

TUMF does not fund every roadway within an Agency's boundaries, instead focusing on regional projects. Criteria used to identify TUMF eligible roadways includes the following:

- Traffic volume
- Whether the project is projected to operate beyond its capacity in future years
- Regional connectivity

The criteria used to define roadways for inclusion in the TUMF Network have not significantly changed since the adoption of the first Nexus Study in 2003. Given these criteria, three possible options present themselves as listed below:

1. The criteria can be made more stringent, which would reduce the number of eligible projects for inclusion in the Network. This change would reduce the overall share of projects funded by TUMF and shift more of the costs to the local agencies.
2. The criteria can remain as currently defined, which would keep many of the existing facilities in the Network. Some increase in the fee is still likely to occur given the continual increase in labor and materials associated with construction of transportation infrastructure.
3. The criteria can be made less stringent, which could significantly increase the fee level given how much the criteria are changed.

Topic #2 - Should TUMF provide a higher or lower level of funding for each individual project?

Currently, TUMF funds both pre-construction and construction activities. We estimate that the current reimbursement level can fund most of the pre-construction activities including Planning, Environment, and Design Studies. Agencies usually only require significant amounts of additional funding when studies are significantly delayed or have to be updated for various reasons. The level of Construction funding varies depending on the facility with TUMF providing between 1/3 and 2/3 of the total construction cost for a project. TUMF is specifically designed to only fund those elements of a project related to roadway capacity. For example, landscaped medians, roadway lighting, and landscaping are not currently reimbursable through the TUMF Program.

This approach has also not varied since the inception of the Program. If a change is desired, three options present themselves as described below:

1. The use of TUMF funds can be limited to fund either only construction activities or limit funding for pre-construction activity. This change could result in a reduction in the current fee levels by approximately 1/3 since this amount reflects the portion of TUMF fees which go towards these types of activities. The downside to this approach is that it would make it difficult for local agencies to fund these activities as there is often limited funding available. Many of WRCOG's member agencies often require more TUMF funding for these pre-construction activities since there are often limited funds available. Construction funding is generally more available once an agency has secured the necessary entitlements from outside sources such as the Riverside County Transportation Commission (RCTC), the State of California, and federal funds.
2. The current status quo can be maintained, under which most of the pre-construction activities are funded and the same portion of construction activity can be funded by TUMF. Because of continual increases in roadway costs, leaving the current process in place would automatically lead to an increase in fee levels without some offsetting change in other elements of the Program.
3. Higher levels of funding could be provided for pre-construction, construction, or both, by allowing higher levels of reimbursement. Such a change would likely significantly increase the current fee levels, unless offsetting changes were made to the Program such as reducing the number of projects eligible for inclusion in the Program.

Topic #3 - How stringent should the process be for an agency to add a project to the TUMF Network?

Prior to the 2016 Nexus Study Update, WRCOG implemented a policy making it difficult for agencies to add roadways to the Nexus Study without removing an existing roadway, essentially "swapping" one project for another. While this approach created some challenges for WRCOG and the local agency, it also limited the number of new projects being added to the TUMF network and resulted in a limited increase in the fee for most land use categories.

There are two options available in terms of this item as described below:

1. A similar practice could be required in which projects are added to the TUMF Network only if it replaces a completed project or a proposed project with a focus on creating a "no-net" cost increase scenario. Under this approach, if an agency wishes to add a \$50 million project, it must identify another \$50 million project or two \$25 million projects, etc. This approach would limit increases in the overall fee amounts since the TUMF Network would not significantly expand.

2. The requirement to swap projects could be removed, which would result in an expanded TUMF Network. This expansion would likely increase the overall fee levels, unless other changes are made to the Program eligibility criteria or other procedures are put in place to reduce the level of funding for specific projects.

Topic #4 - Should WRCOG implement an automatic Construction Cost Index (CCI) adjustment?

One issue with TUMF Nexus Studies is the need to perform updates on a regular basis, since there has been limited support for adjusting construction costs in those years between Nexus Study adoptions. One reason the adoption of the 2016 Nexus Study was so challenging is that there had not been a comprehensive update since 2009 and construction costs had escalated significantly between 2009 and 2016. WRCOG's TUMF Program does not have a comprehensive CCI adjustment built into the Program. Instead, WRCOG calculates the CCI and brings the fee adjustment forward for consideration by the WRCOG Committees. These CCI adjustments often have limited support.

One way to limit the fee increases associated with each Nexus Study is to implement an automatic CCI adjustment process by which the fees would be increased automatically without WRCOG having to take action. Implementing this approach could reduce the amount of fee increases in each Nexus Study, thereby making it more palatable for member agencies to adopt the Nexus Study as there would be less of a fee increase to consider.

Prior Action:

None.

Fiscal Impact:

This item is for informational purposes only; therefore, there is no fiscal impact.

Attachment:

None.

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Western Riverside Council of Governments

Public Works Committee

Staff Report

Subject: Vehicle Miles Traveled Mitigation Bank or Exchange

Contact: Chris Gray, Director of Transportation & Planning, cgray@wrcog.us, (951) 405-6710

Date: November 14, 2019

The purpose of this item is to engage members of the Committee whether WRCOG should evaluate the use of TUMF to mitigate project-level Vehicle Miles Traveled (VMT) impacts.

Requested Action:

1. Discuss and provide input.

Senate Bill (SB) 743 requires lead agencies to determine appropriate VMT methodologies, thresholds, and feasible mitigation measures to mitigate transportation impacts. One possible method to implement mitigation measures are a VMT mitigation bank or exchange, and one possible manner to implement this is the TUMF Program.

Introduction

With the passage of SB 743, development projects will be required to mitigate impacts to VMT in lieu of providing additional roadway capacity to mitigate impacts under the California Environmental Quality Act (CEQA). This change would mean that payment of TUMF could no longer be used to mitigate project-related traffic impacts under CEQA.

Since SB 743 is a significant departure from the existing CEQA process, WRCOG completed a Study with funding from SCAG to look at how member agencies can implement the requirements of SB 743. This Study was completed in spring of 2019. The Study had three key findings:

1. It is possible to develop legally accepted thresholds and screening criteria so that a majority of projects are able to demonstrate they have no impact to VMT.
2. Larger projects, such as single-family residential developments and industrial projects, are likely to have impacts which cannot be mitigated under CEQA. These projects will therefore have to prepare more complex and costly environmental documents unless some method to mitigate their impacts is found.
3. WRCOG should explore ways to develop a regional mitigation approach for VMT, either through the payment of a fee or development of a mitigation bank.

WRCOG is currently undertaking a feasibility study to determine how best to implement either a fee-based approach or a mitigation bank.

Given the information above, three options present themselves for consideration:

1. The TUMF Program already funds transit improvements and some bicycle / pedestrian infrastructure through the existing fee structure. These projects currently represent a nominal share of all TUMF fees and revenue (less than 5%). It would be possible to develop a separate fee program which would include these improvements and other similar improvements so that the overall fee levels do not change. This

approach would require some changes to the TUMF administrative structure, such as modifying the TUMF ordinances and changing the current agreement with the Riverside Transit Agency. The process of actually collecting the fees and reimbursing agencies for costs would not likely change significantly.

2. The second option would be to create a sub-set of improvements in TUMF for VMT reduction projects within the current fee program. This approach would require fewer changes to the TUMF administrative structure.
3. The final option would be to create a new program, outside of TUMF, which would use a voluntary mitigation banking approach. Under this approach, agencies could develop credits that are transferred to a public agency serving as the bank, such as WRCOG. A number of agencies in California are currently exploring mitigation banks including SCAG, LA Metro, OCTA, CCTA, and Fresno COG.

Prior Action:

None.

Fiscal Impact:

This item is for informational purposes only; therefore, there is no fiscal impact.

Attachment:

None.



Western Riverside Council of Governments

Public Works Committee

Staff Report

Subject: Understanding the Transportation Analysis Implications of Senate Bill 743

Contact: Chris Gray, Director of Transportation & Planning, cgray@wrcog.us, (951) 405-6710

Date: November 14, 2019

The purpose of this item is to provide a reminder of the steps that need to be taken by local jurisdictions to implement Senate Bill (SB) 743 by July 1, 2020.

Requested Action:

1. Receive and file.

SB 743 changes how transportation impacts are measured under the California Environmental Quality Act (CEQA) from using vehicle Level of Service (LOS) to using Vehicle Miles Traveled (VMT). To implement the legislation, lead agencies will need to determine appropriate VMT methodologies, thresholds, and feasible mitigation measures. WRCOG undertook a study to help its member agencies understand the specific questions that need to be addressed when making these determinations and to provide research, analysis, and other evidence to support their final SB 743 implementation decisions. SB 743 must be implemented by lead agencies by July 1, 2020.

Background

SB 743 requires local agencies to use VMT as an impact criterion when evaluating a project's transportation impacts under CEQA. Historically, delay and congestion were the metrics used when evaluating transportation issues. Since few agencies use VMT to analyze transportation impacts, there is a need to develop appropriate guidance for projects subject to environmental review. This guidance will ensure that all projects subject to review by that agency use the same data, approaches, and analytical tools.

Implementation Questions to Answer

Since SB 743 represents a significant departure from current practice, WRCOG recommends that each agency address the following four questions below prior to taking any action:

1. Methodology – what methodology should be used to forecast projected-generated VMT and the project's effect on VMT under baseline and cumulative conditions, and how does the selection of a threshold influence the methodology decision?
2. Thresholds – what threshold options are available to each jurisdiction and what substantial evidence exists to support selecting a specific VMT threshold?
3. Mitigation – what would constitute feasible mitigation measures for a VMT impact given the land use and transportation context of the WRCOG region?

Adoption Required

After lead agencies have discussed the questions and considered the direction they would like to take, the methodology to forecast 'project-generated VMT,' the VMT thresholds, and the mitigation measures utilized must be adopted by each jurisdiction. The adoption of these items must be in the form of a resolution and take place beginning January 2020. WRCOG will be working to assist jurisdictions with this process and to provide a sample staff report and resolution.

Methodology

Baseline VMT Methodology and Data: Base Year (2012) total VMT per service population (i.e., population plus employment), home-based VMT per capita, and home-based work VMT per worker were calculated using outputs from the Southern California Association of Governments' (SCAG) Regional Transportation Plan travel forecasting model and the Riverside County Transportation Analysis Model (RIVTAM). In addition, data from the California Household Travel Survey was used to compare model derived estimates of home-based VMT with those based on survey observations. VMT results and comparisons of results from different data sources were displayed graphically to aid in determining the appropriate VMT metric and data source for calculating VMT for use in the WRCOG subregion.

Based on the different options analyzed, **WRCOG recommends utilizing the Riverside County Travel Demand Model (RIVTAM / RIVCOM).** Jurisdictions and technical experts have been utilizing RIVTAM since 2009, so there is a familiarity with the model. In addition, WRCOG is developing a new version of the model, RIVCOM, which will be updated and refined to improve compliance with SB 743 expectations (i.e., full external trip lengths).

Tools Assessment: The capabilities of travel forecasting models along with 11 sketch model tools were reviewed to determine their strengths and weaknesses in generating appropriate VMT results for SB 743 analysis and testing VMT mitigation strategies. **The travel forecasting model review resulted in the RIVTAM model being recommended for VMT impact analysis in the WRCOG subregion.**

For thresholds that are based on an efficiency form of VMT, a customized forecasting and screening tool was also recommended, which would use RIVTAM model inputs and outputs. This tool would be utilized to provide an initial screening of potential VMT impacts for projects and provide evidence to support presumptions of less than significant impact findings. The sketch model tools were determined to be most appropriate for testing VMT mitigation, with CalEEMod, GreenTRIP Connect, and TDM+ being the most effective. Since these tools rely on TDM strategies to reduce VMT, an important limitation was highlighted that many of these strategies are dependent on building tenants, which can change over time. Hence, relying on TDM programs tied to tenants would likely result in the need for on-going monitoring to verify performance.

Thresholds

Potential VMT thresholds were assessed within the context of the objectives of SB 743, legal opinions related to the legislation, proposed CEQA Guidelines updates, and the Technical Advisory produced by the Governor's Office of Planning and Research (OPR). The project team, led by Fehr & Peers, identified four threshold options for consideration by lead agencies.

1. Thresholds consistent with OPR's Technical Advisory, recommending that proposed developments generate VMT per person that is 15% below existing VMT per capita;
2. Thresholds consistent with Lead Agency air quality, greenhouse gas emissions reduction, and energy conservation goals;
3. Thresholds consistent with the Regional Transportation Plan / Sustainable Communities Strategy future year VMT projects by jurisdiction or subregion; and
4. Thresholds based on baseline VMT performance by jurisdiction or subregion.

Based on the research conducted, which is provided (attachment 1) in this report, WRCOG recommends either utilizing a threshold consistent of below a jurisdiction's average VMT or below the subregion's average VMT.

Mitigation

Transportation Demand Management (TDM) strategies and its effectiveness for reducing VMT were reviewed and assessed for relevancy in the WRCOG subregion. Given the subregion's rural / suburban land use context, the following key strategies were identified as the most appropriate.

- diversifying land use
- improving pedestrian networks
- implementing traffic calming infrastructure
- building low-street bicycle network improvements
- encouraging telecommuting and alternative work schedules
- providing ride-share programs

Due to limitations of project-by-project approaches to reducing VMT, an evaluation of larger mitigation programs was conducted. The evaluation considered existing programs such as the WRCOG Transportation Uniform Mitigation Fee (TUMF) Program and new mitigation program concepts. While the TUMF funds a variety of projects including those that would contribute to VMT reduction, the overall effect of the Program results in an increase in VMT due to substantial roadway capacity expansion. The TUMF could be modified to separate the VMT, reducing projects into a separate impact fee program based on a VMT reduction nexus, but it could not be relied upon for VMT mitigation in its current form. New program concepts included VMT mitigation banks and exchanges. These are innovative concepts that have not yet been developed and tested but are being considered in areas where limited mitigation options would otherwise exist. WRCOG is undertaking a study to look into the feasibility of a VMT mitigation bank or exchange in order to further assist lead agencies in implementing SB 743.

Prior Actions:

March 14, 2019: The Public Works Committee received and filed.

September 10, 2018: The Executive Committee received and filed.

Fiscal Impact:

This item is for informational purposes only; therefore, there is no fiscal impact.

Attachment:

1. WRCOG SB 743 Implementation Pathway – Working Paper Document Package.

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Item 7.C

Understanding the Transportation
Analysis Implications of Senate Bill
743

Attachment 1

WRCOG SB 743 Implementation
Pathway – Working Paper Document
Package

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WRCOG SB 743 Implementation Pathway Working Paper Document Package



FEHR  PEERS

November 2018

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Executive Summary

This executive summary is intended to provide a brief introduction of the WRCOG SB 743 Implementation Pathway project and summarizes the work and findings of the technical working papers completed to date.

The working papers are included in sections following this Executive Summary.

Introduction

Senate Bill (SB) 743 changes how transportation impacts are measured under the California Environmental Quality Act (CEQA) from using vehicle level of service (LOS) to using vehicle miles traveled (VMT). This change is intended to capture the impacts of driving on the environment compared to the impact on drivers. Concerns about the impact of projects on drivers through the use of LOS or other delay metrics may still occur as part of land use entitlement reviews but LOS will no longer be allowed as a basis for transportation impacts under CEQA. To implement SB 743, lead agencies will need to determine appropriate VMT methodologies, thresholds, and feasible mitigation measures. The purpose of this project is to help WRCOG member agencies understand the specific questions that need to be addressed when making these determinations and to provide research, analysis, and other evidence to support their final SB 743 implementation decisions. WRCOG chose to lead this effort to help reduce the SB 743 implementation costs that would have otherwise occurred by individual agencies pursuing independent implementation efforts.

The project team has prepared seven working papers to date for this project. Each working paper addressed the following key issues that each jurisdiction must address when conducting VMT assessment.

1. Methodology – what methodology should be used to forecast ‘projected generated VMT’ and the ‘project’s effect on VMT’ under baseline and cumulative conditions and how does the selection of a threshold influence the methodology decision?
2. Thresholds – what threshold options are available to each jurisdiction and what substantial evidence exists to support the selecting a specific VMT threshold?
3. Mitigation – what would constitute feasible mitigation measures for a VMT impact given the land use and transportation context of the WRCOG region?

Below is a summary of each of the working papers. The complete working papers are also included in this document.

Methodology

Baseline VMT Methodology and Data

Base Year (2012) total VMT per service population (i.e., population plus employment), home-based VMT per capita, and home-based work VMT per worker were calculated using outputs from the Southern California Association of Governments (SCAG) Regional Transportation Plan travel forecasting model and the Riverside County Transportation Analysis Model (RIVTAM). In addition, data from the California Household Travel Survey (CHTS) was used to compare model derived estimates of Home-Based VMT with those based on survey observations. VMT results and comparisons of results from different data sources were displayed graphically to aid in determining the appropriate VMT metric and data source for calculating VMT for use in the WRCOG region.

Tools Assessment

The capabilities of travel forecasting models along with 11 sketch model tools were reviewed to determine their strengths and weaknesses in generating appropriate VMT results for SB 743 analysis and testing VMT mitigation strategies. The travel forecasting model review resulted in the RIVTAM model being recommended for VMT impact analysis in the WRCOG region. For thresholds that are based on an efficiency form of VMT, a customized forecasting and screening tool was also recommended, which would use RIVTAM model inputs and outputs. This tool would be utilized to provide an initial screening of potential VMT impacts for projects and provide evidence to support presumptions of less than significant impact findings. The sketch model tools were determined to be most appropriate for testing VMT mitigation, with CalEEMod, GreenTRIP Connect, and TDM+ being the most effective. Since these tools rely on TDM strategies to reduce VMT, an important limitation was highlighted that many of these strategies are dependent on building tenants, which can change over time. Hence, relying TDM programs tied to tenants would likely result in the need for on-going monitoring to verify performance.

Thresholds

Thresholds Assessment

Potential VMT thresholds were assessed within the context of the objectives of SB 743, legal opinions related to the legislation, proposed CEQA Guidelines updates, and the technical advisory produced by OPR. Fehr & Peers identified four threshold options for consideration by lead agencies.

1. Thresholds consistent with OPR's Technical Advisory, recommending that proposed developments generate VMT per person that is 15% below existing VMT per capita,
2. Thresholds consistent with Lead Agency air quality, GHG reduction, and energy conservation goals,
3. Thresholds consistent with RTP/SCS future year VMT projects by jurisdiction or sub-region, and
4. Thresholds based on baseline VMT performance by jurisdiction or sub-region.

Mitigation

TDM Strategies Evaluation

Transportation demand management (TDM) strategies and their effectiveness for reducing VMT were reviewed and assessed for their relevancy in the WRCOG region. Given the region's rural/suburban land use context, the following key strategies were identified as the most appropriate.

- diversifying land use
- improving pedestrian networks
- implementing traffic calming infrastructure
- building low-street bicycle network improvements
- encouraging telecommuting and alternative work schedules
- providing ride-share programs

Mitigation Programs

Due to limitations of project-by-project approaches to reducing VMT, an evaluation of larger mitigation programs was conducted. The evaluation considered existing programs such as the WRCOG transportation uniform mitigation fee (TUMF) program and new mitigation program concepts. While the TUMF funds a variety of projects including those that would contribute to VMT reduction, the overall effect of the program results in an increase in VMT due to substantial roadway capacity expansion. The TUMF could be modified to separate the VMT reducing projects into a separate impact fee program based on a VMT reduction nexus, but it could not be relied upon for VMT mitigation in its current form. New program concepts included VMT mitigation banks and exchanges. These are innovative concepts that have not yet been developed and tested but are being considered in areas where limited mitigation options would otherwise exist.



1. Methodology

Baseline VMT Methodology and Data

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.

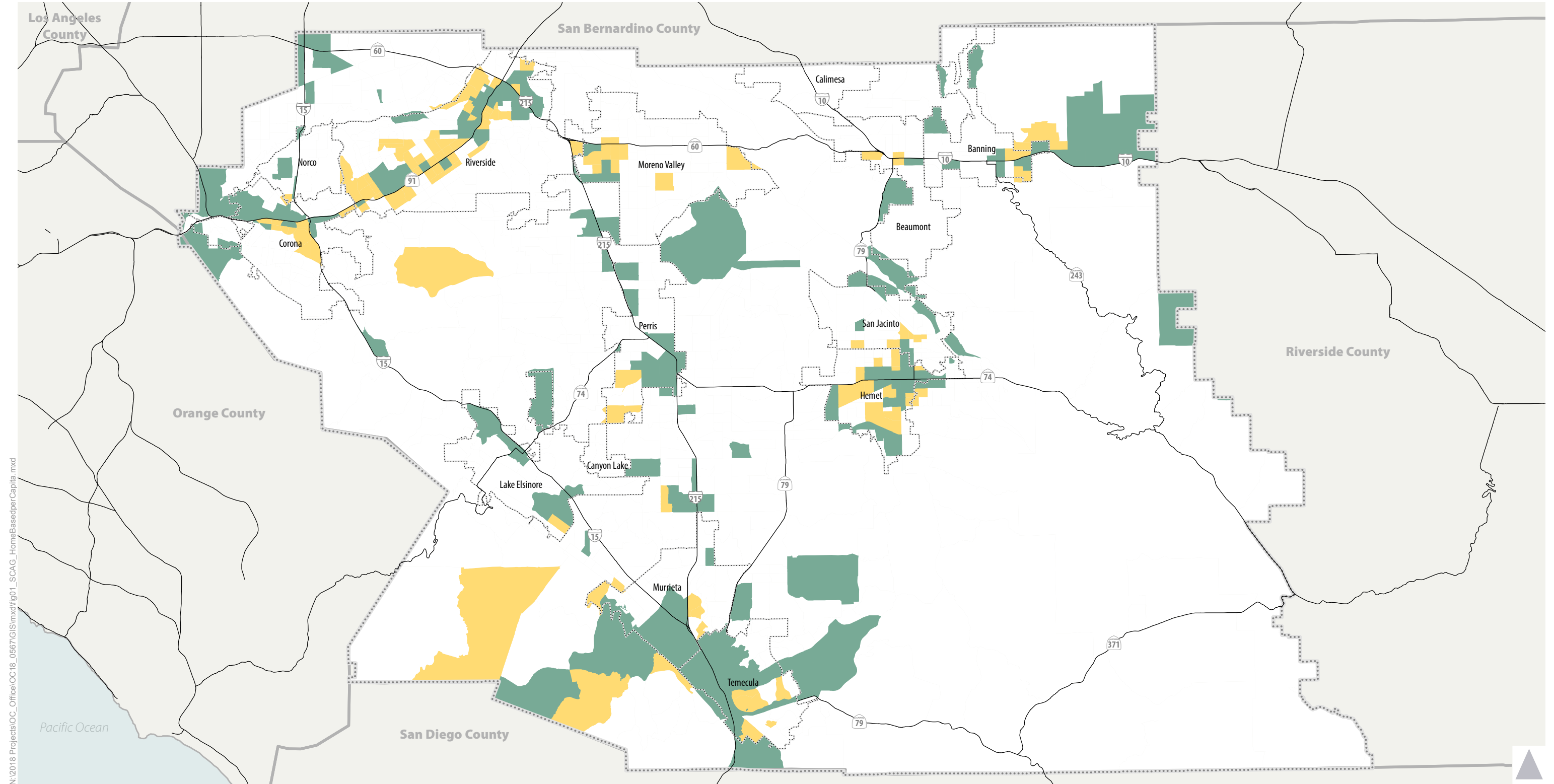
Baseline conditions for CEQA purposes would be specific to the release date of a project's notice of preparation (NOP). Hence, the project team recommends interpolating between the 2012 and 2040 VMT data to establish specific VMT values associated with a baseline year. Spreadsheets containing the 2012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

DRAFT

ATTACHMENT A – SCAG VMT Data

DRAFT



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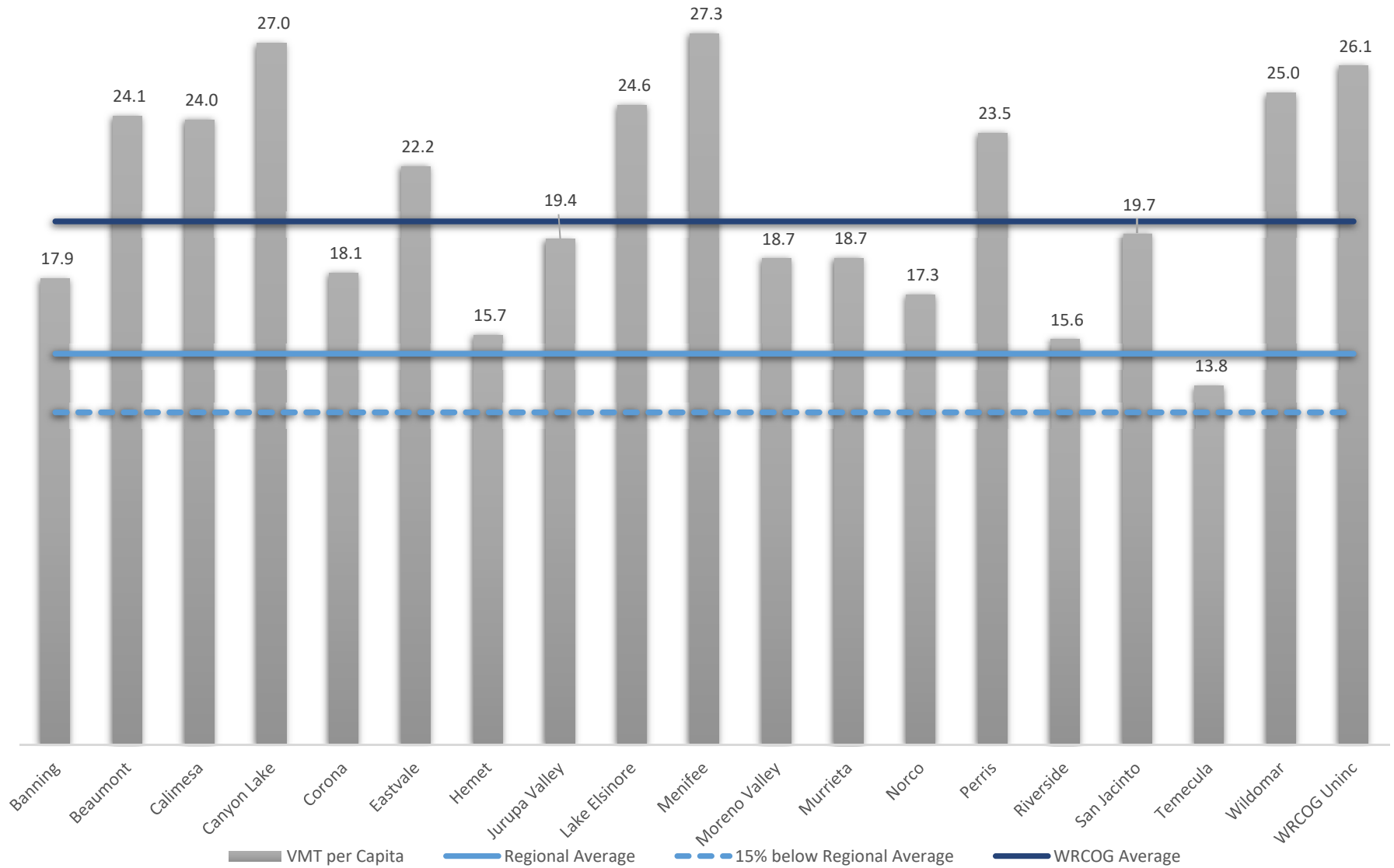
- < -15% below SCAG Regional Average *
 - 0 to -15% below SCAG Regional Average
 - Higher than SCAG Regional Average
 - WRCOG Boundary
 - County Boundary
 - City Limits
- * SCAG Regional Average calculated using SCAG Model.

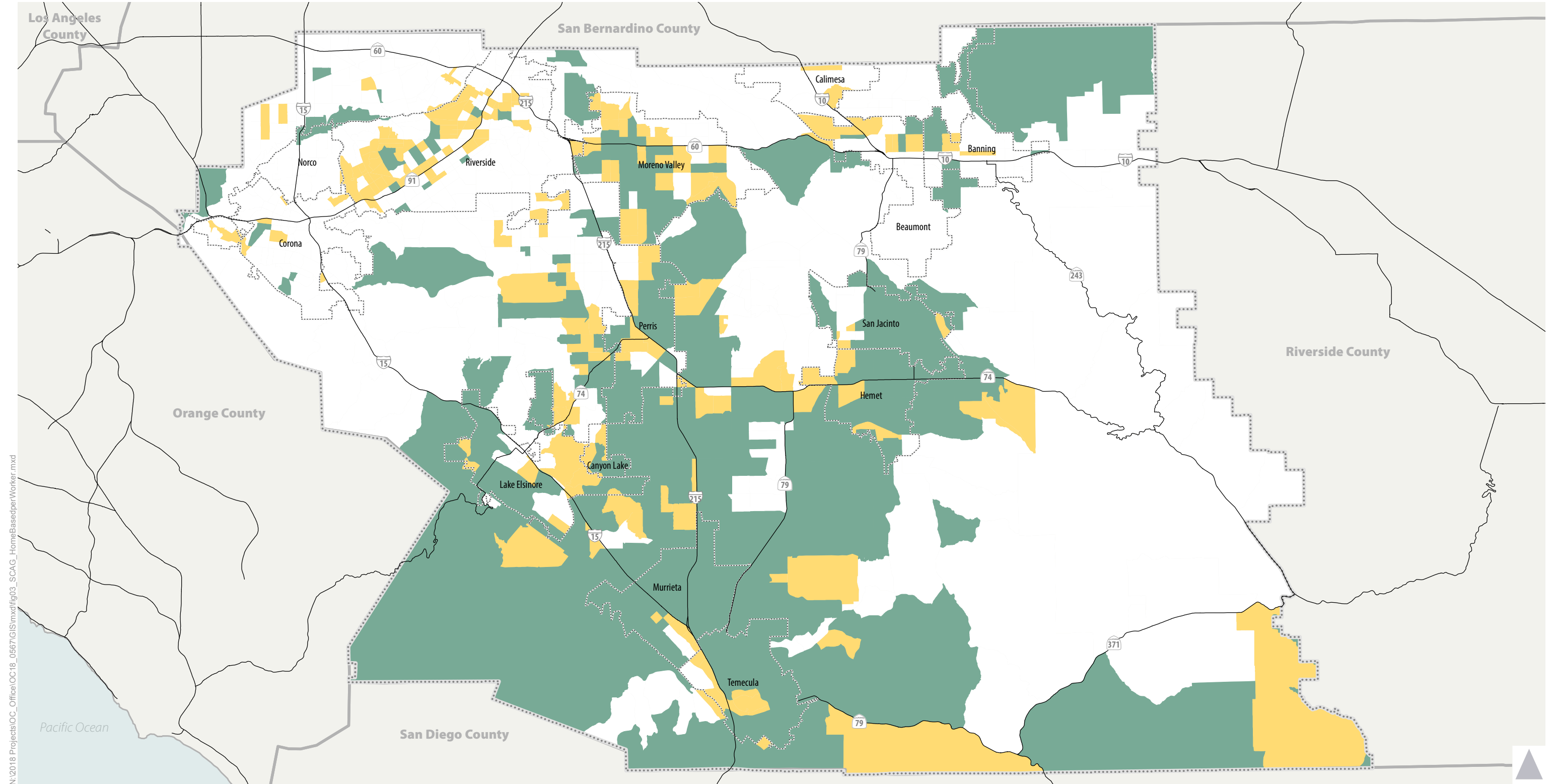
Figure 1



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





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

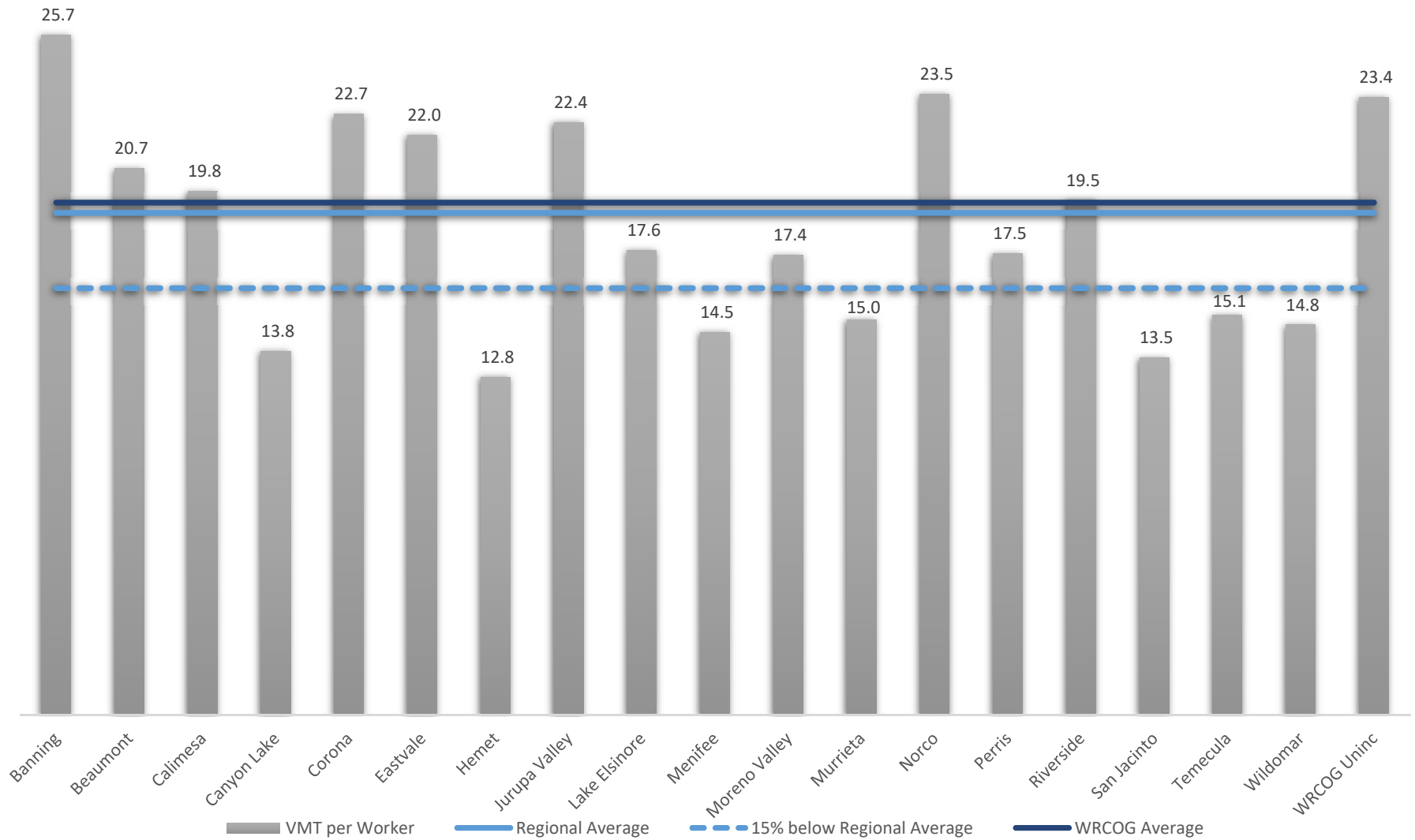
* SCAG Regional Average calculated using SCAG Model.

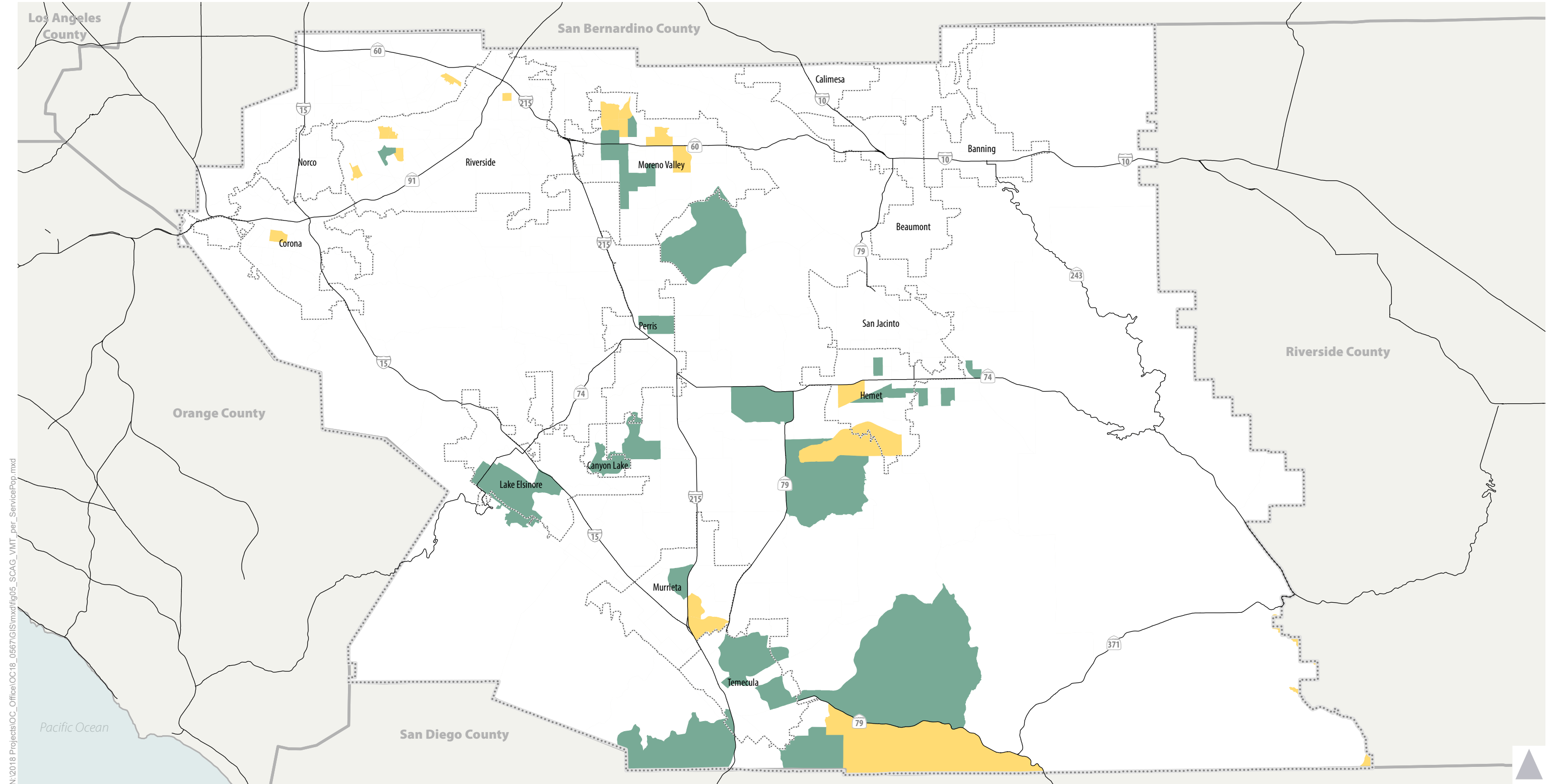
Figure 3



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





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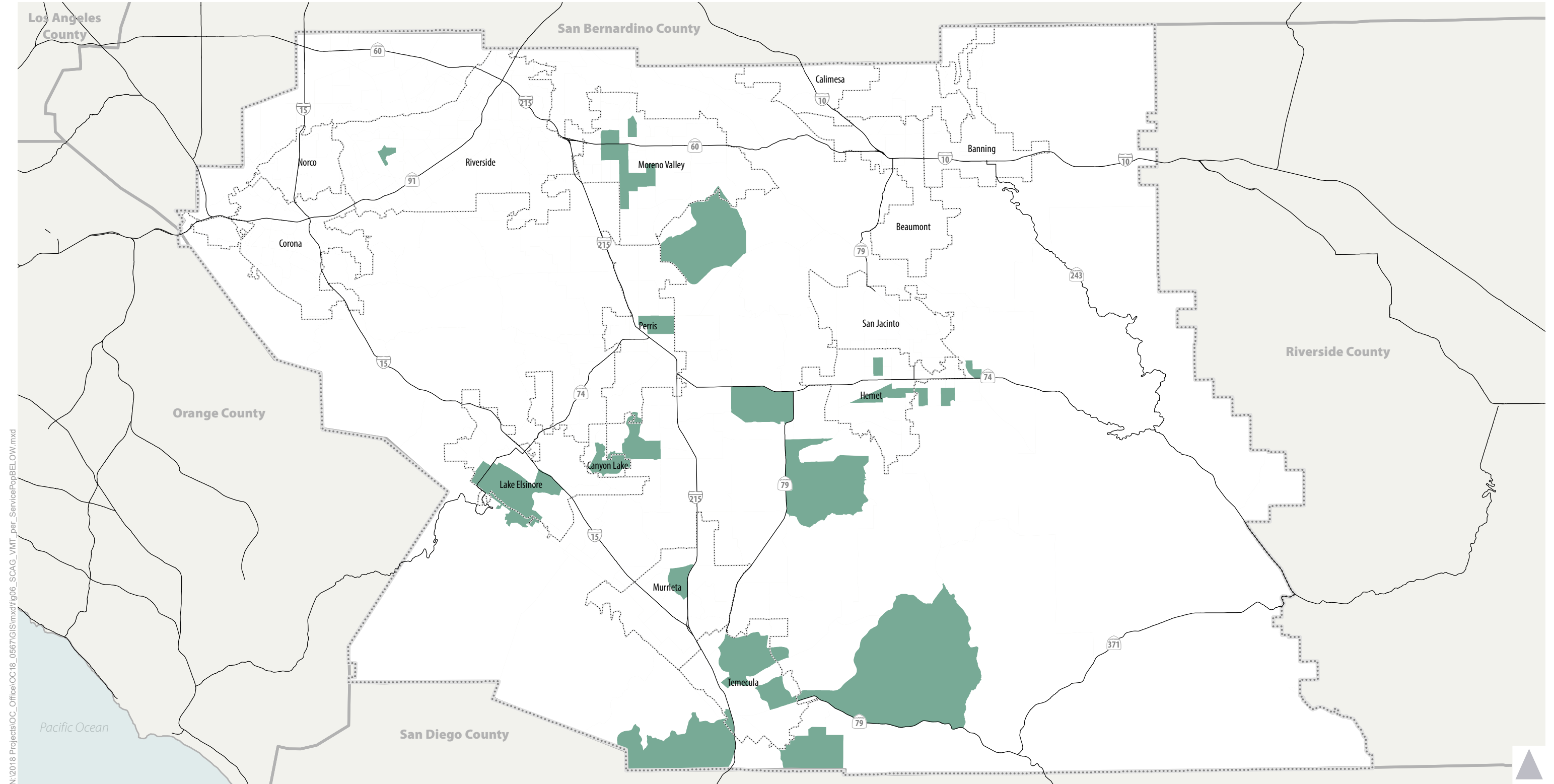
- < -15% below SCAG Regional Average *
- 0 to -15% below SCAG Regional Average
- Higher than SCAG Regional Average
- WRCOG Boundary
- County Boundary
- City Limits

* SCAG Regional Average calculated using SCAG Model.

Figure 5



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



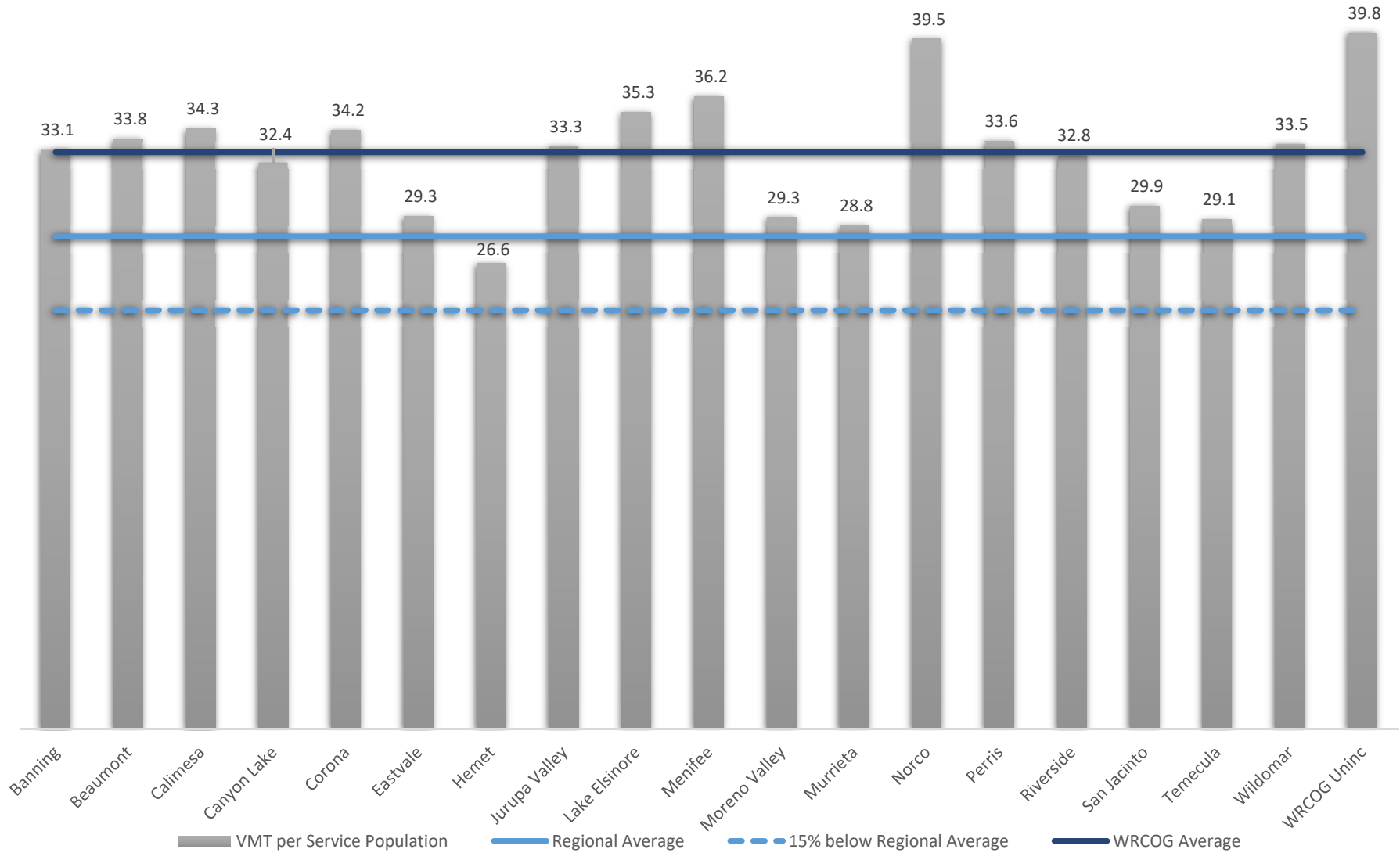
- < -15% below SCAG Regional Average *
 - Higher than SCAG Regional Average
 - WRCOG Boundary
 - County Boundary
 - City Limits
- * SCAG Regional Average calculated using SCAG Model.

Figure 6



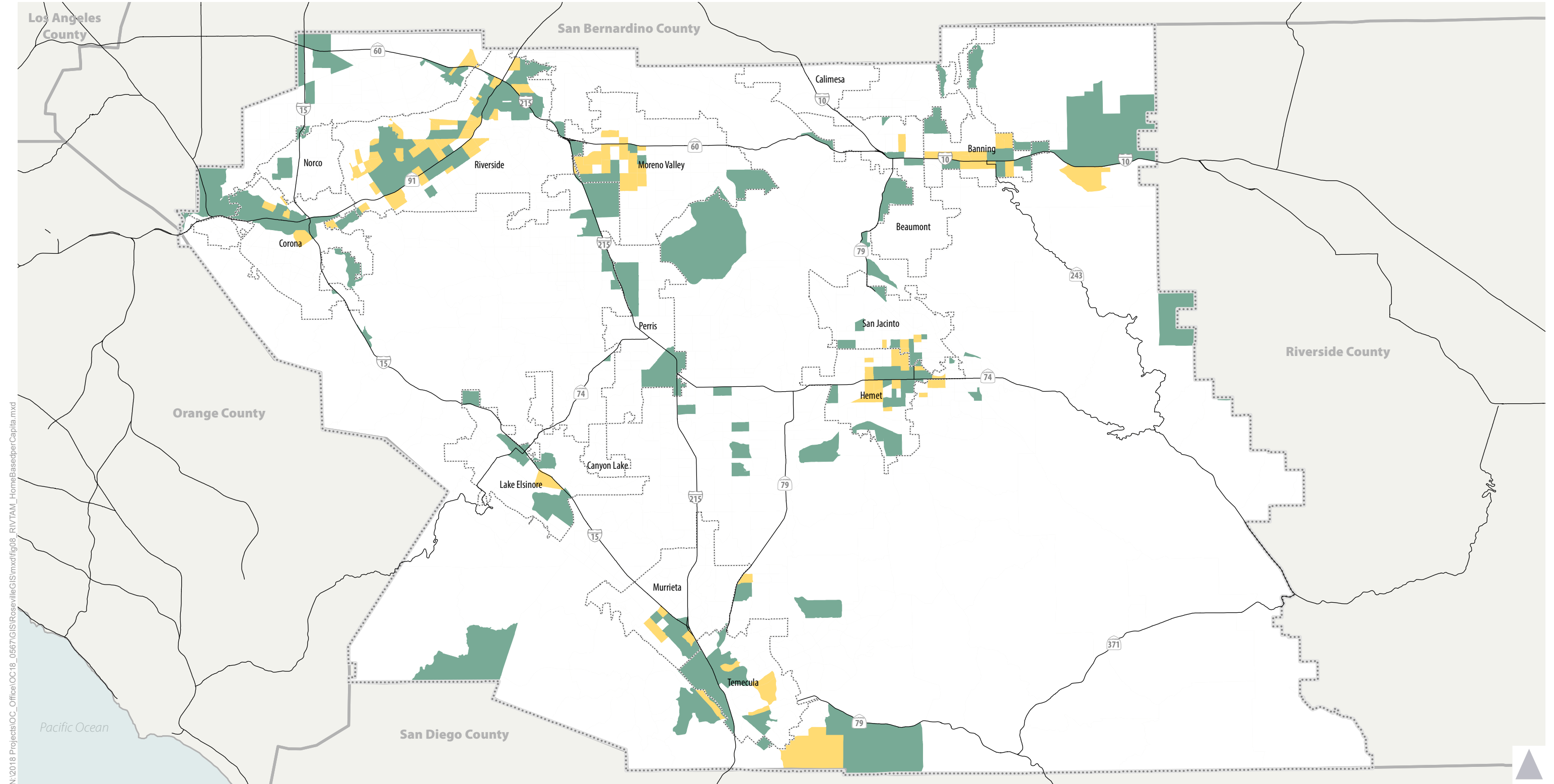
SCAG Model (2012)
TAZs Performing Better than 15% below SCAG Regional Average of
Daily VMT per Service Population in only the SCAG Model

SCAG Model (2012) Daily Total VMT per Service Population



ATTACHMENT B – RIVTAM VMT Data

DRAFT



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

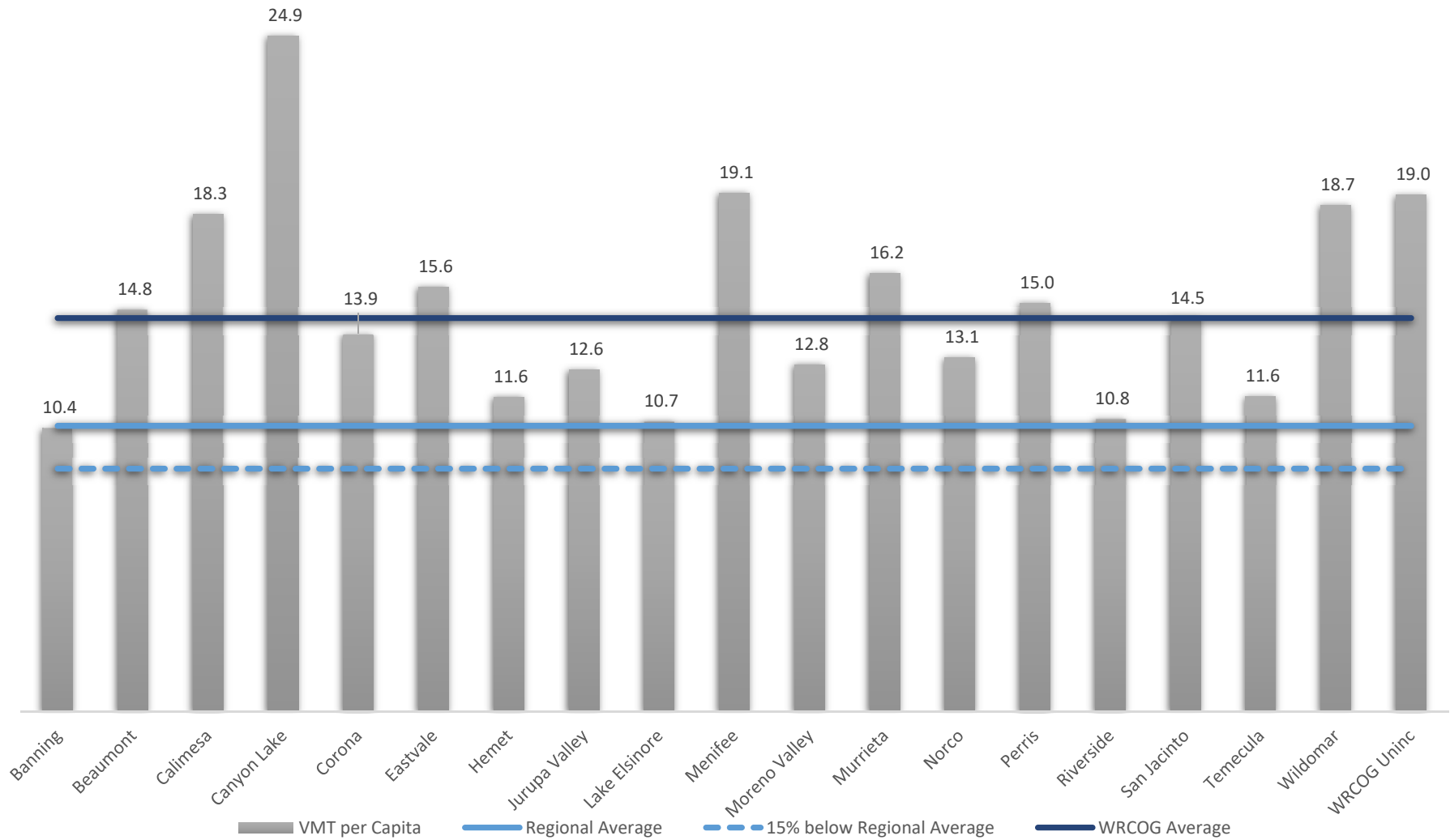
* SCAG Regional Average calculated using RIVTAM Model.

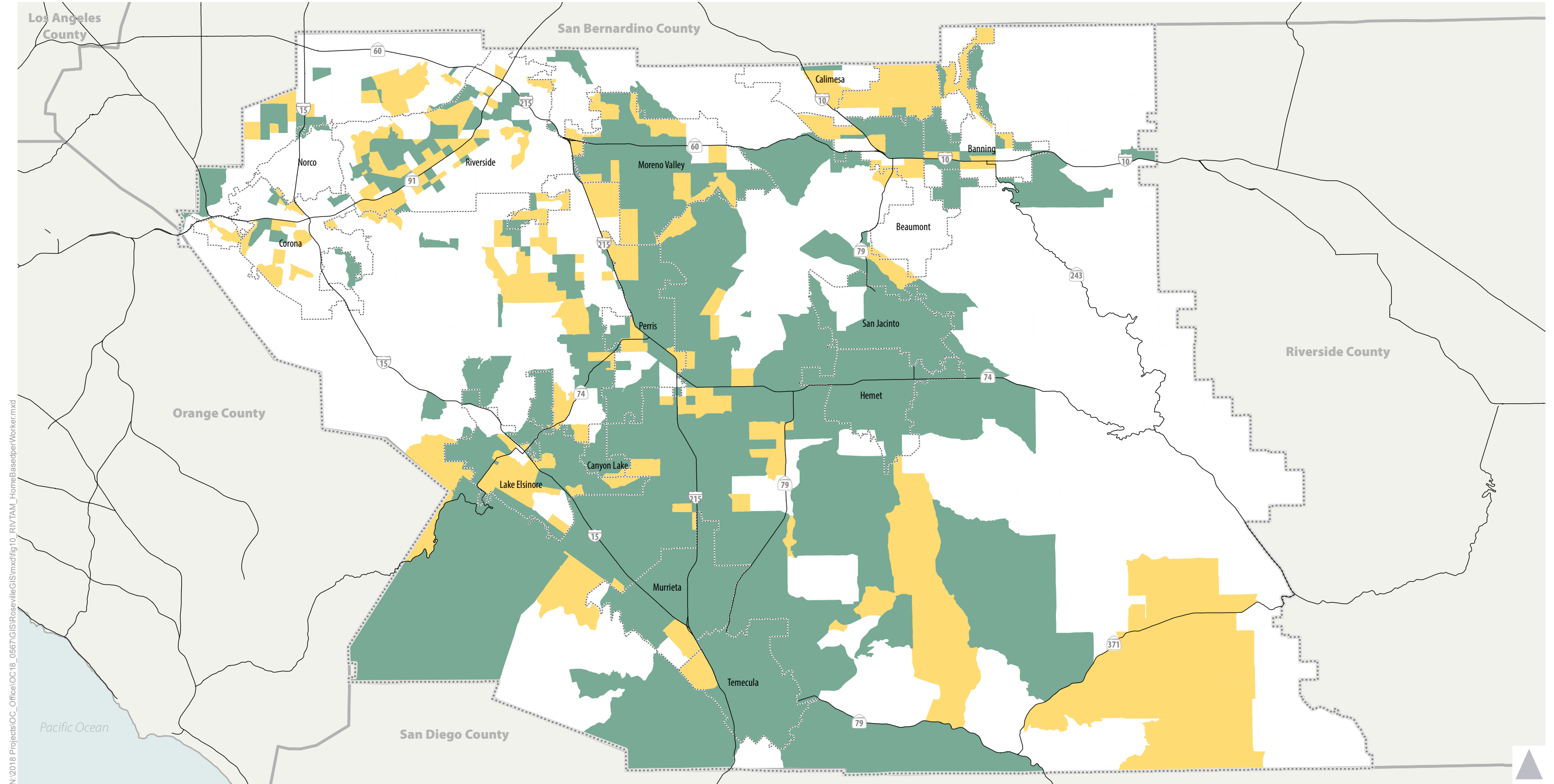
Figure 8



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





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

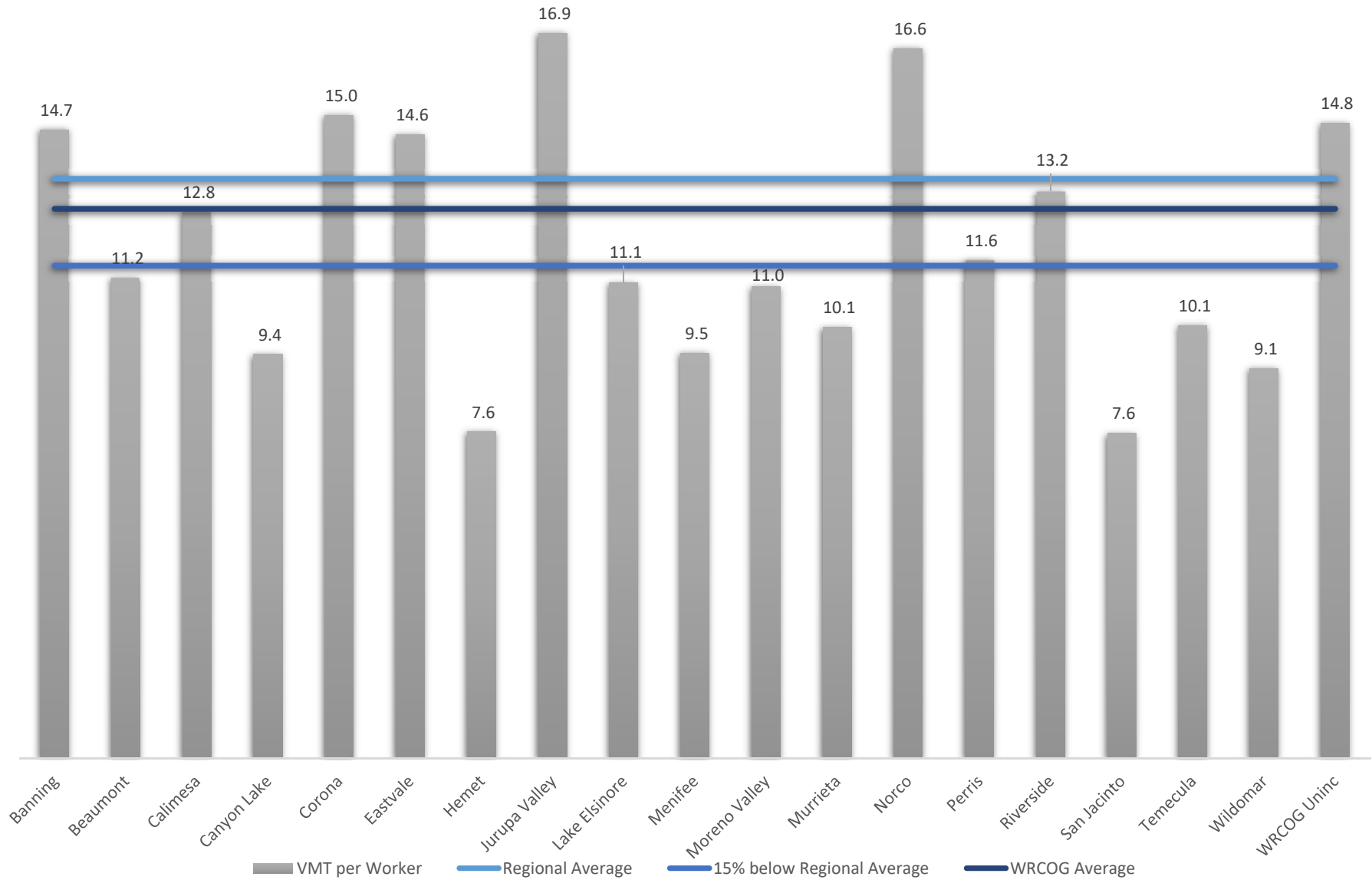
* SCAG Regional Average calculated using RIVTAM Model.

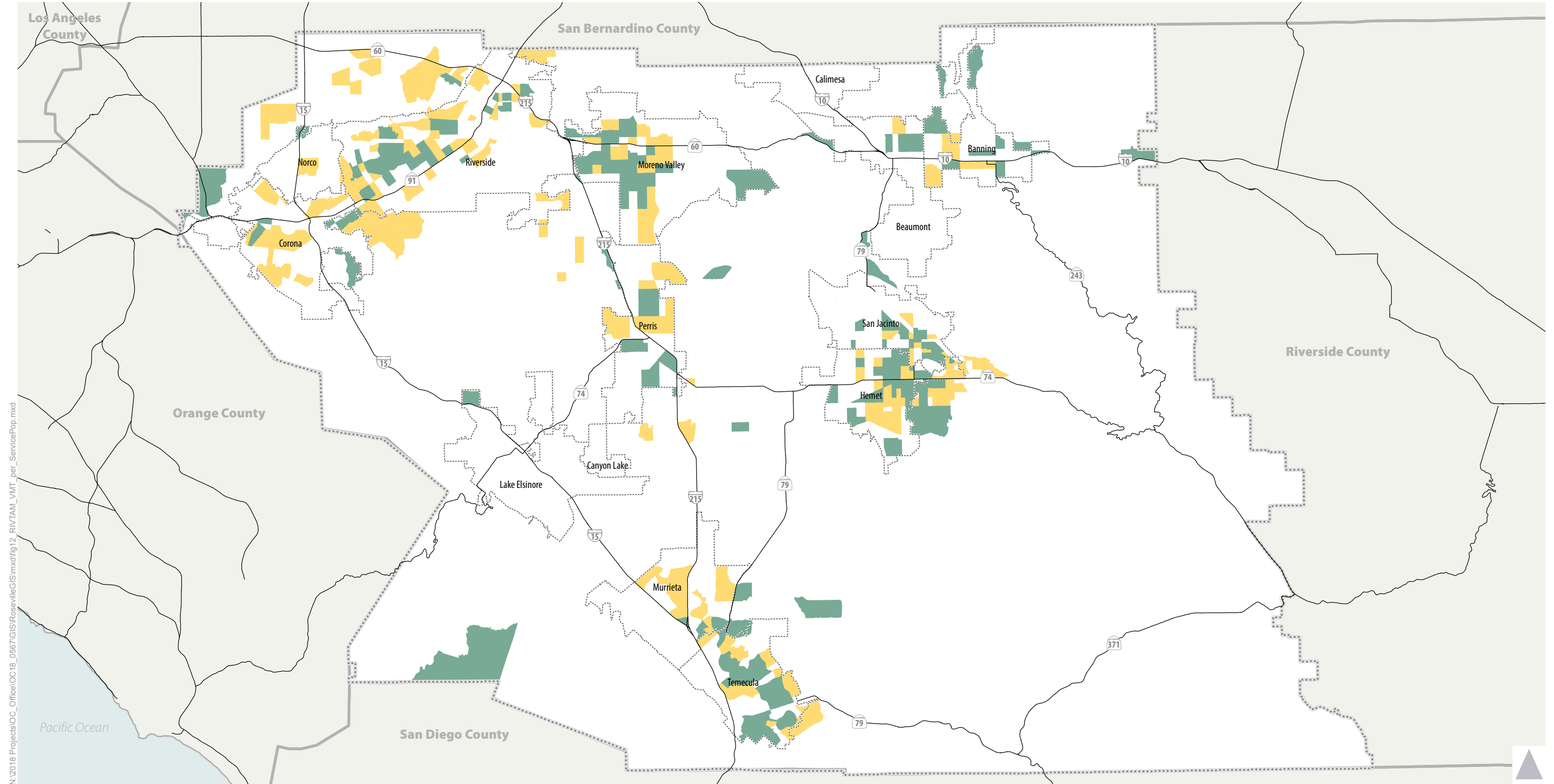
Figure 10



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

RIVTAM Model (2012) Daily Home Based Work VMT per Worker





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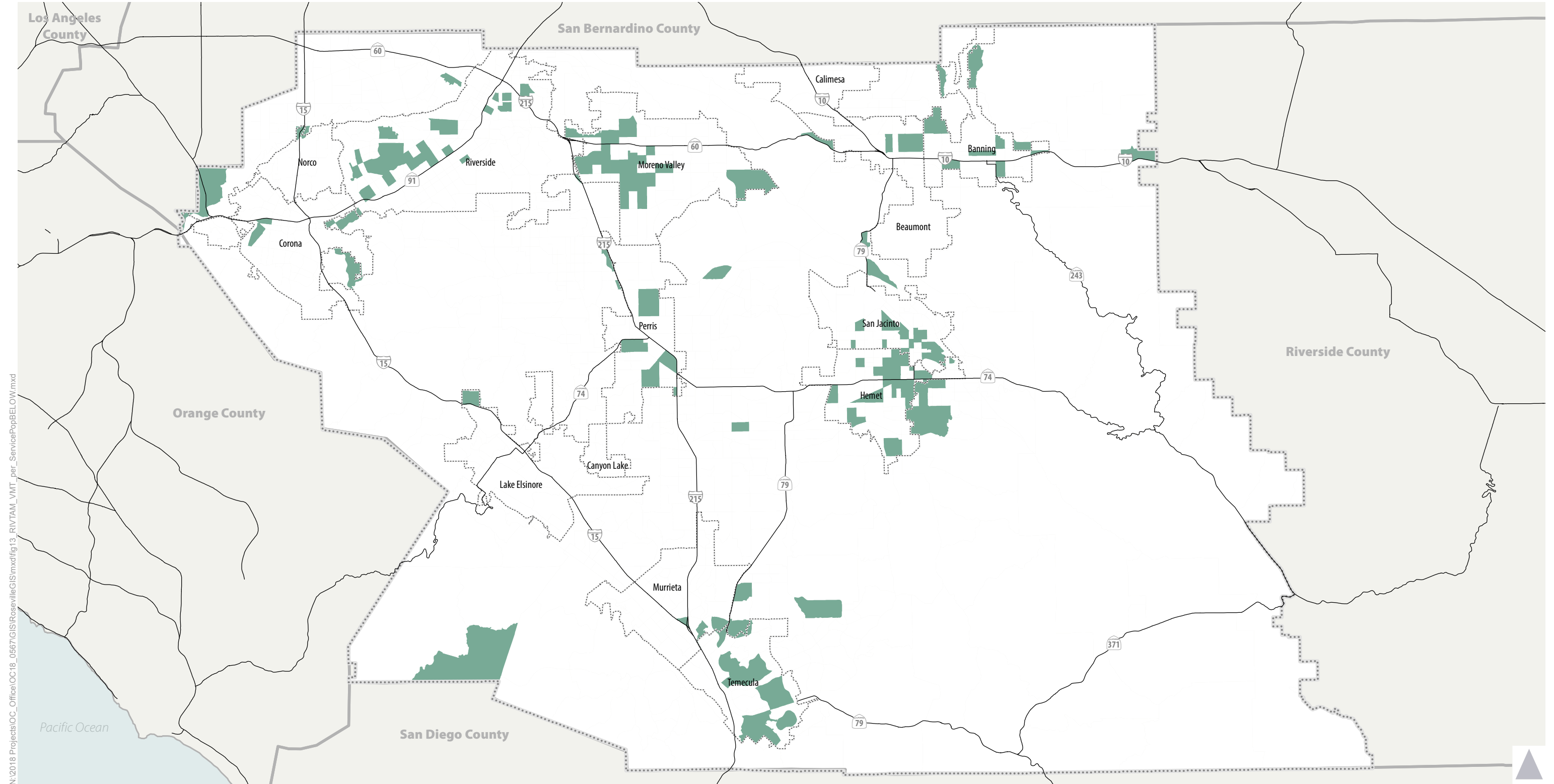
- < -15% below SCAG Regional Average *
- 0 to -15% below SCAG Regional Average
- Higher than SCAG Regional Average
- WRCOG Boundary
- County Boundary
- City Limits

* SCAG Regional Average calculated using RIVTAM Model.

Figure 12



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

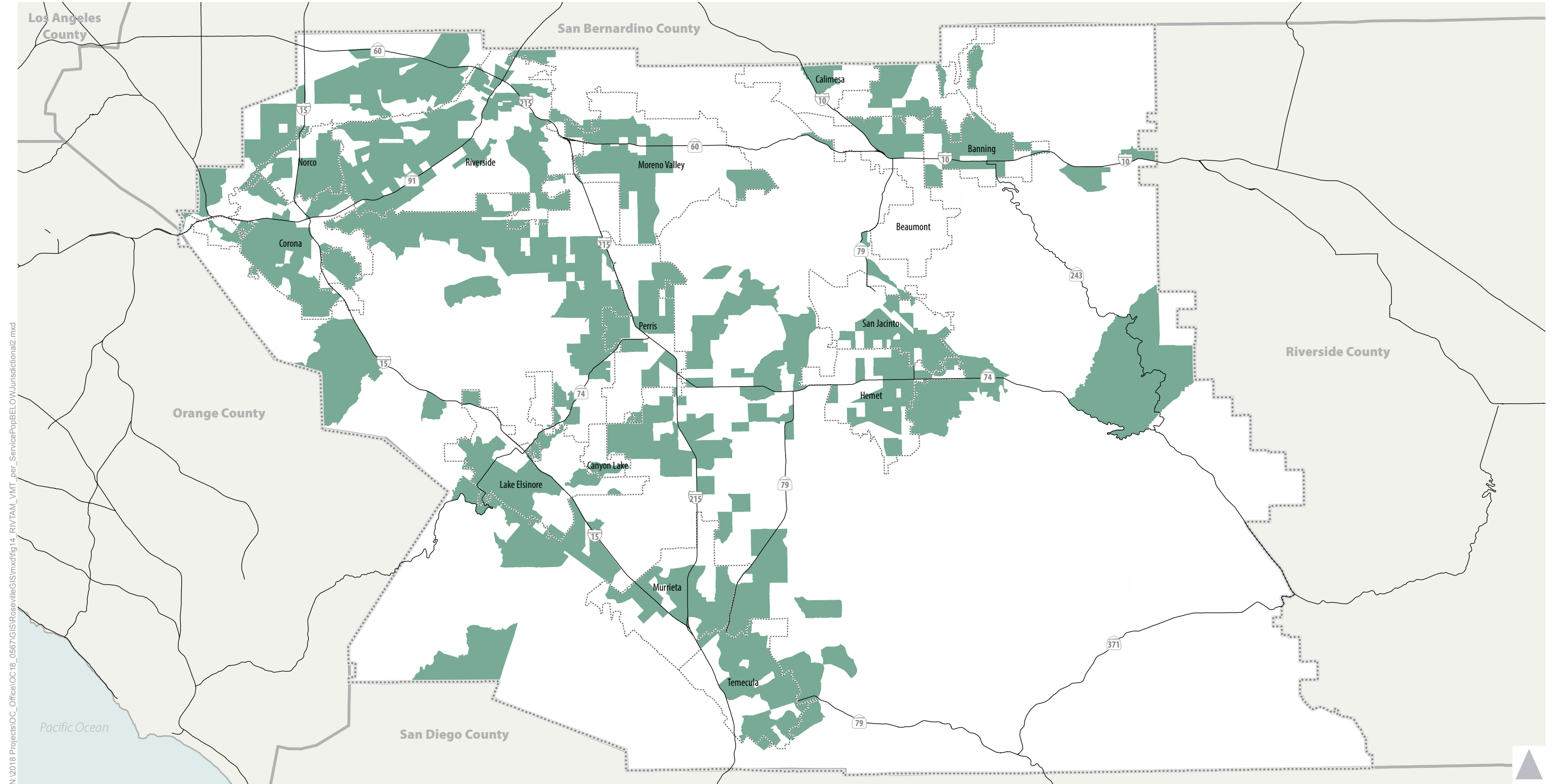


- < -15% below SCAG Regional Average *
 - Higher than SCAG Regional Average
 - WRCOG Boundary
 - County Boundary
 - City Limits
- * SCAG Regional Average calculated using RIVTAM Model.

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



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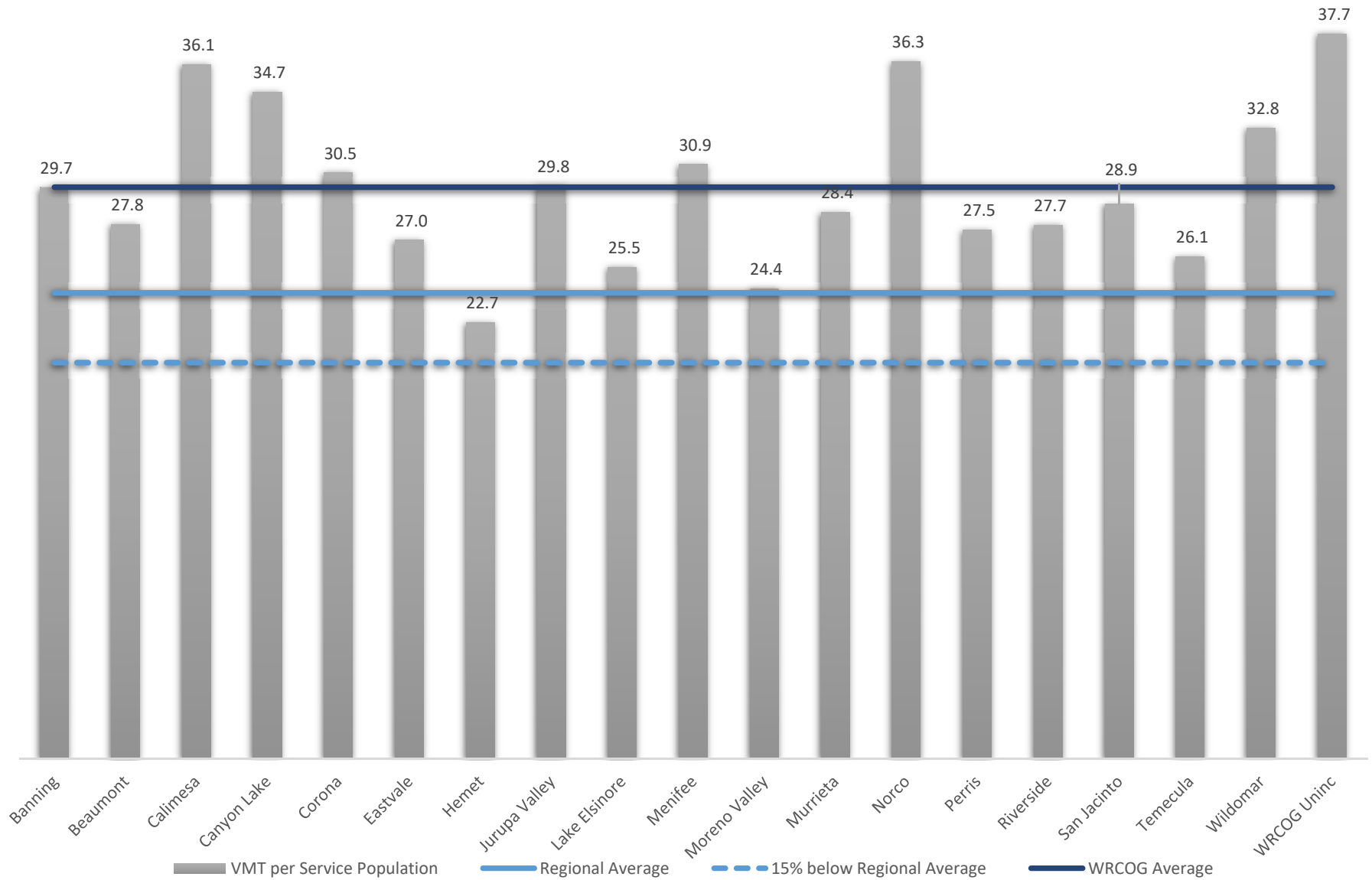
- At or below Jurisdictional Average *
 - Higher than Jurisdictional Average
 - WRCOG Boundary
 - County Boundary
 - City Limits
- * Jurisdictional Average calculated using RIVTAM Model.

Figure 14

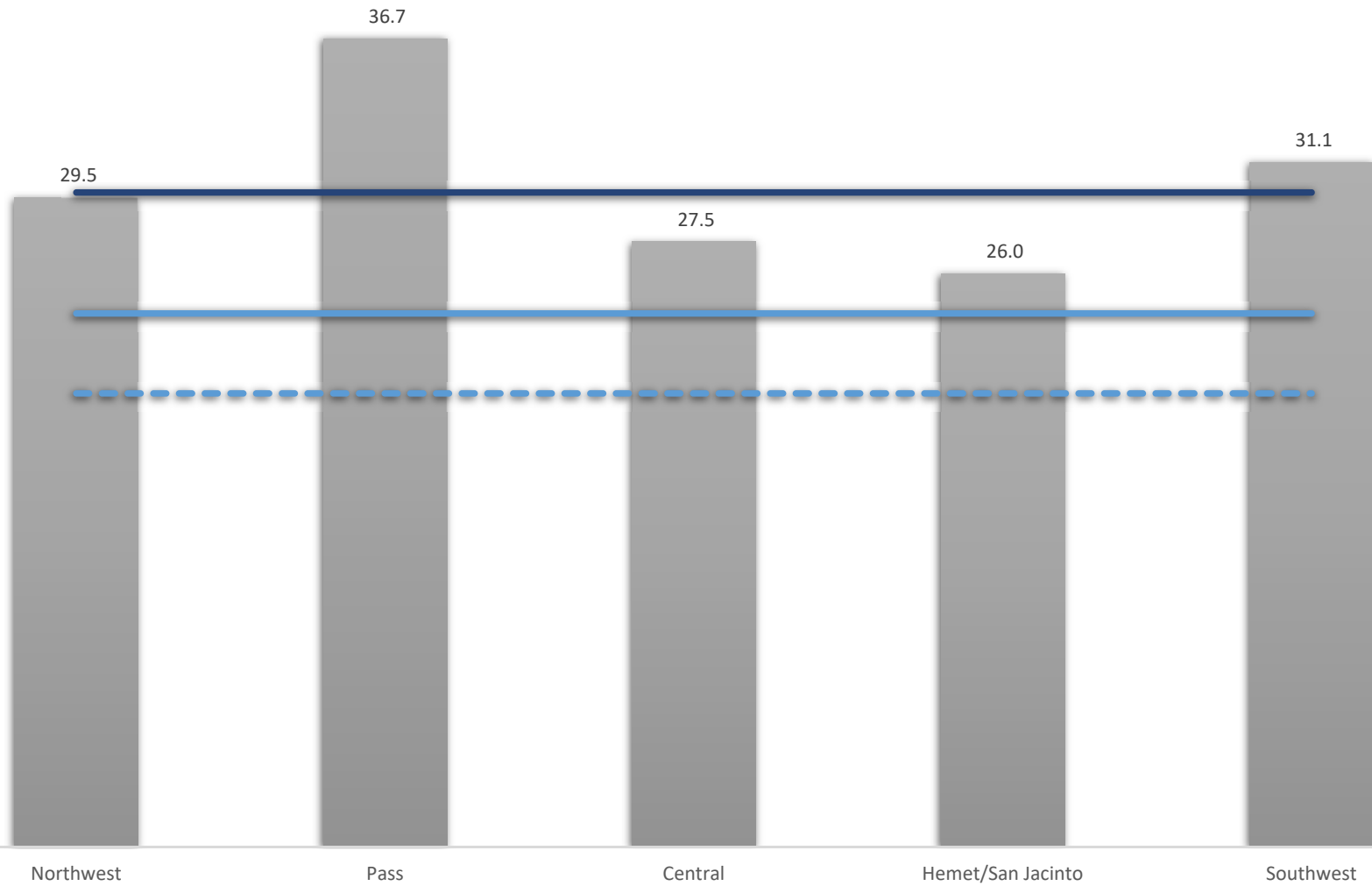


RIVTAM Model (2012)
TAZs Performing at or below 2012 Jurisdictional Average of
Daily VMT Per Service Population in only the RIVTAM Model

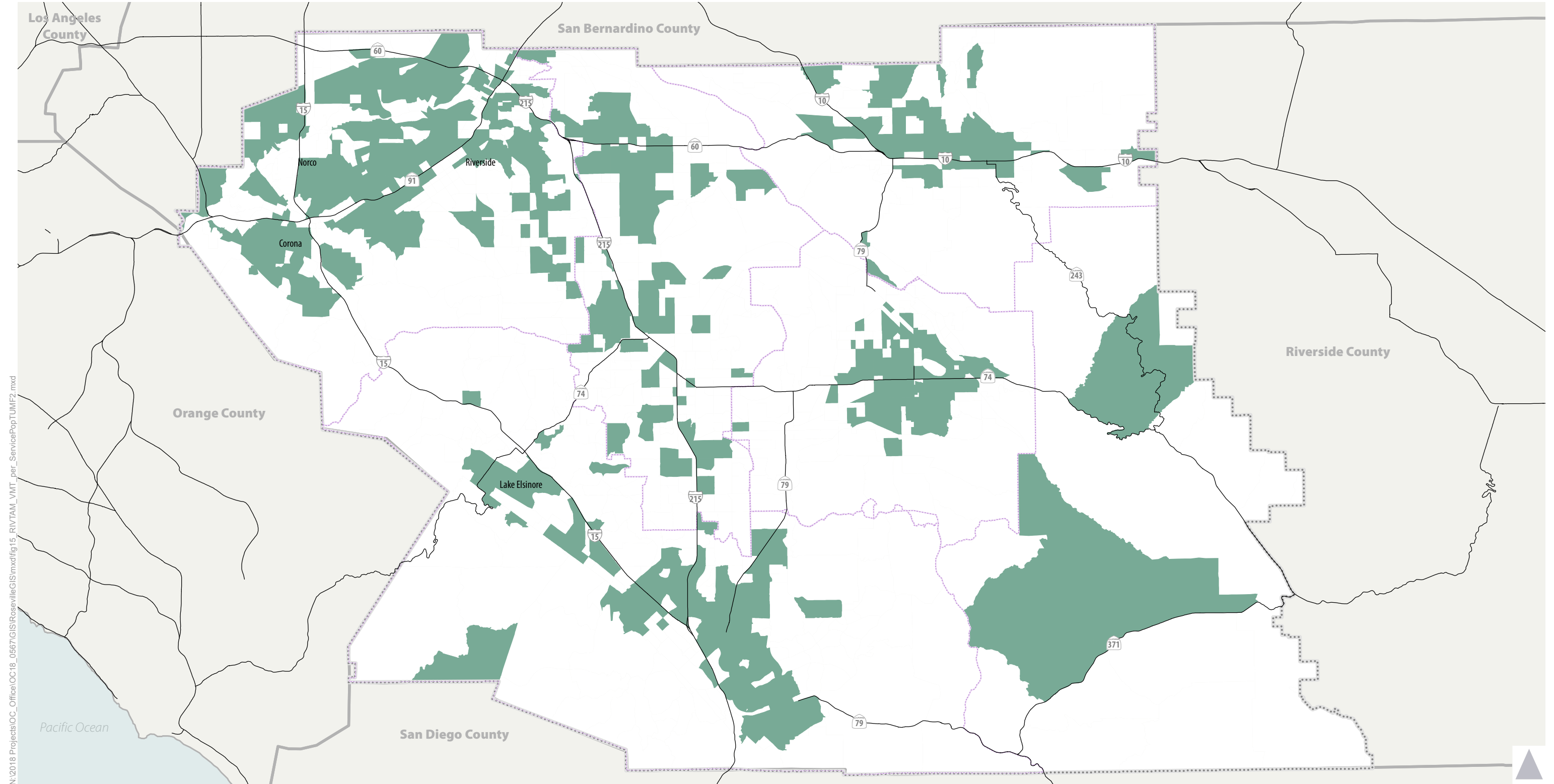
RIVTAM Model (2012) Daily Total VMT per Service Population



RIVTAM Model (2012) Daily Total VMT per Service Population by TUMF Zone



■ VMT per Service Population — Regional Average - - - 15% below Regional Average — WRCOG Average



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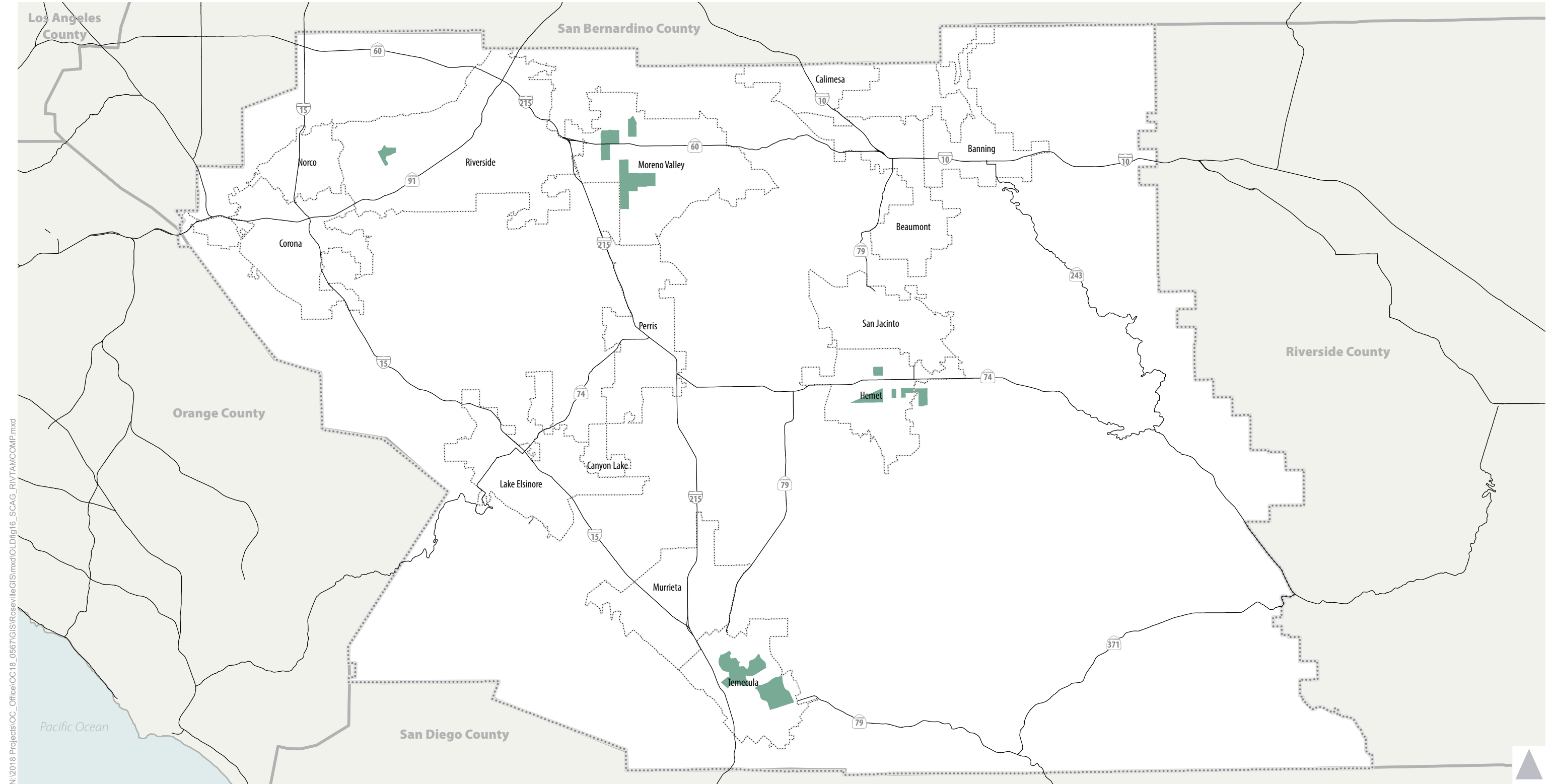
- At or below TUMF Zonal Average*
 - Higher than TUMF Zonal Average
 - WRCOG Boundary
 - County Boundary
 - TUMF Zones
- * TUMF Zonal Average calculated using RIVTAM Model.

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

DRAFT



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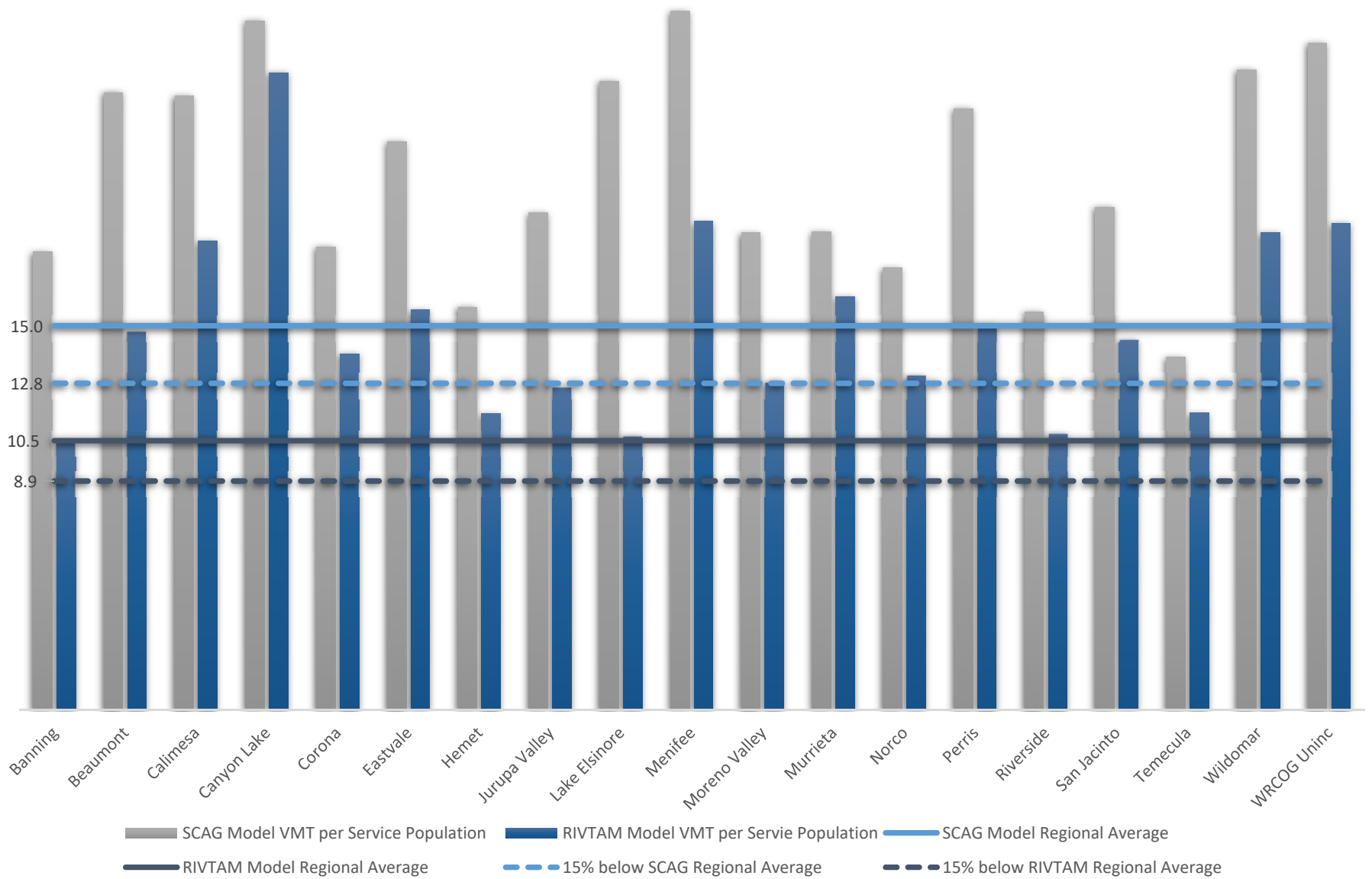
- < -15% below SCAG Regional Average in both the SCAG and RIVTAM Models
 - WRCOG Boundary
 - County Boundary
 - Higher than SCAG Regional Average
 - City Limits
- * SCAG Regional Average calculated using SCAG Model.

Figure 16

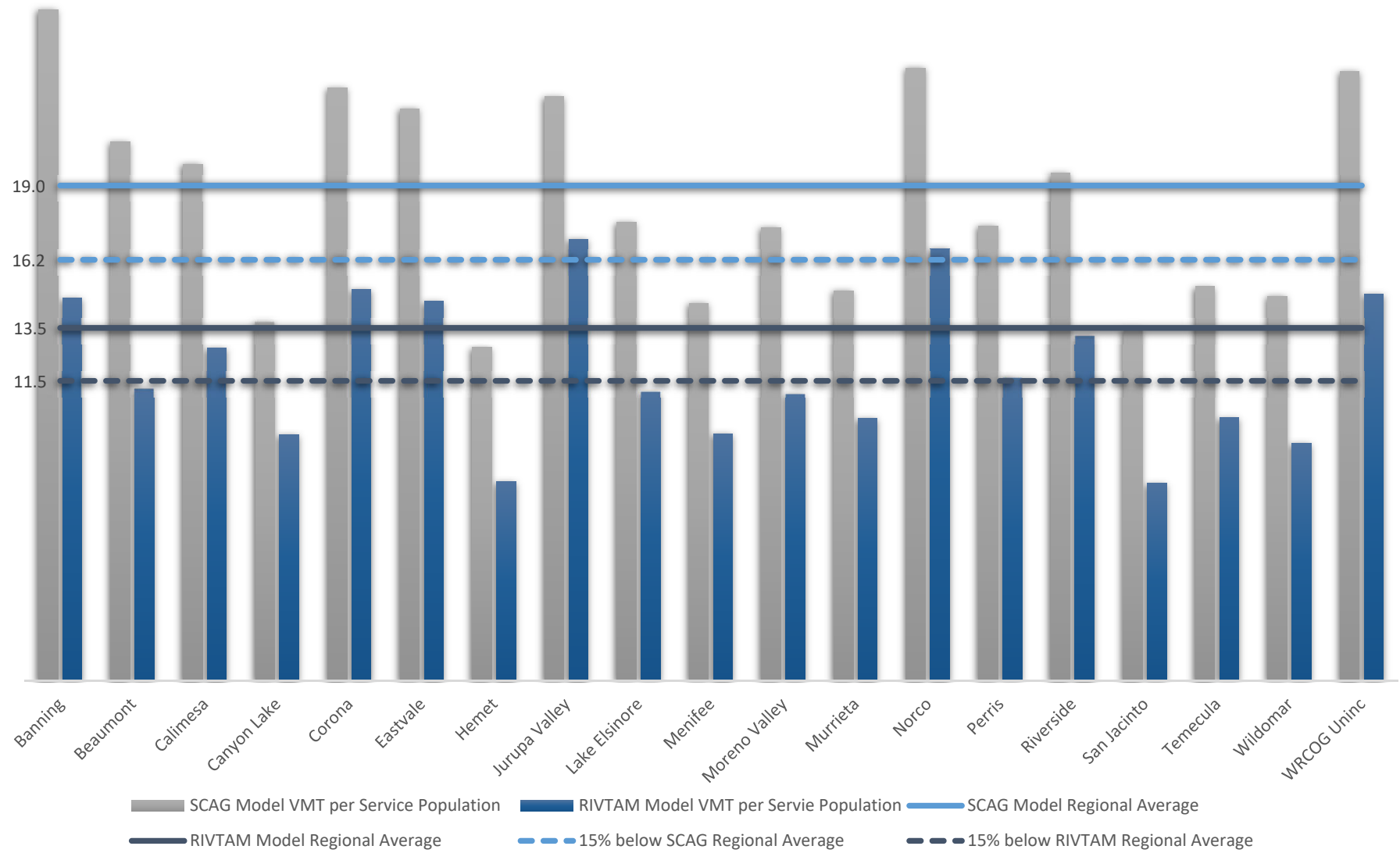


SCAG Model (2012)
TAZs Performing Better than 15% below SCAG Regional Average of Daily VMT per Service Population in both the SCAG and RIVTAM Models

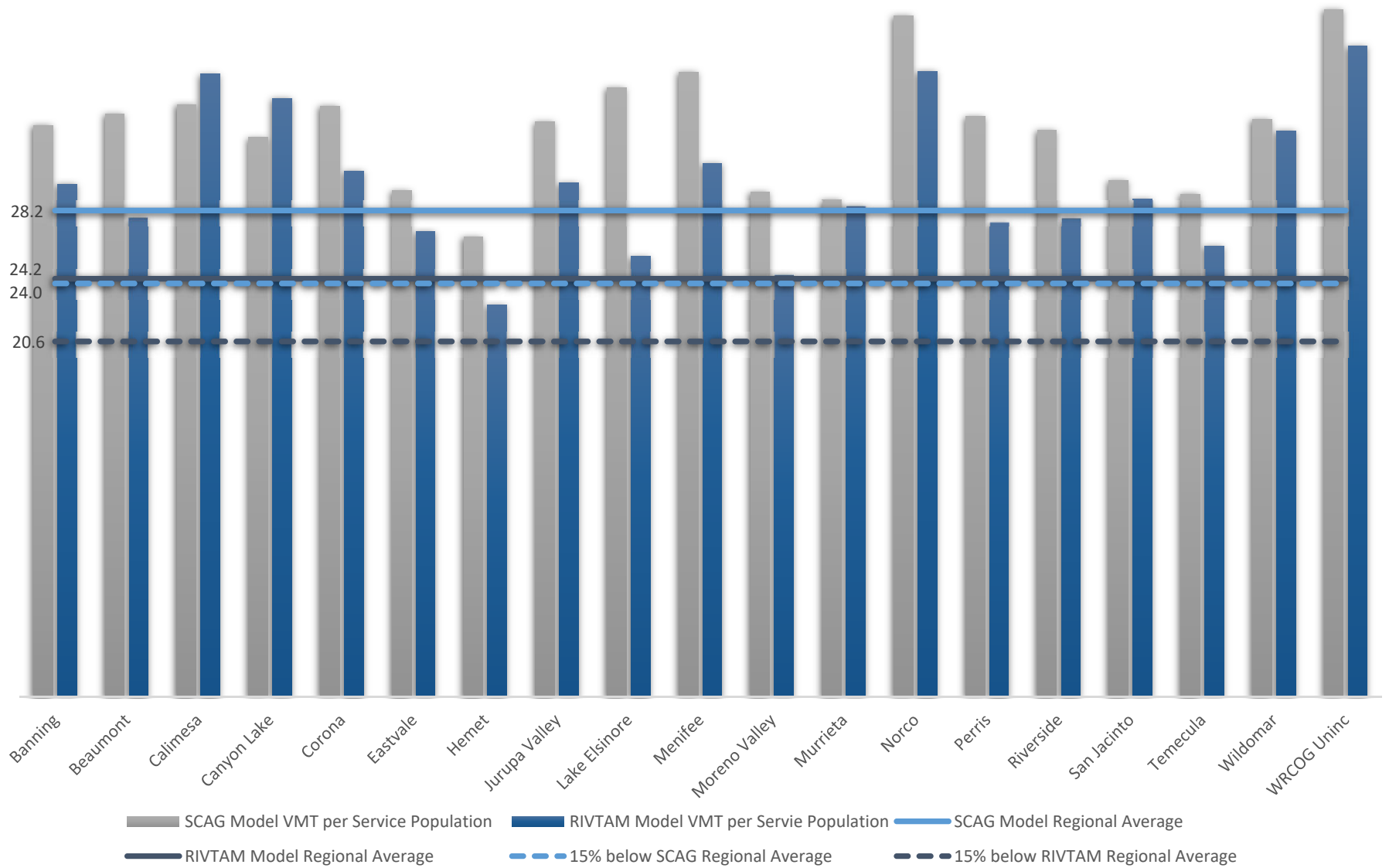
2012 Daily Residential Home Based VMT per Capita Model Comparison



2012 Daily Home Based Work VMT per Worker Model Comparison

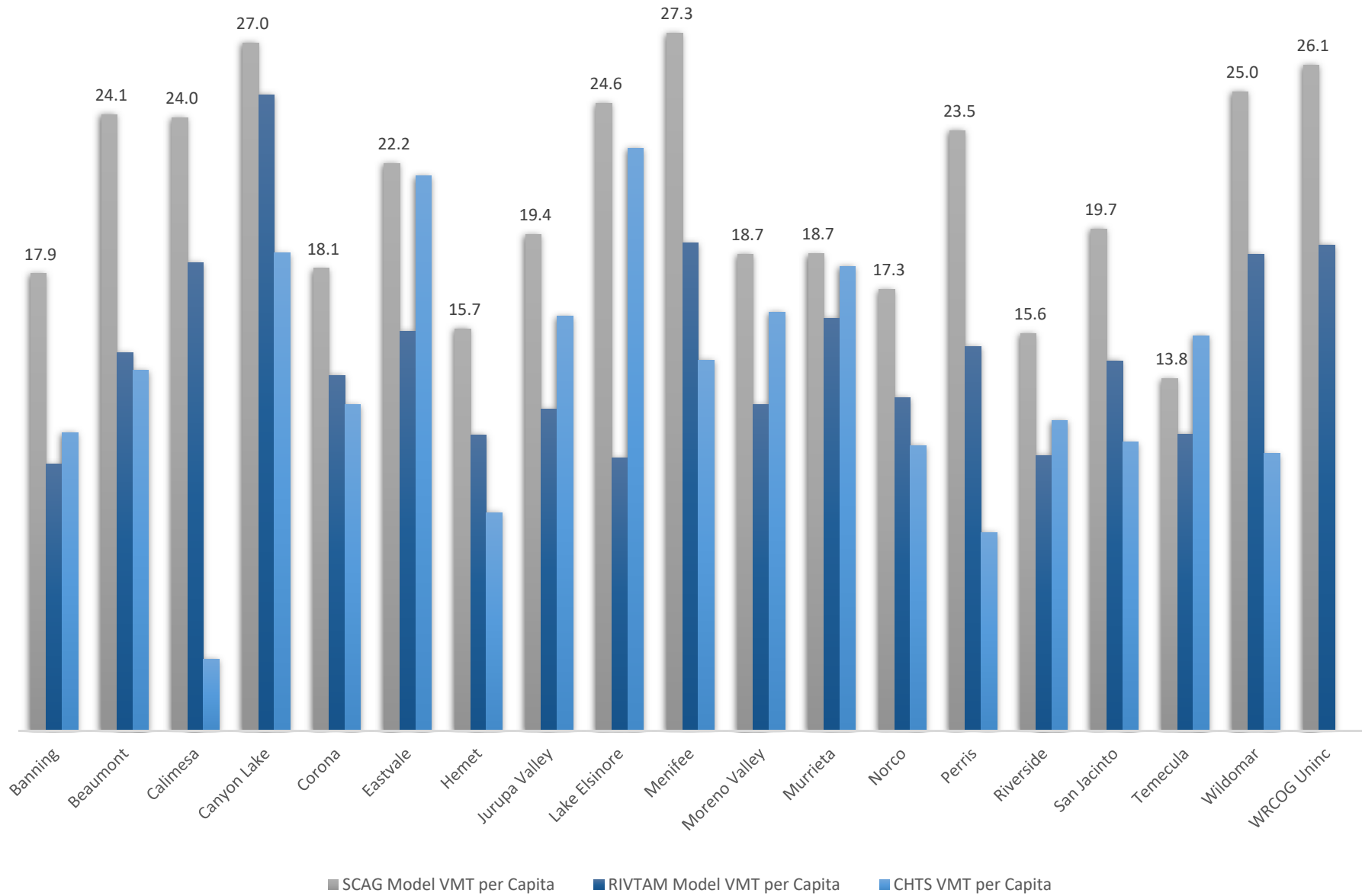


2012 Daily Total VMT per Service Population Model Comparison



DRAFT

2012 Household Generated VMT per Capita



Tools Assessment

TECHNICAL MEMORANDUM

Date: 8.20.18

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

From: Ronald T. Milam, AICP, PTP and Jason Pack, PE

Subject: Review and Assessment of Existing Planning/Travel Demand Tools for SB 743 OC18-0567

This technical memorandum presents a review of existing sketch planning tools and travel demand forecasting models available for SB 743 VMT analysis in the WRCOG region. We identified three travel forecasting models and 11 sketch planning tools that produce VMT forecasts or test VMT reduction strategies. However, SB 743 has an additional requirement that limits which models or tools are potentially acceptable for VMT analysis. The *Technical Advisory on Evaluating Transportation Impacts in CEQA*, State of California, Governor's Office of Planning and Research, April 2018 contains the following specification for models and methodologies.

Models and methodologies used to calculate thresholds, estimate project VMT, and estimate VMT reduction due to mitigation should be comparable. For example:

- *A tour-based assessment of project VMT should be compared to a tour-based threshold, or a trip-based assessment to a trip-based VMT threshold.*
- *Where a travel demand model is used to determine thresholds, the same model should also be used to provide trip lengths as part of assessing project VMT.*
- *Where only trip-based estimates of VMT reduction from mitigation are available, a trip-based threshold should be used, and project VMT should be assessed in a trip-based manner.*

Presuming that WRCOG member agencies will rely on the RIVTAM or SCAG travel forecasting models to establish VMT thresholds, then these models (or their inputs/outputs) would need to be used for project analysis. As a result, current sketch tools would not be used to estimate VMT for SB 743 purposes. Instead, these tools would largely be used for testing VMT mitigation measures such as transportation demand management (TDM) strategies.

Travel Forecasting Models

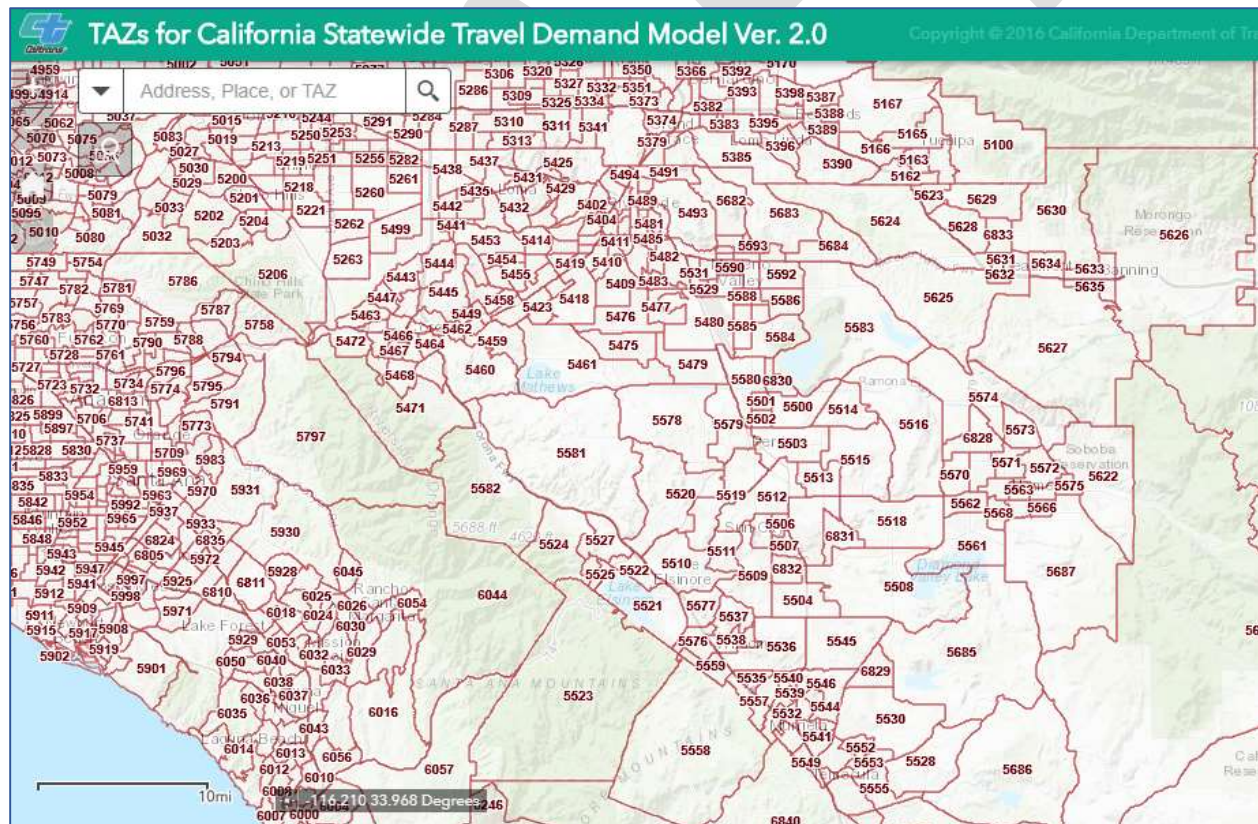
Three travel forecasting models are available for VMT forecasting in the WRCOG region including the California Statewide Travel Demand Model (CSTDm), the SCAG travel forecasting model, and the RIVAM travel forecasting model. The CSTDm was developed by Caltrans and produces passenger travel demand forecasts. Details about the model can be found at the following website.

- http://www.dot.ca.gov/hq/tpp/offices/omsp/statewide_modeling/cstdm.html

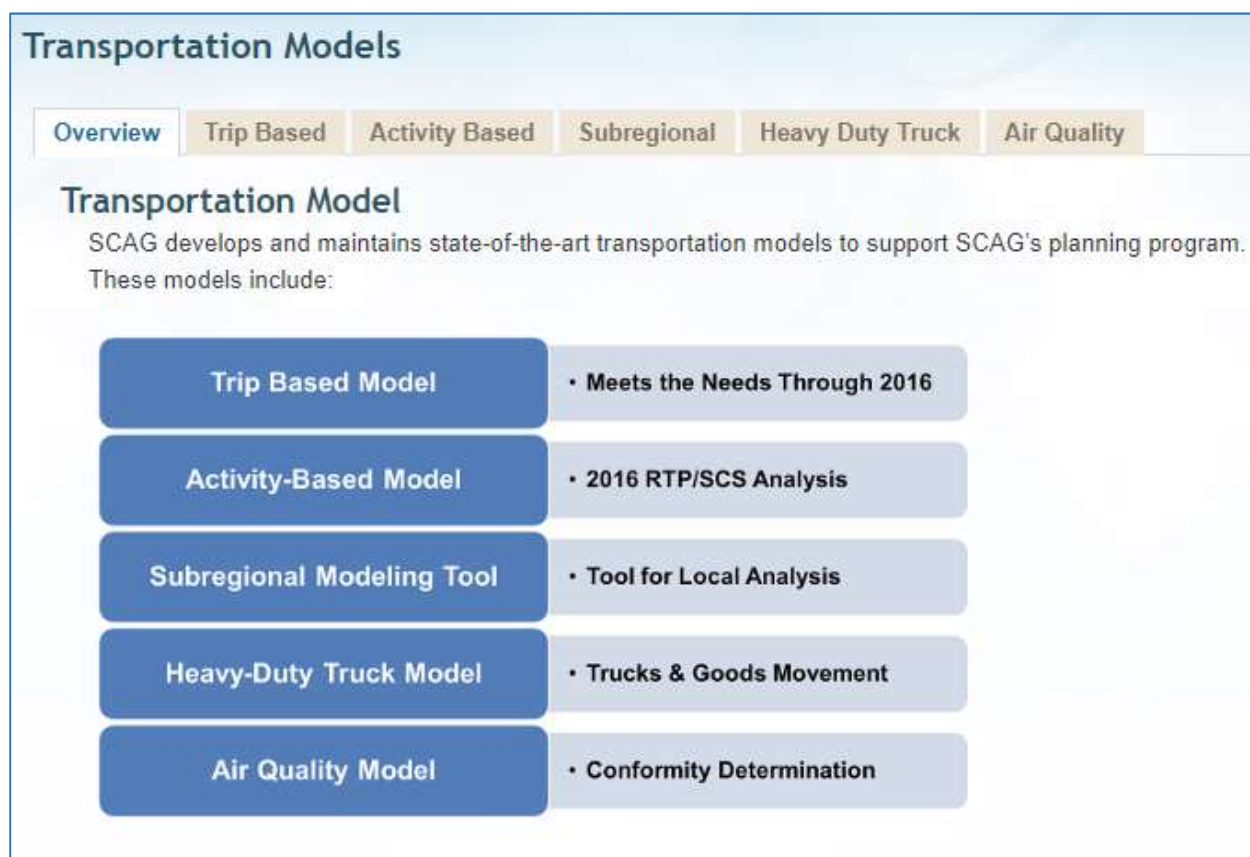
In addition, Caltrans has produced VMT output data by traffic analysis zone (TAZ) for purposes of SB 743 implementation and that data can be accessed at the following website.

- <http://www.dot.ca.gov/hq/tpp/offices/omsp/SB743.html>

As a statewide model, the level of detail for local project applications may not be sufficient to produce reasonable results since the model was not validated at a local scale. The traffic analysis zones (TAZs) are large as shown in the map excerpt below; so the resulting VMT outputs would have limited sensitivity to small scale land use projects and the influences of land use context.



SCAG has developed its own models for regional planning purposes including a trip-based model and an activity-based model (ABM). A variety of other models have also been created for specific purposes related to sub-regional modeling, heavy duty trucks, air quality, and scenario planning. As shown in the image below, SCAG is transitioning from the trip-based model, which was used for previous regional transportation plans/sustainable communities strategies (RTP/SCS) to the ABM for future versions.



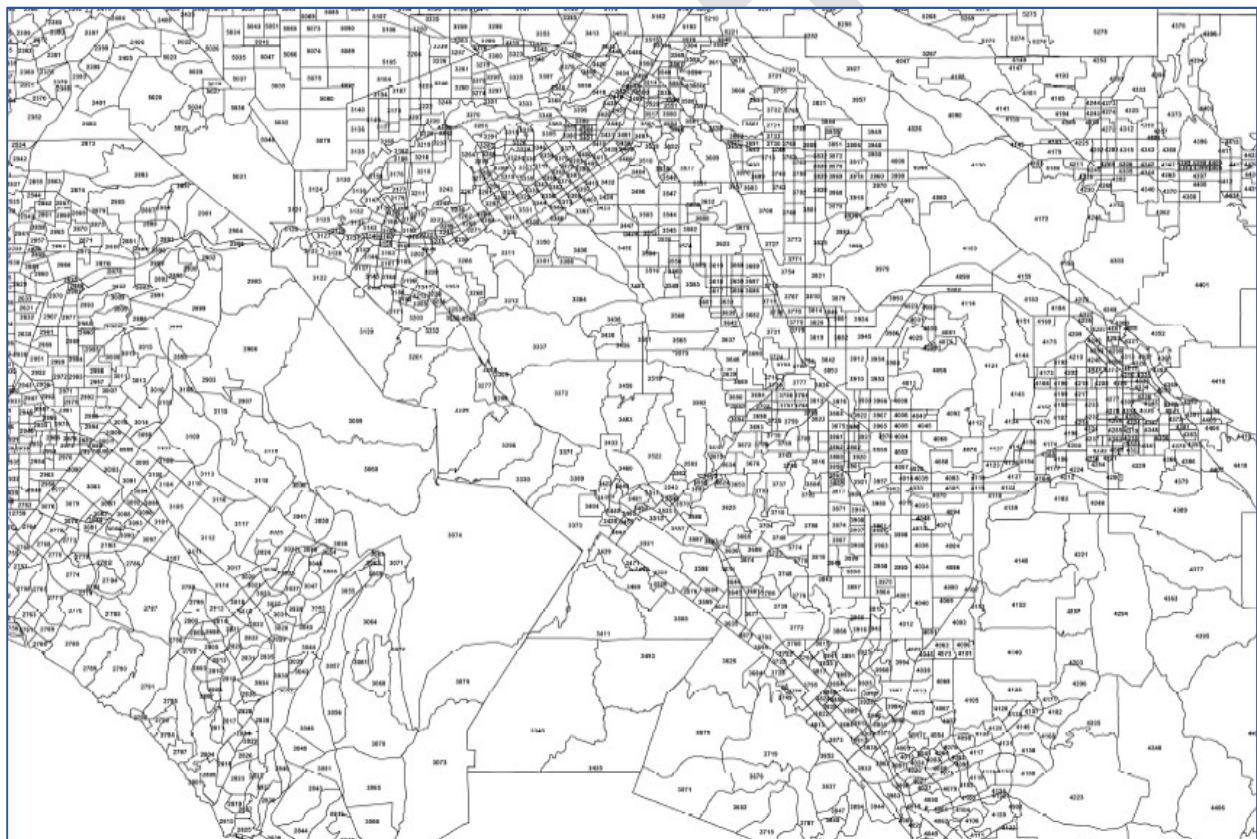
Transportation Models					
Overview	Trip Based	Activity Based	Subregional	Heavy Duty Truck	Air Quality
Transportation Model SCAG develops and maintains state-of-the-art transportation models to support SCAG's planning program. These models include:					
Trip Based Model	• Meets the Needs Through 2016				
Activity-Based Model	• 2016 RTP/SCS Analysis				
Subregional Modeling Tool	• Tool for Local Analysis				
Heavy-Duty Truck Model	• Trucks & Goods Movement				
Air Quality Model	• Conformity Determination				

The SCAG trip-based and ABM model outputs can be post-processed to produce total VMT estimates at the traffic analysis zone (TAZ) level or for any aggregation of TAZs. The ABM can also produce household generated VMT estimates. These estimates are limited to trips that have origins and destinations within the model boundary. Trips to or from external model origins and destinations are not included. The models are sensitive to built-environment effects and have been calibrated and validated to represent the SCAG region as explained in the model development documentation available at the following website.

- <http://www.scag.ca.gov/DataAndTools/Pages/TransportationModels.aspx>

Since Riverside County is located at the edge of the SCAG model area, some modifications to the models may be necessary to provide a full accounting of VMT effects as recommended in the OPR Technical Advisory for SB 743 implementation. The specific modifications would be to adjust the lengths of trips entering and exiting the model boundary area to capture their full travel distance and not just the distance they travel inside the model area.

The final model evaluated is the RIVTAM travel forecasting model, which represents a sub-area version of the SCAG model. RIVTAM was completed in May 2009 and includes a 2008 base year and a 2035 forecast year. The model was designed to provide a greater level of detail and sensitivity in Riverside County compared to regional SCAG model (see image below of the current TAZ system).



As part of an update to the TUMF program, a new 2012 base year was established and the forecast year was extended to 2040. A major update of the model was started in July of 2018 and will extend into 2019. The current and updated models will be capable of producing VMT estimates for each TAZ or larger areas. To provide the full-accounting of VMT that is recommended for SB 743, the current model outputs will likely need further refinements similar to those described above for the SCAG model. The updated model is anticipated to include these changes.

Sketch Planning Tools

This review evaluated 11 sketch model tools using the following criteria. We also incorporated information from reviews conducted through academic research by UC Davis and UC Berkeley.

1. **Defensibility** – How defensible is the use of this tool in terms of the accuracy of its outputs and frequency of use by other agencies.
2. **Sensitivity** - How sensitive is to the tool to the specific land use contexts and TDM strategies (e.g., does the tool allow the user to import details related to the context surrounding the project site and the proposed TDM mitigation measures).
3. **Utility** – How easy is the tool to use to evaluate VMT and TDM strategies.

The 11 sketch model tools reviewed are listed below:

- **CalEEMod** - is a statewide computer model designed to estimate emissions of criteria air pollutant and greenhouse gas (GHG) associated with land use projects. This model also provides VMT estimates that are a part of the emissions modeling process.
- **Sketch 7** - is a spreadsheet tool that estimates percent reductions to VMT based on the 7 Ds (i.e., density, diversity, distance, design, destination, demographics, and development scale).
- **VMT Impact Tool/Salon** – is a spreadsheet tool created by Deborah Salon at UC Davis for the California Air Resources Board that quantifies how much VMT will change in response to changes in land use and transportation system variables.
- **GreenTRIP Connect** - is an online tool for residential projects that allows users to evaluate the VMT and GHG emissions of their project and to test a limited set of built-in TDM strategies.
- **MXD/MXD+** - is a mixed-use development trip generation tool developed for U.S. EPA that adjusts ITE daily trip generation estimates to reflect built environment effects. MXD+ incorporates the ITE mixed-use trip generation method to produce a.m. and p.m. peak hour trip generation estimates for mixed use projects. To estimate VMT, the trip generation results from

MXD/MXD+ must be multiplied by trip lengths from observed data or regional/local travel forecasting models.

- **UrbanFootprint (UF)** - is a scenario planning tools that produces VMT estimates relying on the MXD trip generation methodology. Trip lengths are calculated within the model but do not reflect network-based routing. SCAG uses a version of UF as part of its sketch planning model.
- **Envision Tomorrow** - is a scenario planning tool that produces VMT estimates.
- **California Smart-Growth Trip Generation Adjustment Tool** – is a spreadsheet tool that provides the number of trips generated by land use projects implementing smart growth principles.
- **TRIMMS** – is a visual basic application spreadsheet model that estimates mode share and VMT changes brought about by a number of TDM strategies.
- **VMT+** - is a web-based application that estimates VMT and emissions using ITE trip rates and user-defined trip and land use inputs.
- **TDM+** - is a spreadsheet tool that estimates the percent reduction in VMT due to the implementation of one or many different TDM strategies identified in the *Quantifying Greenhouse Gas Mitigation Measures*, CAPCOA, 2010.

The matrix in Attachment A provides a summary of the tool review. Each of the sketch models reviewed, except for the CA Smart Growth Tool and MXD/MXD+, provide direct estimates of 'project generated VMT' or calculates the percent change in VMT. None of the models are capable of fully evaluating the 'project's effect on VMT' or evaluating cumulative VMT impacts. Only CalEEMod, GreenTRIP Connect, TRIMMS, and TDM+ evaluate the impacts of TDM strategies for VMT mitigation.

Tool Recommendations for WRCOG Member Jurisdictions

According to the OPR technical advisory, the tools used to evaluate VMT must be consistent with the methodology used to determine VMT thresholds. To maintain consistency between methods and thresholds, we do not recommend use the available sketch planning tools to estimate project-generated VMT for land use projects if thresholds are based on the RIVTAM or SCAG model. However, the sketch tools may be useful for evaluating the impacts of potential TDM strategies.

If an efficiency form of VMT (VMT per service population, VMT per resident, or VMT per employee) is selected as the metric that is used to define the VMT thresholds, then we would recommend the development of a customized screening and forecasting tool (i.e., web-app). This tool would reflect the

specific transportation and land use context of the WRCOG region by relying on RIVTAM model inputs and outputs. The tool could be used for the following assessment and forecasting steps.

- Identify the TAZ associated with the project location.
- Identify the Community Region of the project, based on the project's associated TAZ.
- Determine if the project meets screening criteria related to being located within a transit priority area (TPA).
- Determine if project meets screening criteria related to being located within a low VMT generating TAZ. This step would rely on the model's base year (or baseline) estimate of the TAZ VMT per service population and would compare that value to the proposed threshold measured at the jurisdictional or a reasonable sub-regional area (i.e., WRCOG or TUMF districts).
- Provide baseline and cumulative estimates of project generated VMT if the project fails to be screened out including VMT estimates for use in other sections of CEQA analysis, such as air quality, greenhouse gases, and energy based on TAZ VMT averages.

Tool setup would include running the base year and future year scenarios of the travel demand model to obtain VMT and land use data for each TAZ, jurisdiction, and reasonable sub-region. Key features of this tool are described in Table 1.

Feature	Description	Elements	Comments
Setup inputs	Parcel boundaries, TPA boundaries, and travel demand model data required to prepare tool for use	• Parcel boundaries • TPA boundaries • Model data for each TAZ, jurisdiction, TUMF district under base year and future year conditions: ○ TUMF districts ○ Jurisdiction boundaries ○ Land use, population, employment (and possibly students) ○ Total VMT ○ Total VMT per service population	Only needs to be updated when model is updated
Project inputs	Data required for each project	• Project baseline year (year Notice of Preparation is filed) • Land use, population, employment (and possibly students) • Is project consistent with General Plan? (yes/no) • Is project consistent with RTP/SCS? (yes/no) • Does the project consist exclusively of local serving retail uses with a total project size of less than 50,000 square feet? (yes/no)	
Tool outputs	Results provided for each project	• Does project satisfy screening criteria? If yes, basis for determination • Estimated project total VMT per service population (project baseline and future years) • Estimated project total VMT (project baseline and future years)	VMT estimates based on TAZ average

For evaluating the impacts of TDM strategies for VMT mitigation, CalEEMod, GreenTRIP Connect, and TDM+ are available sketch tools, but each as potential limitations. The data supporting the VMT reductions associated with the TDM strategies in these tools is largely derived from urban areas. Their application in suburban and especially rural areas may not be valid without a detailed assessment of how the strategy is affected by the background land use context. As to individual tool limitations, GreenTrip Connect only applies to residential projects with just a few TDM strategies. CalEEMod includes the TDM strategies from *Quantifying Greenhouse Gas Mitigation Strategies*, CAPCOA, 2010, but has operational issues noted in the tool review in Attachment A that can misrepresent project generated VMT. TDM+ also includes the CAPCOA strategies plus recent ARB research documented in the “SB 743 Implementation TDM Strategy Assessment,” June 11, 2018; however, this tool is proprietary and would need to be applied through Fehr & Peers.

ATTACHMENT A – Review of Available Sketch Models

DRAFT

ATTACHMENT A: SKETCH MODEL TOOL APPLICABILITY FINDINGS

Sketch Tool	Output	Defensibility	Sensitivity	Utility	Comments	User Experience: Benefits (UC Davis ¹)	User Experience: Drawbacks (UC Davis ¹)	Conclusions (UC Berkeley ²)	Conclusion
CalEEMod	VMT	++ Widespread use by air districts. Defensibility depends on use by others due to lack of documentation for trip lengths and known calculation problems.	+ Many parameters, but limited sensitivity to land use context, requires use of mitigation function to accurately represent mixed-use or infill projects, does not directly capture internalization, and mitigation function is not current or fully sensitive to TDM strategies.	++ Requires installation, which can cause errors due to older programming (not updated since 2016). Use of the tool is relatively straightforward but use of mitigation function is often necessary to accurately represent proposed projects.	CAPCOA/Trinity Consultants product, may not be able to make changes.	Many, customizable inputs; program interface reduces back-end error.	Many, customizable inputs; defaults and land use categories may misrepresent project and/or context area.	Easier data demands; difficult to determine location attributes, especially to avoid double counting; documentation did not provide enough guidance on method selection.	Not recommended for VMT calculations but could be used for TDM mitigation evaluation.
Sketch 7	% Change in VMT	+ Household (HH) VMT only. Hasn't been updated since 2012.	+ No internalization, no TDM reduction, no trip purpose. Produces % change in VMT, generic place types.	+ Must have regional travel demand model data as input.		Straightforward inputs & interface; system-level outputs; outputs include walk, bike, and transit trips.	Spreadsheet interface can become "buggy", break; regional TAZ data used to calibrate tool may be difficult to obtain.	[Not reviewed]	Not recommended.
VMT Impact Tool/Salon	% Change in VMT	+ HH VMT only	+ No internalization, no TDM reduction, no trip purpose.	+ Not intuitive as a project analysis tool.	Scenario testing for census tract level & above; not project-level.	[Not reviewed]	[Not reviewed]	[Not reviewed]	Not recommended.
GreenTRIP Connect	VMT; Change in VMT	+ HH VMT only	+ Affordable housing, TDM credit for 4 strategies,	++ Easy to use, but limited to residential land uses.	Would need to work with TransForm.	Simple user interface; straightforward outputs.	Measures only residential travel, even in mixed-use projects.	[Not reviewed]	Not recommended for VMT calculations, but could be used for TDM mitigation evaluation. Application in rural areas may not be valid.
UrbanFootprint	VMT	++ Uses MXD for trip generation. Trip lengths not based on observed data.	++ Many parameters. Sensitive to land use changes from adjacent parcels. No TDM reduction.	+ Robust tool but requires training to learn.	California acquired licenses for all cities and counties.	[Not reviewed]	[Not reviewed]	[Not reviewed]	Not recommended.
Envision Tomorrow	VMT	+ Added parameters diluted research.	++ Many parameters. No TDM reduction.	+ Open source, complex spreadsheet tool.	Primarily scenario planning; owned by Fregonese.	[Not reviewed]	[Not reviewed]	[Not reviewed]	Not recommended.
CA Smart Growth Tool	Trips	++	+ No trip purposes, no TDM reduction.	+		Few, intuitive inputs with direction of where to find them.	Calculates trips one land use at a time, and in limited context areas; calculates trips, not VMT.	[Not reviewed]	Not recommended.
TRIMMS	VMT	++ Used by SJCOG.	++ Includes TDM reductions for employees (not LU).	+	Has a few elements that do not exist in CAPCOA.	[Not reviewed]	[Not reviewed]	[Not reviewed]	Not recommended.
MXD/MXD+	Trips	+++	++ Many parameters, no TDM reduction.	++		Simple inputs categories; straightforward outputs.	Important input data may be difficult to find.	High data input demands; obtaining data required GIS capability. ³	Not recommended.
VMT+	VMT	+ Educational Tool.	+ Limited parameters.	++ Easy to use.		[Not reviewed]	[Not reviewed]	[Not reviewed]	Not recommended.
TDM+	% Change in VMT	+++ CAPCOA-based.	++	++	Only does TDM reductions; needs to be coupled with VMT estimator. Being updated based on new TDM research from ARB Net Zero Building Feasibility Study.	[Not reviewed]	[Not reviewed]	[Not reviewed]	Could be used for TDM mitigation evaluation. Application in rural areas may not be valid.
Sources: Fehr & Peers, 2018; UC Davis, 2017; UC Berkeley, 2018. Notes: + = lowest score, +++ = highest score ¹Amy Lee, Kevin Fang, and Susan Handy; "Evaluation of Sketch-Level Vehicle Miles Traveled (VMT) Quantification Tools," National Center for Sustainable Transportation, August 2017. ²Elisa Barbour, Dan Chatman, Sarah Doggett, Stella Yip, and Manuel Santana; "SB 743 implementation: Challenges and Opportunities [Draft Final]," June 5, 2018. ³Analysis based on earlier, public spreadsheet tool; more advanced proprietary versions available.									



2. Thresholds

Thresholds Assessment

TECHNICAL MEMORANDUM

Date: 10.31.18

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

From: Ronald T. Milam, AICP, PTP and Jason Pack, PE

Subject: SB 743 Implementation Thresholds Assessment

OC18-0567

This technical memorandum summarizes the consultant team assessment of potential VMT thresholds for land use projects and land use plans to comply with SB 743. For transportation projects, lead agencies have the discretion to select their own metrics and thresholds and no change to current practice is required. Hence, the remainder of this memo will focus on land use thresholds and is organized into four sections.

- Section 1 - Background on CEQA Thresholds
- Section 2 - OPR VMT Threshold Recommendations
- Section 3 - Lead Agency Discretion in Setting VMT Thresholds
- Section 4 - Recommendations for WRCOG member agencies

This memo was prepared with input from Remy Moose Manley. Their role focused on key questions associated with Sections 3 and 4.

Section 1 – Background on CEQA Thresholds

Establishing thresholds requires complying with the new statutes added by SB 743 as well as traditional guidance contained in CEQA Guidelines Section 15064.7 and new language being proposed as part of the *Proposed Updates to the CEQA Guidelines*, November 2017, California Governor's Office of Planning and Research (see excerpts below).

§ 15064. Determining the Significance of the Environmental Effects Caused by a Project

(a) Determining whether a project may have a significant effect plays a critical role in the CEQA process.

(1) If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, the agency shall prepare a draft EIR.

(2) When a final EIR identifies one or more significant effects, the lead agency and each responsible agency shall make a finding under Section 15091 for each significant effect and may need to make a statement of overriding considerations under Section 15093 for the project.

(b) **(1)** The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting. For example, an activity which may not be significant in an urban area may be significant in a rural area.

(2) Thresholds of significance, as defined in Section 15064.7(a), may assist lead agencies in determining whether a project may cause a significant impact. When using a threshold, the lead agency should briefly explain how compliance with the threshold means that the project's impacts are less than significant and describe the substantial evidence supporting that conclusion. Compliance with the threshold does not relieve a lead agency of the obligation to consider substantial evidence indicating that the project's environmental effects may still be significant.

Proposed Updates to the CEQA Guidelines, July 2, 2018, California Natural Resources Agency
<http://resources.ca.gov/ceqa/>

§ 15064.7. Thresholds of Significance

(a) ~~Each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects.~~ A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant.

(b) Each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects. Thresholds of significance to be adopted for general use as part of the lead agency's environmental review process must be adopted by ordinance, resolution, rule, or regulation, and developed through a public review process and be supported by substantial evidence. Lead agencies may also use thresholds on a case-by-case basis as provided in Section 15064(b)(2).

(c) When adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.

(d) Using environmental standards as thresholds of significance promotes consistency in significance determinations and integrates environmental review with other environmental program planning and regulation. Any public agency may adopt or use an environmental standard as a threshold of significance. In adopting or using an environmental standard as a threshold of significance, a public agency shall explain how the particular requirements of that environmental standard ~~avoid~~ reduce project impacts, including cumulative impacts, to a level that is less than significant, and why the environmental standard is relevant to the analysis of the project under consideration. For the purposes of this subdivision, an "environmental standard" is a rule of general application that is adopted by a public agency through a public review process and that is all of the following:

(1) a quantitative, qualitative or performance requirement found in an ordinance, resolution, rule, regulation, order, plan or other environmental requirement;

(2) adopted for the purpose of environmental protection;

(3) addresses the environmental effect caused by the project; and,

(4) applies to the project under review.

Proposed Updates to the CEQA Guidelines, July 2, 2018, California Natural Resources Agency
<http://resources.ca.gov/ceqa/>

In summary, this threshold setting guidance emphasizes the need to use substantial evidence to help determine when a project will cause an unacceptable environmental condition or outcome. For SB 743, the specific outcome of focus is the change a project will cause in vehicle miles of travel (VMT). Since VMT is already used to determine air quality, energy, and greenhouse gas (GHG) impacts as part of CEQA compliance, the challenge for lead agencies is to answer the question, **“What type or amount of change in VMT constitutes a significant impact solely for transportation purposes?”**

Section 2 - OPR VMT Threshold Recommendations

SB 743 includes the following two legislative intent statements, which were used to help guide OPR’s VMT threshold decisions.

- 1) *Ensure that the environmental impacts of traffic, such as noise, air pollution, and safety concerns, continue to be properly addressed and mitigated through the California Environmental Quality Act.*
- 2) *More appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions.*

The threshold recommendations are found in the *Proposed Updates to the CEQA Guidelines* and the *Technical Advisory*. Specific excerpts and threshold highlights are provided below.

Proposed CEQA Guidelines Section 15064.3

(b) Criteria for Analyzing Transportation Impacts.

(1) Land Use Projects. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact.

(2) Transportation Projects. Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, a lead agency may tier from that analysis as provided in Section 15152.

Technical Advisory on Evaluating Transportation Impacts in CEQA (page 8)

*Based on OPR's extensive review of the applicable research and literature on this topic, OPR finds that in most instances a per capita or per employee VMT that is **fifteen percent below that of existing development may be a reasonable threshold.***

Technical Advisory on Evaluating Transportation Impacts in CEQA – Rural Projects Outside of MPOs (page 15)

In rural areas of non-MPO counties (i.e., areas not near established or incorporated cities or towns), fewer options may be available for reducing VMT, and significance thresholds may be best determined on a case-by-case basis. Note, however, that clustered small towns and small town main streets may have substantial VMT benefits compared to isolated rural development, similar to the transit oriented development described above.

These (and the other) threshold recommendations in the *Technical Advisory* rely on the following evidence associated with the state's GHG reduction goals and targets in combination with environmental case law.

- Assembly Bill 32 (2006) requires statewide greenhouse gas reductions to 1990 levels by 2020 and continued reductions beyond 2020.
- Senate Bill 32 (2016) requires at least a 40 percent reduction in greenhouse gas emissions by 2030.
- Pursuant to Senate Bill 375 (2008), the California Air Resources Board establishes greenhouse gas reduction targets for metropolitan planning organizations (MPOs) to achieve based on land use patterns and transportation systems specified in Regional Transportation Plans and Sustainable Community Strategies. Current targets for the largest metropolitan planning organizations range from 13% to 16% reductions by 2035.
- Executive Order B-30-15 (2015) sets a GHG emissions reduction target of 40 percent below 1990 levels by 2030.
- Executive Order S-3-05 (2005) sets a GHG emissions reduction target of 80 percent below 1990 levels by 2050.
- Executive Order B-16-12 (2012) specifies a GHG emissions reduction target of 80 percent below 1990 levels by 2050 specifically for transportation.
- Senate Bill 391 requires the California Transportation Plan to support 80 percent reduction in GHGs below 1990 levels by 2050.
- The California Air Resources Board Mobile Source Strategy (2016) describes California's strategy for containing air pollutant emissions from vehicles and quantifies VMT growth compatible with achieving state targets.
- The California Air Resources Board's 2017 Climate Change Scoping Plan Update: The Strategy for Achieving California's 2030 Greenhouse Gas Target describes California's strategy for containing

greenhouse gas emissions from vehicles and quantifies VMT growth compatible with achieving state targets.

- The Caltrans Strategic Management Plan (2015) calls for a 15 percent reduction in VMT per capita compared to 2010 levels, by 2020.

Lead agencies should note that the OPR recommended VMT thresholds are almost exclusively based on GHG reduction goals. While this is one of the SB 743 legislative intent objectives, a less clear connection is made to the other legislative intent objectives to encourage infill development and promote active transportation. And, as noted above, GHG impacts are already addressed in another CEQA section.

Another important distinction within the Technical Advisory is how projects within different land use contexts are treated. The general expectation that a 15 percent reduction below that of existing development may be reasonable is proposed for projects within metropolitan planning organizations (MPOs). For rural areas outside MPOs, the Technical Advisory recognizes that VMT mitigation options are limited so thresholds may need to be set on a case-by-case basis.

The recognition that land use context matters when it comes to the potential VMT mitigation options and effectiveness is important. The MPO boundary distinction is not relevant to the feasibility of VMT mitigation. A rural or suburban area inside or outside an MPO boundary will have very similar limitations when it comes to the feasibility of VMT reduction options. As such, land use context and not MPO status should be the defining criteria for setting threshold expectations.

The *Technical Advisory* makes specific VMT threshold recommendations for analyzing the impact of project generated VMT on baseline conditions. Cumulative impacts are not directly addressed in the *Technical Advisory*. However, it does recommend that VMT analysis consider a project's long-term effects on VMT and whether the project is consistent with the applicable regional transportation plan/sustainable community strategy (RTP/SCS). These recommendations raise key questions for lead agencies addressed in the next section.

Section 3 - Lead Agency Discretion in Setting VMT Thresholds

Until SB 743, the CEQA Guidelines Section 15064.7 allowed lead agencies the discretion to select their own transportation metrics and thresholds although substantial evidence was required to support their decisions. SB 743 takes the 'metric' choice away by requiring VMT. As to thresholds, additional questions have arisen as listed below.

Question 1 - Do lead agencies have discretion to set a different VMT threshold than recommended by OPR?

Question 2 - Do lead agencies need to establish VMT thresholds for cumulative impacts?

Question 3 - Do lead agencies need to use the same VMT methodology for setting thresholds and for conducting project VMT forecasts?

The first two questions require a legal perspective, so the project team requested input from Remy Moose Manley, which is one of the most recognized law firms in California when it comes to CEQA legal issues. Their full opinion is contained in Attachment A while a summary of their findings as augmented by other project team members is presented below.

Question 1 Response – Setting a threshold lower than the 15-percent reduction recommended by OPR in their *Technical Advisory* is likely legally defensible, so long as the threshold is supported by substantial evidence. This opinion is based mainly on the fact that the 15-percent reduction is not included in the statute or the proposed CEQA Guidelines; rather it is only included in OPR's *Technical Advisory*. A reasonable interpretation of Section 21099, subdivision (e) that only allows lead agencies to set thresholds that are more protective of the environment is that it only refers to the statute itself, and perhaps also the CEQA Guidelines that the Legislature directed OPR to develop, as those are the only thresholds of significance that are referred to in the statute. Additional evidence allowing for a lower threshold is also found in the discussion above about the recognition of land use context influencing the feasibility of VMT reduction. Other substantial evidence supporting the limitations of VMT mitigation based on land use context can also be found in *Quantifying Greenhouse Gas Mitigation Measures*, CAPCOA, 2010 and upcoming updates to this information from ARB based on their [Zero-Carbon Buildings in California: A Feasibility Study](#).

Question 2 Response – Lead agencies should address VMT impacts in the cumulative context. The CEQA Guidelines (and the case law) are clear that consideration of cumulative impacts is key to CEQA compliance. That said, a separate quantitative threshold may not be required if the threshold applied for project-specific impacts is cumulative in nature. VMT thresholds based on an efficiency form of the metric such as VMT per capita, can address project and cumulative impacts in a similar manner that some air districts do for criteria pollutants and GHGs. Since VMT is a composite metric that will continue to be generated over time, a key consideration for cumulative scenarios is whether the rate of VMT generation gets better or worse in the long-term. If the rate is trending down over time consistent with expectations for air pollutant and GHGs, then the project level analysis may suffice.

For some projects, measuring project generated VMT though will only tell part of the impact story. Measuring the 'project's effect on VMT' may be necessary especially under cumulative conditions to fully explain the project's impact. This occurs because of the nature of discretionary land use decisions. Cities and counties influence land supply through changes to general plan land use designations and zoning for parcels. These changes rarely, if ever, influence the long-term amounts of regional population and employment growth. Viewed through this lens, a full disclosure of VMT effects requires capturing how a project may influence the VMT generated by the project and nearby land uses. Also, some mitigation strategies that improve walking, bicycling, or transit to/from the project site can also reduce VMT from neighboring land uses (i.e., installing a bike share station on the project site would influence the riding behavior of project residents and those living and working nearby).

Question 3 Response – Lead agencies need to use consistent methods when forecasting VMT for threshold setting and project analysis to ensure an apples-to-apples comparison for identifying potential impacts. The project team has confirmed through case study comparisons that failure to comply with this *Technical Advisory* recommendation can lead to erroneous impact conclusions.

Section 4 - Recommendations for WRCOG member agencies

So how should lead agencies approach VMT threshold setting given their discretion? Since an impact under CEQA begins with a change to the existing environment, a starting level for potential thresholds would be the baseline (i.e., existing condition) VMT, VMT per capita, VMT per employee, or VMT per service population. Since VMT will increase or fluctuate with population and employment growth, changes in economic activity, and expansion of new vehicle travel choices (i.e., Uber, Lyft, Chariot, autonomous vehicles, etc.), expressing VMT measurement in an efficiency metric form allows for more direct comparisons to baseline conditions when it comes to land use projects, land use plans, and transportation projects. Establishing a threshold such as baseline VMT per service population would be essentially setting an expectation that future land uses perform similar to existing land uses. If this is the floor, then expectations for VMT reduction can increase depending on a community's values related to vehicle use and its associated effects on mobility, economic activity, and environmental consequences. Working towards the 15-percent reduction recommended in the *Technical Advisory* becomes more feasible as the land use context becomes more urban with higher densities and high-quality transit systems. In central cities, the 15-percent reduction can be surpassed because of the close proximity of land uses and the multiple options for accessing destinations by walking, using bicycles or scooters, sharing vehicles, and using transit.

While OPR has developed specific VMT impact thresholds for project-related impacts, current practice has not sufficiently evolved where a clear line can be drawn between 'acceptable' and 'unacceptable' levels of

VMT change for the sole purpose of determining a significant transportation impact especially when considering land use context. Until SB 743, VMT changes were viewed through an environmental lens that focused on the relationship to fuel consumption and emissions. For transportation purposes, VMT has traditionally been used to evaluate whether land use or transportation decisions resulted in greater dependency on vehicle travel. Trying to determine whether a portion of someone's daily vehicle travel is unacceptable or would constitute a significant transportation impact is generally not clear to lead agencies.

Another consideration in threshold setting is how to address cumulative VMT impacts and whether addressing them in the general plan EIR is advantageous for streamlining the review of subsequent land use and transportation projects given CEQA relief available through SB 375 or CEQA Guidelines Section 15183. This section of the Guidelines relieves a project of additional environmental review if the environmental impact was adequately addressed in the general plan EIR and the project is consistent with the general plan (see below).

15183. PROJECTS CONSISTENT WITH A COMMUNITY PLAN OR ZONING

(a) CEQA mandates that projects which are consistent with the development density established by existing zoning, community plan, or general plan policies for which an EIR was certified shall not require additional environmental review, except as might be necessary to examine whether there are project-specific significant effects which are peculiar to the project or its site. This streamlines the review of such projects and reduces the need to prepare repetitive environmental studies.

The use of Section 15183 also addresses cumulative impacts as acknowledged in Section 15130(e).

15130. DISCUSSION OF CUMULATIVE IMPACTS

(e) If a cumulative impact was adequately addressed in a prior EIR for a community plan, zoning action, or general plan, and the project is consistent with that plan or action, then an EIR for such a project should not further analyze that cumulative impact, as provided in Section 15183(j).

For cities in the WRCOG region, addressing VMT impacts in general plan EIRs could be useful in understanding how VMT reduction should be balanced against other community values when it comes to setting new VMT impact thresholds for SB 743.

Given this information, lead agencies have at least four options for setting thresholds as outlined below. Under any option, the lead agency must develop its own substantial evidence to support their preferred threshold and should consider multiple perspectives. These perspectives include those from the community in general as well as specific stakeholder perspectives from the development community and environmental protection groups. A threshold that is too stringent could lead to a permanent significant and unavoidable VMT impact finding increasing the cost of environmental review for developers. Conversely, a threshold that does not result in any significant impacts could lead to missed opportunities

to reasonably reduce VMT and related environmental impacts. In either case, attracting the attention of specific stakeholder groups can lead to CEQA challenges, which are often determined based on the strength of substantial evidence supporting lead agency decisions.

OPTION 1 – Rely on the OPR Technical Advisory Thresholds

The first option is to simply rely on the threshold recommendations contained in the OPR Technical Advisory. As noted above, the general expectation is that land use projects should be measured against a 15 percent reduction below that of existing development. Specific VMT thresholds for residential, office (work-related), and retail land uses are summarized below.

- Residential projects – A proposed project exceeding a level of 15 percent below existing (baseline) VMT per capita may indicate a significant transportation impact. Existing VMT per capita may be measured as regional VMT per capita or as city VMT per capita.
- Office projects – A proposed project exceeding a level of 15 percent below existing (baseline) regional VMT per employee may indicate a significant transportation impact.
- Retail projects – A net increase in total VMT may indicate a significant transportation impact.

For land use plans, the general expectation is to be consistent with the RTP/SCS.

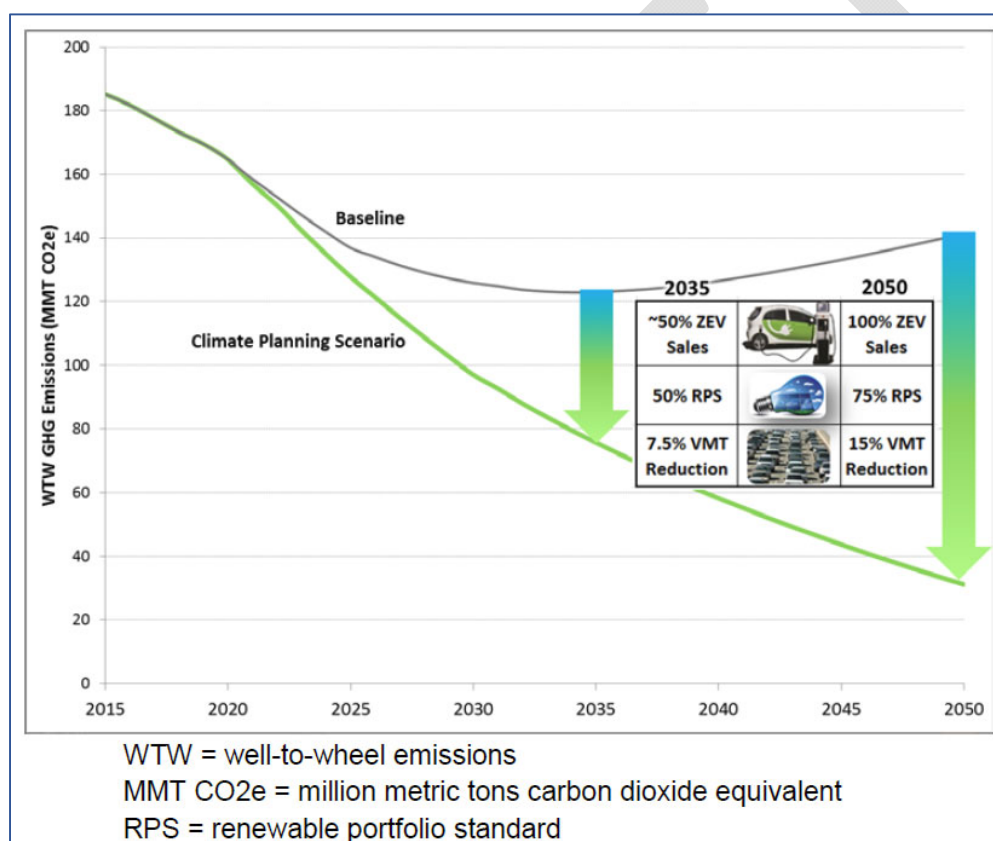
A potential limitation of the OPR recommendations is that the substantial evidence used to justify the thresholds is largely based on the state's air quality and GHG goals. Since air quality and GHG impact analysis in environmental documents should already address the influence of VMT, the thresholds do not directly reflect expectations related to the other SB 743 objectives to promote multimodal networks and mixed/infill land uses. Further, state expectations for air quality and GHG may not align with local/lead agency expectations.

OPTION 2 – Set Thresholds Consistent with Lead Agency Air Quality, GHG Reduction, and Energy Conservation Goals

This option sets a threshold consistent with a lead agency's air quality, GHG reduction, and energy conservation goals. This approach requires that local air quality and GHG reduction goals in general plans, climate action plans, or GHG reduction plans comply with the legislation and associated plans described above on pages 5 and 6. In general, most of the expectations set through legislation are related to the state's GHG reduction goals that were originally captured in EO S-3-05.

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

SB 32 expanded on these goals and added the expectation that the state should reach 40 percent below 1990 levels by 2030 followed by SB 391 that requires the California Transportation Plan to support 80 percent reduction in GHGs below 1990 levels by 2050. With respect to the land use and transportation sectors, SB 375 tasked ARB with setting specific GHG reduction goals through the RTP/SCSs prepared by MPOs. The ARB *Scoping Plan* and *Mobile Source Strategy* provide analysis related to how the state can achieve the legislative and executive goals while the Caltrans *Strategic Management Plan* and *Smart Mobility Framework* provide supportive guidance and metrics. An important recognition of the ARB *Scoping Plan* and *Mobile Source Strategy* is that the initial SB 375 targets were not aggressive enough. The state needs to achieve a reduction of 7 percent below projected 2030 VMT levels and 15 percent below projected 2050 VMT levels associated with the first round of RTP/SCSs (see chart below).



Statewide On-Road GHG Emissions

Source: https://www.arb.ca.gov/cc/sb375/final_staff_proposal_sb375_target_update_october_2017.pdf (pg. 12)

Note that the baseline trend in the chart did not consider key disruptive trends such as transportation network companies (TNCs) and autonomous vehicles (AVs) so it is possible that baseline VMT may be higher. Further, the climate planning scenario did not consider the recently issued Governor's Executive Order (EO) B-55-18 that establishes the goal to achieve carbon neutrality no later than 2045.

Consideration of these factors would increase the level of VMT reduction needed to achieve the State's climate goals.

OPTION 3 – Set Thresholds Consistent with RTP/SCS Future Year VMT Projections by Jurisdiction or Sub-Region

VMT is a composite metric that is created as an output of combining a community's long-term population and growth projections with its long-term transportation network (i.e., the general plan). Other variables are also in play related to travel behavior, but land use changes and transportation network modifications are the items largely influenced or controlled by cities and counties. As such, every city and county unincorporated area within WRCOG already has a VMT growth budget. This is the amount of VMT that is forecast to be generated from their general plans combined with other travel behavior inputs for the region as captured in the RIVTAM or SCAG regional travel forecasting models as part of regional planning and the RTP/SCS. This VMT growth has already been 'approved' by the community, the region, and the state and could serve as the basis of a VMT threshold expressed as a VMT growth budget or as a VMT efficiency metric based on the future year VMT per capita, VMT per employee, or VMT per service population. The measurement of VMT could occur at the jurisdictional or sub-region (i.e., TUMF zones) level.

Potential limitations of this approach relate to model sensitivity. If a general plan includes policies or implementation programs designed to reduce VMT through transportation demand management (TDM) strategies, the regional models did not likely include these effects. Further, current regional models do not capture major disruptive trend effects such as TNCs, AVs, and internet shopping.

OPTION 4 – Set Thresholds Based on Baseline VMT Performance

As noted above, an impact under CEQA begins with a change to the existing or baseline environment. There are a range of approaches to using this starting point for VMT impact analysis. At one end of the spectrum is 'total daily VMT' generated under baseline conditions. Setting this value as the threshold for a jurisdiction basically creates a budget where any increase would be a significant impact. Alternatively, the baseline VMT per capita, VMT per employee, or VMT per service population could be used to establish an efficiency metric basis for impact evaluation. Using this form of VMT would mean that future land use projects would be expected to perform no worse than existing land use projects and only projects that cause an increase in the rate of VMT generation would cause significant impacts. Since VMT will increase or fluctuate with population and employment growth, changes in economic activity, and expansion of new vehicle travel choices (i.e., Uber, Lyft, Chariot, autonomous vehicles, etc.), expressing VMT measurement in an efficiency metric form allows for more direct comparisons to baseline conditions when it comes to land use projects, land use plans, and transportation projects.

Please review this information and let us know if you have any follow up questions.

ATTACHMENT A

DRAFT



REMY | MOOSE | MANLEY
LLP

CONFIDENTIAL – ATTORNEY/CLIENT PRIVILEGED

M E M O R A N D U M

To: Ron Milam,
on behalf of WRCOG

From: Tiffany Wright and Jim Moose

Date: May 28, 2018

Re: Questions re Establishing Thresholds for Vehicle Miles Travelled

Introduction

You asked us two questions about the interpretation of SB 743 and its application to WRCOG's development of thresholds of significance for VMT impacts.

1. Can lead agencies (within MPO areas) set VMT thresholds lower than the 15-percent reduction recommended by OPR in their Technical Advisory?
2. Do lead agencies need to establish VMT thresholds for cumulative impacts?

These questions are addressed in turn below.

- 1. Setting a threshold lower than the 15-percent reduction recommended by OPR in their Technical Advisory is likely legally defensible, so long as the threshold is supported by substantial evidence.**

SB 743 added Section 21099 to the Public Resources Code. That section directs OPR to prepare proposed revisions to the CEQA Guidelines “establishing criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.” (Pub. Resources Code, § 21099, subd. (b).)¹

¹ Section 21099, subdivision (b) goes on to provide that “[i]n developing the criteria, the office shall recommend potential metrics to measure transportation impacts that may include, but are not limited to vehicle miles traveled, vehicle miles traveled per capita,

Your question about whether an agency could set a threshold lower than the 15-percent reduction recommended by OPR in its Technical Advisory stems from Section 21099, subdivision (e), which provides that “[t]his section does not affect the authority of a public agency to establish or adopt thresholds of significance that are more protective of the environment.”

We do not believe that subdivision (e) would preclude an agency from establishing a threshold that is lower than the 15-percent reduction recommended by OPR in its Technical Advisory. Our view is based mainly on the fact that the 15-percent reduction is not included in the statute or the proposed CEQA Guidelines; rather it is only included in OPR’s Technical Advisory. A reasonable interpretation of Section 21099, subdivision (e) is that it only refers to the statute itself, and perhaps also the CEQA Guidelines that the Legislature directed OPR to develop, as those are the only thresholds of significance that are referred to in the statute.

As discussed above the statute only generally directs that any threshold shall “promote the reduction of greenhouse gas emission, the development of mulitmodal transportation networks, and a diversity of land uses.” Arguably then, based on the language of the statute, a quantitative threshold must be one that “promotes the reduction of greenhouse gas emissions.”

The Guideline proposed by OPR does not establish a particular threshold. Rather, it provides that “[g]enerally, vehicle miles travelled is the most appropriate measure of transportation impacts.” (Proposed CEQA Guidelines, § 15064.3, subd. (a).) For land use projects, the proposed Guideline provides that:

Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact.

automobile trip generation rates, or automobile trips generated. The office may also establish criteria for models used to analyze transportation impacts to ensure the models are accurate, reliable, and consistent with the intent of this section.”

The Guidelines, for the most part, carry the weight of law. Many case treated the Guidelines as having the effective authority of duly adopted regulations.² (See *Fall River Wild Trout Foundation v. County of Shasta* (1999) 70 Cal.App.4th 482, 490 [the Legislature “expressly authorized the Secretary of the Resources Agency to develop [the Guidelines] as an aid to agency implementation of CEQA,” and they should be accorded “great weight and should be respected by the courts”]; *Lee v. City of Lompoc* (1993) 14 Cal.App.4th 1515, 1523 [“There is a strong presumption that the administrative interpretation set forth in the Guidelines is consistent with legislative intent. [Citation.] The Guidelines are to be given ‘great weight’ in interpreting CEQA statutory provisions. [Citation.]”]; *Benton v. Bd. of Supervisors* (1991) 226 Cal.App.3d 1467, 1478-1479 [“Guidelines are binding on all public agencies”; the sole function of a court in reviewing the substance of the Guidelines “is to decide whether the [Resources Agency] reasonably interpreted the legislative mandate”].)

OPR’s Technical Advisories do not carry this weight of authority, however. While OPR does provide comment periods on its Technical Advisories, they are not subject to the full regulatory process that the Guidelines are. The Technical Advisory for SB 743 itself describes the limitations on the Technical Advisory’s enforceability, describing it as “advice and recommendations, which agencies and other entities may use at their discretion.” The Technical Advisory expressly provides that “This document should not be construed as legal advice.” (OPR, SB 743 Technical Advisory, p.1.)

For these reasons, it is our opinion that an agency may adopt a threshold for VMT that is a reduction lower than the 15 percent provided in the advisory. As a practical matter, however, the Technical Advisory has created something like a presumption that a 15-percent reduction is the appropriate standard. By citing to the California Air Resources Board’s 2017 Climate Change Scoping Plan and Mobile Source Strategy, and Caltrans’s Strategic Management Plan, OPR has provided substantial evidence that the 15-percent reduction target is appropriate and feasible.

WRCOG must therefore support any change from OPR’s recommendations with substantial evidence.

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² Other cases have referred to the Guidelines as “indications or outlines to be followed, allowing for flexibility of action.” (See, e.g., *Karlson v. City of Camarillo* (1980) 100 Cal.App.3d 789, 804–805 [Guidelines are “indications or outlines to be followed, allowing for flexibility of action”].)

2. Lead agencies should address VMT impacts in the cumulative context.

In your questions to us, you noted that while OPR has developed VMT impact thresholds for project-related impacts, the current guidance does not fully address cumulative impacts. And while the document recommends consistency with the relevant RTP/SCS, the CARB's 2017 Climate Change Scoping Plan and other documents make it clear that consistency with the RTP/SCS will not be enough for the state to make its climate change goals; further reductions in VMT will be necessary.

Neither Public Resources Code section 21099, nor the proposed CEQA Guidelines mention a threshold for cumulative VMT impacts. Nevertheless, the CEQA Guidelines (and the case law) are clear that consideration of cumulative impacts is key to CEQA compliance. (CEQA Guidelines, § 15130; *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 735.)

That said, WRCOG may not need to develop separate thresholds to be used for cumulative impacts. It may be that the threshold applied for project-specific impacts is cumulative in nature. For example, the 15-percent reduction recommended by OPR in its Technical Advisory is based on meeting California's 2050 greenhouse gas goals, and it takes into account reductions achieved by other sectors. There are other examples where a project-specific threshold also addresses cumulative impacts. This is the case for many quantitative thresholds recommended by air districts for criteria pollutants. Similarly, quantitative thresholds established by some air districts for greenhouse gas emissions are generally applied at the project level and cumulative level, since these types of emissions are, by their nature, cumulative.

For these reasons, we believe that certain types of VMT thresholds (efficiency thresholds on a per capita or per service population basis) will likely satisfy any requirement to consider cumulative impacts. Other types of thresholds, such as those based on a net change in VMT, would likely require additional consideration of cumulative impacts, although that consideration may not require a specific quantitative threshold.



3. Mitigation

TDM Strategies Evaluation

TECHNICAL MEMORANDUM

Date: 6.11.18

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

From: Ronald T. Milam, AICP, PTP and Jason Pack, PE

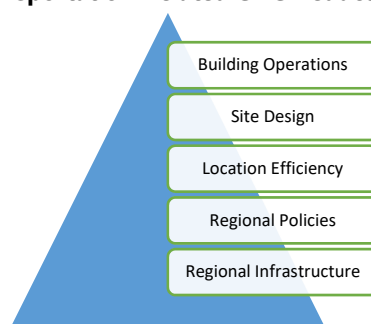
Subject: SB 743 Implementation TDM Strategy Assessment

OC18-0567

This technical memorandum summarizes our assessment of new research related to transportation demand management (TDM) effectiveness for reducing vehicle miles of travel (VMT). The purpose of this work was to compile new TDM information that has been published in research papers since release of the *Quantifying Greenhouse Gas Mitigation Measures*, CAPCOA, August 2010 and to identify those strategies suited to WRCOG jurisdictions given the rural and suburban land use context. The matrix in Attachment A summarizes the overall evaluation of all the CAPCOA strategies while the matrix in Attachment B identifies the top seven strategies suited for the study area.

This information can be used as part of the SB 743 implementation to determine potentially feasible VMT mitigation measures for individual land use projects in the WRCOG area. An important consideration for the mitigation effectiveness is the scale for TDM strategy implementation. The biggest effects of TDM strategies on VMT (and resultant emissions) derive from regional policies related to land use location efficiency and infrastructure investments that support transit, walking, and bicycling. While there are many measures that can influence VMT and emissions that relate to site design and building operations, they have smaller effects that are often dependent on final building tenants. **Figure 1** presents a conceptual illustration of the relative importance of scale.

Figure 1: Transportation-Related GHG Reduction Measures



Of the 50 transportation measures presented in the CAPCOA 2010 report *Quantifying Greenhouse Gas Mitigation Measures*, 41 are applicable at building and site level. The remaining nine are functions of, or depend on, site location and/ or actions by local and regional agencies or funders. **Table 1** summarizes the strategies according to the scope of implementation and the agents who would implement them.

TABLE 1: SUMMARY OF TRANSPORTATION-RELATED CAPCOA MEASURES

Scope	Agents	CAPCOA Strategies (see full CAPCOA list below)
Building Operations	Employer, Manager	26 total from five CAPCOA strategy groups: • 3 from 3.2 Site Enhancements group • 3 from 3.3 Parking Pricing Availability group • 15 from 3.4 Commute Trip Reduction group • 2 from 3.5 Transit Access group • 3 from 3.7 Vehicle Operations group
Site Design	Owner, Architect	15 total from three strategy groups: • 6 from 3.1 Land Use group • 6 from 3.2 Site Enhancements group • 1 from 3.3 Parking group • 2 from 3.6 Road Access group
Location Efficiency	Developer, Local Agency	3 shared with Regional and Local Policies
Alignment with Regional and Local Policies	Regional and local agencies	3 shared with Location Efficiency
Regional Infrastructure and Services	Regional and local agencies	6 total

Of these strategies, only a few are likely to be effective in a rural or suburban setting such as the WRCOG area. To help winnow the list, we reviewed how land use context could influence each strategy's effectiveness and identified the seven for more detailed review. These strategies are described in Attachment B and listed below. Please note that disruptive trends, including but not limited to, transportation network companies (TNCs), autonomous vehicles (AVs), internet shopping, and micro-transit may affect the future effectiveness of these strategies.

1. Increase diversity of land uses – This strategy focuses on inclusion of mixed uses within projects or in consideration of the surrounding area to minimize vehicle travel in terms of both the number of trips and the length of those trips.
2. Provide pedestrian network improvements – This strategy focuses on creating a pedestrian network within the project and connecting to nearby destinations. Projects in the WRCOG range in size. So the emphasis of this strategy for smaller projects would likely be the construction of network improvements that connect the project sites directly to nearby destinations. For larger

projects, this strategy could focus on the development of a robust pedestrian network within the project itself. Alternatively, implementation could occur through an impact fee program such as the TUMF or benefit/assessment district based on local or regional plans.

3. Provide traffic calming measures and low-stress bicycle network improvements – This strategy combines the CAPCOA research focused on traffic calming with new research on providing a low-stress bicycle network. Traffic calming creates networks with low vehicle speeds and volumes that are more conducive to walking and bicycling. Building a low-stress bicycle network produces a similar outcome. Implementation options are similar to strategy 2 above. One potential change in this strategy over time is that e-bikes (and e-scooters) could extend the effective range of travel on the bicycle network, which could enhance the effectiveness of this strategy.
4. Implement car-sharing program – This strategy reduces the need to own a vehicle or reduces the number of vehicles owned by a household by making it convenient to access a shared vehicle for those trips where vehicle use is essential. Note that implementation of this strategy would require regional or local agency implementation and coordination and would not likely be applicable for individual development projects.
5. Increase transit service frequency and speed – This strategy focuses on improving transit service convenience and travel time competitiveness with driving. While the WRCOG area has fixed route rail and bus service that could be enhanced, it's also possible that new forms of low-cost demand-responsive transit service could be provided. The demand-responsive service could be provided as subsidized trips by contracting to private TNCs or Taxi companies. Alternatively, a public transit operator could provide the subsidized service but would need to improve on traditional cost effectiveness by relying on TNC ride-hailing technology, using smaller vehicles sized to demand, and flexible driver employment terms where drivers are paid by trip versus by hour. This type of service would reduce wait times for travelers and improve the typical in-vehicle travel time compared to traditional transit. Note that implementation of this strategy would require regional or local agency implementation, substantial changes to current transit practices, and would not likely be applicable for individual development projects.
6. Encourage telecommuting and alternative work schedules – This strategy relies on effective internet access and speeds to individual project sites/buildings to provide the opportunity for telecommuting. The effectiveness of the strategy depends on the ultimate building tenants and this should be a factor in considering the potential VMT reduction.
7. Provide ride-sharing programs – This strategy focuses on encouraging carpooling and vanpooling by project site/building tenants and has similar limitations as strategy 6 above.

Because of the limitations noted above, strategies 1, 2, 3, 6, and 7 are initially considered the highest priorities for individual land use project mitigation subject to review and discussion with the project team and advisory committee. Please review this information and let us know if you have any follow up questions.

ATTACHMENT A

DRAFT

Comparison of CAPCOA Strategies Versus New Research Since 2010

CAPCOA Category	CAPCOA #	CAPCOA Strategy	CAPCOA Reduction	Strength of Substantial Evidence for CEQA Impact Analysis?	New Information Since CAPCOA Was Published in 2010		
					New information	Change in VMT reduction compared to CAPCOA	Literature or Evidence Cited
Land Use/Location	3.1.1	LUT-1 Increase Density	0.8% - 30% VMT reduction due to increase in density	Adequate	Increasing residential density is associated with lower VMT per capita. Increased residential density in areas with high jobs access may have a greater VMT change than increases in regions with lower jobs access. The range of reductions is based on a range of elasticities from -0.04 to -0.22. The low end of the reductions represents a -0.04 elasticity of demand in response to a 10% increase in residential units or employment density and a -0.22 elasticity in response to 50% increase to residential/employment density.	0.4% -10.75%	Primary sources: Boarnet, M. and Handy, S. (2014). Impacts of Residential Density on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm Secondary source: Stevens, M. (2017). Does Compact Development Make People Drive Less? Journal of the American Planning Association, 83(1), 7-18.
Land Use/Location	3.1.9	LUT-9 Improve Design of Development	3.0% - 21.3% reduction in VMT due to increasing intersection density vs. typical ITE suburban development	Adequate	No update to CAPCOA literature; advise applying CAPCOA measure only to large developments with significant internal street structure.	Same	N/A
Land Use/Location	3.1.4	LUT-4 Increase Destination Accessibility	6.7%-20% VMT reduction due to decrease in distance to major job center or downtown	Adequate	Reduction in VMT due to increased regional accessibility (jobs gravity). Locating new development in areas with good access to destinations reduces VMT by reducing trip lengths and making walking, biking, and transit trips more feasible. Destination accessibility is measured in terms of the number of jobs (or other attractions) reachable within a given travel time, which tends to be highest at central locations and lowest at peripheral ones.	0.5%-12%	Primary sources: Handy, S. et al. (2014). Impacts of Network Connectivity on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm Handy, S. et al. (2013). Impacts of Regional Accessibility on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm Secondary source: Holtzclaw, et al. (2002.) Location Efficiency: Neighborhood and Socioeconomic Characteristics Determine Auto Ownership and Use - Studies in Chicago, Los Angeles, and Chicago. Transportation Planning and Technology, Vol. 25, pp. 1-27.

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Land Use/ Location	3.1.3	LUT-3 Increase Diversity of Urban and Suburban Developments	9%-30% VMT reduction due to mixing land uses within a single development	Adequate	1) VMT reduction due to mix of land uses within a single development. Mixing land uses within a single development can decrease VMT (and resulting GHG emissions), since building users do not need to drive to meet all of their needs. 2) Reduction in VMT due to regional change in entropy index of diversity. Providing a mix of land uses within a single neighborhood can decrease VMT (and resulting GHG emissions), since trips between land use types are shorter and may be accommodated by non-auto modes of transport. For example when residential areas are in the same neighborhood as retail and office buildings, a resident does not need to travel outside of the neighborhood to meet his/her trip needs. At the regional level, reductions in VMT are measured in response to changes in the entropy index of land use diversity.	1) 0%-12% 2) 0.3%-4%	1) Ewing, R. and Cervero, R. (2010). Travel and the Built Environment - A Meta-Analysis. Journal of the American Planning Association, 76(3), 265-294. Cited in California Air Pollution Control Officers Association. (2010). Quantifying Greenhouse Gas Mitigation Measures. Retrieved from: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf Frank, L., Greenwald, M., Kavage, S. and Devlin, A. (2011). An Assessment of Urban Form and Pedestrian and Transit Improvements as an Integrated GHG Reduction Strategy. WSDOT Research Report WA-RD 765.1. Washington State Department of Transportation. Retrieved from: http://www.wsdot.wa.gov/research/reports/fullreports/765.1.pdf Nasri, A. and Zhang, L. (2012). Impact of Metropolitan-Level Built Environment on Travel Behavior. Transportation Research Record: Journal of the Transportation Research Board, 2323(1), 75-79. Sadek, A. et al. (2011). Reducing VMT through Smart Land-Use Design. New York State Energy Research and Development Authority. Retrieved from: https://www.dot.ny.gov/divisions/engineering/technical-services/trans-r-and-d-repository/C-08-29%20Final%20Report.December%202011%20%282%29.pdf Spears, S. et al. (2014). Impacts of Land-Use Mix on Passenger Vehicle Use and Greenhouse Gas Emissions- Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm 2) Zhang, Wengia et al. "Short- and Long-Term Effects of Land Use on Reducing Personal Vehicle Miles of Travel."
Land Use/ Location	3.1.5	LUT-5 Increase Transit Accessibility	0.5%-24.6% reduce in VMT due to locating a project near high-quality transit	Adequate	1) VMT reduction when transit station is provided within 1/2 mile of development (compared to VMT for sites located outside 1/2 mile radius of transit). Locating high density development within 1/2 mile of transit will facilitate the use of transit by people traveling to or from the Project site. The use of transit results in a mode shift and therefore reduced VMT. 2) Reduction in vehicle trips due to implementing TOD. A project with a residential/commercial center designed around a rail or bus station, is called a transit-oriented development (TOD). The project description should include, at a minimum, the following design features: • A transit station/stop with high-quality, high-frequency bus service located within a 5-10 minute walk (or roughly 1/4 mile from stop to edge of development), and/or • A rail station located within a 20 minute walk (or roughly 1/2 mile from station to edge of development) • Fast, frequent, and reliable transit service connecting to a high percentage of regional destinations • Neighborhood designed for walking and cycling	1) 0%-5.8% 2) 0%-7.3%	1) Lund, H. et al. (2004). Travel Characteristics of Transit-Oriented Development in California. Oakland, CA: Bay Area Rapid Transit District, Metropolitan Transportation Commission, and Caltrans. Tal, G. et al. (2013). Policy Brief on the Impacts of Transit Access (Distance to Transit) Based on a Review of the Empirical Literature. California Air Resources Board. Retrieved from: https://www.arb.ca.gov/cc/sb375/policies/transitaccess/transit_access_brief120313.pdf 2) Zamir, K. R. et al. (2014). Effects of Transit-Oriented Development on Trip Generation, Distribution, and Mode Share in Washington, D.C., and Baltimore, Maryland. Transportation Research Record: Journal of the Transportation Research Board. 2413, 45-53. DOI: 10.3141/2413-05

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Land Use/ Location	3.1.6	LUT-6 Integrate Affordable and Below Market Rate Housing	0.04%-1.20% reduction in VMT for making up to 30% of housing units BMR	Weak - Should only be used where supported by local data on affordable housing trip generation.	Observed trip generation indicates substantial local and regional variation in trip making behavior at affordable housing sites. Recommend use of ITE rates or local data for senior housing.	N/A	"Draft Memorandum: Infill and Complete Streets Study, Task 2.1: Local Trip Generation Study." Measuring the Miles: Developing new metrics for vehicle travel in LA. City of Los Angeles, April 19, 2017.
Neighborhood Site Enhancements	3.2.1	SDT-1 Provide Pedestrian Network Improvements	0%-2% reduction in VMT for creating a connected pedestrian network within the development and connecting to nearby destinations	Adequate	VMT reduction due to provision of complete pedestrian networks. Only applies if located in an area that may be prone to having a less robust sidewalk network.	0.5%-5.7%	Handy, S. et al. (2014). Impacts of Pedestrian Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm
Neighborhood Site Enhancements	3.2.2	SDT-2 Provide Traffic Calming Measures	0.25%-1% VMT reduction due to traffic calming on streets within and around the development	Adequate	Reduction in VMT due to expansion of bike networks in urban areas. Strategy only applies to bicycle facilities that provide a dedicated lane for bicyclists or a completely separated right-of-way for bicycles and pedestrians. Project-level definition: Enhance bicycle network citywide (or at similar scale), such that a building entrance or bicycle parking is within 200 yards walking or bicycling distance from a bicycle network that connects to at least one of the following: at least 10 diverse uses; a school or employment center, if the project total floor area is 50% or more residential; or a bus rapid transit stop, light or heavy rail station, commuter rail station, or ferry terminal. All destinations must be 3-mile bicycling distance from project site. Include educational campaigns to encourage bicycling.	0%-1.7%	Zahabi, S. et al. (2016). Exploring the link between the neighborhood typologies, bicycle infrastructure and commuting cycling over time and the potential impact on commuter GHG emissions. Transportation Research Part D: Transport and Environment. 47, 89-103.
Neighborhood Site Enhancements	3.2.3	SDT-3 Implement an NEV Network	0.5%-12.7% VMT reduction for GHG-emitting vehicles, depending on level of local NEV penetration	Weak - not recommended without supplemental data.	Limited evidence and highly limited applicability. Use with supplemental data only.	N/A	City of Lincoln, MHM Engineers & Surveyors, Neighborhood Electric Vehicle Transportation Program Final Report, Issued 04/05/05, and City of Lincoln, A Report to the California Legislature as required by Assembly Bill 2353, Neighborhood Electric Vehicle Transportation Plan Evaluation, January 1, 2008. Cited in: California Air Pollution Control Officers Association. (2010). Quantifying Greenhouse Gas Mitigation Measures. Retrieved from: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

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Neighborhood Site Enhancements	3.4.9	TRT-9 Implement Car-Sharing Program	0.4% - 0.7% VMT reduction due to lower vehicle ownership rates and general shift to non-driving modes	Adequate	Vehicle trip reduction due to car-sharing programs; reduction assumes 1%-5% penetration rate. Implementing car-sharing programs allows people to have on-demand access to a shared fleet of vehicles on an as-needed basis, as a supplement to trips made by non-SOV modes. Transit station-based programs focus on providing the "last-mile" solution and link transit with commuters' final destinations. Residential-based programs work to substitute entire household based trips. Employer-based programs provide a means for business/day trips for alternative mode commuters and provide a guaranteed ride home option. The reduction shown here assumes a 1%-5% penetration rate.	0.3%-1.6%	Lovejoy, K. et al. (2013). Impacts of Carsharing on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm Need to verify with more recent UCD research.
Parking Pricing	3.3.1	PDT-1 Limit Parking Supply	5%-12.5% VMT reduction in response to reduced parking supply vs. ITE parking generation rate	Weak - not recommended. Fehr & Peers has developed new estimates for residential land use only that may be used.	CAPCOA reduction range derived from estimate of reduced vehicle ownership, not supported by observed trip or VMT reductions. Evidence is available for mode shift due to presence/absence of parking in high-transit urban areas; additional investigation ongoing	Higher	Fehr & Peers estimated a linear regression formula based on observed data from multiple locations. Resulting equation produces maximum VMT reductions for residential land use only of 30% in suburban locations and 50% in urban locations based on parking supply percentage reductions.
Parking Pricing	3.3.2	PDT-2 Unbundle Parking Costs from Property Cost	2.6% -13% VMT reduction due to decreased vehicle ownership rates	Adequate - conditional on the agency not requiring parking minimums and pricing/managing on-street parking (i.e., residential parking permit districts, etc.).	Reduction in VMT, primarily for residential uses, based on range of elasticities for vehicle ownership in response to increased residential parking fees. Does not account for self-selection. Only applies if the city does not require parking minimums and if on-street parking is priced and managed (i.e., residential parking permit districts).	2%-12%	Victoria Transport Policy Institute (2009). Parking Requirement Impacts on Housing Affordability. Retrieved March 2010 from: http://www.vtpi.org/park-hou.pdf .

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Parking Pricing	3.3.3	PDT-3 Implement Market Price Public Parking	2.8%-5.5% VMT reduction due to "park once" behavior and disincentive to driving	Adequate	Implement a pricing strategy for parking by pricing all central business district/employment center/retail center on-street parking. It will be priced to encourage park once" behavior. The benefit of this measure above that of paid parking at the project only is that it deters parking spillover from project supplied parking to other public parking nearby, which undermine the vehicle miles traveled (VMT) benefits of project pricing. It may also generate sufficient area-wide mode shifts to justify increased transit service to the area. VMT reduction applies to VMT from visitor/customer trips only. Reductions higher than top end of range from CAPCOA report apply only in conditions with highly constrained on-street parking supply and lack of comparably-priced off-street parking.	2.8%-14.5%	Clinch, J.P. and Kelly, J.A. (2003). Temporal Variance Of Revealed Preference On-Street Parking Price Elasticity. Dublin: Department of Environmental Studies, University College Dublin. Retrieved from: http://www.ucd.ie/gpep/research/workingpapers/2004/04-02.pdf . Cited in Victoria Transport Policy Institute (2017). Transportation Elasticities: How Prices and Other Factors Affect Travel Behavior. Retrieved from: http://www.vtpi.org/tvm/tvm11.htm Hensher, D. and King, J. (2001). Parking Demand and Responsiveness to Supply, Price and Location in Sydney Central Business District. Transportation Research A. 35(3), 177-196. Millard-Ball, A. et al. (2013). Is the curb 80% full or 20% empty? Assessing the impacts of San Francisco's parking pricing experiment. Transportation Research Part A. 63(2014), 76-92. Shoup, D. (2011). The High Cost of Free Parking. APA Planners Press. p. 290. Cited in Pierce, G. and Shoup, D. (2013). Getting the Prices Right. Journal of the American Planning Association. 79(1), 67-81.
Transit System	3.5.3	TST-3 Expand Transit Network	0.1-8.2% VMT reduction in response to increase in transit network coverage	Adequate	Reduction in vehicle trips due to increased transit service hours or coverage. Low end of reduction is typical of project-level implementation (payment of impact fees and/or localized improvements).	0.1%-10.5%	Handy, S. et al. (2013). Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm
Transit System	3.5.4	TST-4 Increase Transit Service Frequency/Speed	0.02%-2.5% VMT reduction due to reduced headways and increased speed and reliability	Adequate	Reduction in vehicle trips due to increased transit frequency/decreased headway. Low end of reduction is typical of project-level implementation (payment of impact fees and/or localized improvements).	0.3%-6.3%	Handy, S. et al. (2013). Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm
Transit System	3.5.1	TST-1 Provide a Bus Rapid Transit System	0.02%-3.2% VMT reduction by converting standard bus system to BRT system	Adequate	No new information identified.	Same	N/A
Commute Trip Reduction	3.4.1	TRT-1 Implement CTR Program - Voluntary	1.0%-6.2% commute VMT reduction due to employer-based mode shift program	Adequate - Effectiveness is building/tenant specific. Do not use with "TRT-2 Implement CTR Program - Required Implementation/Monitoring" or with CAPCOA strategies TRT-3.4.3 through TRT-3.4.9.	Reduction in vehicle trips in response to employer-led TDM programs. The CTR program should include all of the following to apply the effectiveness reported by the literature: • Carpooling encouragement • Ride-matching assistance • Preferential carpool parking • Flexible work schedules for carpools • Half time transportation coordinator • Vanpool assistance • Bicycle end-trip facilities (parking, showers and lockers)	1.0%-6.0%	Boarnet, M. et al. (2014). Impacts of Employer-Based Trip Reduction Programs and Vanpools on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm
Commute Trip Reduction	3.4.2	TRT-2 Implement CTR Program - Required Implementation/Monitoring	4.2%-21.0% commute VMT reduction due to employer-based mode shift program with required monitoring and reporting	Adequate - Effectiveness is building/tenant specific. Do not use with "TRT-1 Implement CTR Program - Voluntary" or with CAPCOA strategies TRT-3.4.3 through TRT-3.4.9.	Limited evidence available. Anecdotal evidence shows high investment produces high VMT/vehicle trip reductions at employment sites with monitoring requirements and specific targets.	Same	Nelson/Nygaard (2008). South San Francisco Mode Share and Parking Report for Genentech, Inc.(p. 8) Cited in: California Air Pollution Control Officers Association. (2010). Quantifying Greenhouse Gas Mitigation Measures. Retrieved from: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

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Commute Trip Reduction	3.4.4	TRT-4 Implement Subsidized or Discounted Transit Program	0.3%-20% commute VMT reduction due to transit subsidy of up to \$6/day	Adequate - Effectiveness is building/tenant specific. Do not use with "TRT-1 Implement CTR Program - Voluntary" or "TRT-2 Implement CTR Program - Required Implementation/Monitoring."	1) Reduction in vehicle trips in response to reduced cost of transit use, assuming that 10-50% of new bus trips replace vehicle trips; 2) Reduction in commute trip VMT due to employee benefits that include transit 3) Reduction in all vehicle trips due to reduced transit fares system-wide, assuming 25% of new transit trips would have been vehicle trips.	1) 0.3%-14% 2) 0-16% 3) 0.1% to 6.9%	1) Victoria Transport Policy Institute. (2017). Understanding Transport Demands and Elasticities. Online TDM Encyclopedia. Retrieved from: http://www.vtpi.org/tdm/tdm11.htm 2) Carolina, P. et al. (2016). Do Employee Commuter Benefits Increase Transit Ridership? Evidence from the NY-NJ Region. Washington, DC: Transportation Research Board, 96th Annual Meeting. 3) Handy, S. et al. (2013). Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm
Commute Trip Reduction	3.4.15	TRT-15 Employee Parking Cash-Out	0.6%-7.7% commute VMT reduction due to implementing employee parking cash out	Weak - Effectiveness is building/tenant specific. Research data is over 10 years old (1997).	Shoup case studies indicate a reduction in commute vehicle trips due to implementing cash-out without implementing other trip-reduction strategies.	3%-7.7%	Shoup, D. (1997). Evaluating the Effects of Cashing Out Employer-Paid Parking: Eight Case Studies. Transport Policy. California Air Resources Board. Retrieved from: https://www.arb.ca.gov/research/apr/past/93-308a.pdf . This citation was listed as an alternative literature in CAPCOA.
Commute Trip Reduction	3.4.14	TRT-14 Price Workplace Parking	0.1%-19.7% commute VMT reduction due to mode shift	Adequate - Effectiveness is building/tenant specific.	Reduction in commute vehicle trips due to priced workplace parking; effectiveness depends on availability of alternative modes. Workplace parking pricing may include: explicitly charging for parking, implementing above market rate pricing, validating parking only for invited guests, not providing employee parking and transportation allowances, and educating employees about available alternatives.	0.5%-14%	Primary sources: Concas, S. and Nayak, N. (2012). A Meta-Analysis of Parking Price Elasticity. Washington, DC: Transportation Research Board, 2012 Annual Meeting. Dale, S. et al. (2016). Evaluating the Impact of a Workplace Parking Levy on Local Traffic Congestion: The Case of Nottingham UK. Washington, DC: Transportation Research Board, 96th Annual Meeting. Secondary sources: Victoria Transport Policy Institute. (2017). Understanding Transport Demands and Elasticities. Online TDM Encyclopedia. Retrieved from: http://www.vtpi.org/tdm/tdm11.htm Spears, S. et al. (2014). Impacts of Parking Pricing on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm
Commute Trip Reduction	3.4.6	TRT-6 Encourage Telecommuting and Alternative Work Schedules	0.07%-5.5% commute VMT reduction due to reduced commute trips	Adequate - Effectiveness is building/tenant specific. Do not use with "TRT-1 Implement CTR Program - Voluntary" or "TRT-2 Implement CTR Program - Required Implementation/Monitoring."	VMT reduction due to adoption of telecommuting. Alternative work schedules could take the form of staggered starting times, flexible schedules, or compressed work weeks.	0.2%-4.5%	Handy, S. et al. (2013). Policy Brief on the Impacts of Telecommuting Based on a Review of the Empirical Literature. California Air Resources Board. Retrieved from: https://www.arb.ca.gov/cc/sb375/policies/telecommuting/telecommuting_brief120313.pdf
Commute Trip Reduction	3.4.7	1) TRT-7 Implement CTR Marketing 2) Launch Targeted Behavioral Interventions	0.8%-4.0% commute VMT reduction due to employer marketing of alternatives	Adequate - Effectiveness is building/tenant specific. Do not use with "TRT-1 Implement CTR Program - Voluntary" or "TRT-2 Implement CTR Program - Required Implementation/Monitoring."	1) Vehicle trips reduction due to CTR marketing; 2) Reduction in VMT from institutional trips due to targeted behavioral intervention programs	1) 0.9% to 26% 2) 1%-6%	1) Pratt, Dick. Personal communication regarding the Draft of TCRP 95 Traveler Response to Transportation System Changes – Chapter 19 Employer and Institutional TDM Strategies. Transit Cooperative Research Program. Cited in California Air Pollution Control Officers Association. (2010). Quantifying Greenhouse Gas Mitigation Measures. Retrieved from: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf Dill, J. and Mohr, C. (2010). Long-Term Evaluation of Individualized Marketing Programs for Travel Demand Management. Portland, OR: Transportation Research and Education Center (TREC). Retrieved from: http://pdxscholar.library.pdx.edu/usp_fac 2) Brown, A. and Ralph, K. (2017). "The Right Time and Place to Change Travel Behavior: An Experimental Study." Washington, DC: Transportation Research Board, 2017 Annual Meeting. Retrieved from: https://trid.trb.org/view.aspx?id=1437253
Commute Trip Reduction	3.4.11	TRT-11 Provide Employer-Sponsored Vanpool/Shuttle	0.3%-13.4% commute VMT reduction due to employer-sponsored vanpool and/or shuttle service	Adequate - Effectiveness is building/tenant specific.	1) Reduction in commute vehicle trips due to implementing employer-sponsored vanpool and shuttle programs; 2) Reduction in commute vehicle trips due to vanpool incentive programs; 3) Reduction in commute vehicle trips due to employer shuttle programs	1) 0.5%-5.0% 2) 0.3%-7.4% 3) 1.4%-6.8%	1) Concas, Sisinnio, Winters, Philip, Wambalaba, Francis. (2005). Fare Pricing Elasticity, Subsidies, and Demand for Vanpool Services. Transportation Research Record: Journal of the Transportation Research Board, 1924, pp 215-223. 2) Victoria Transport Policy Institute. (2015). Ridesharing: Carpooling and Vanpooling. Online TDM Encyclopedia. Retrieved from: http://vtpi.org/tdm/tdm34.htm 3) ICF. (2014). GHG Impacts for Commuter Shuttles Pilot Program.

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Commute Trip Reduction	3.4.3	TRT-3 Provide Ride-Sharing Programs	1%-15% commute VMT reduction due to employer ride share coordination and facilities	Adequate - Effectiveness is building/tenant specific. Do not use with "TRT-1 Implement CTR Program - Voluntary" or "TRT-2 Implement CTR Program - Required Implementation/Monitoring."	Commute vehicle trips reduction due to employer ride-sharing programs. Promote ride-sharing programs through a multi-faceted approach such as: • Designating a certain percentage of parking spaces for ride sharing vehicles • Designating adequate passenger loading and unloading and waiting areas for ride-sharing vehicles • Providing an app or website for coordinating rides	2.5%-8.3%	Victoria Transport Policy Institute. (2015). Ridesharing: Carpooling and Vanpooling. Online TDM Encyclopedia. Retrieved from: http://vtpi.org/tdm/tdm34.htm
Commute Trip Reduction	3.4.10	TRT-10 Implement a School Pool Program	7.2%-15.8% reduction in school VMT due to school pool implementation	Adequate - School VMT only.	Limited new evidence available, not conclusive	Same	Transportation Demand Management Institute of the Association for Commuter Transportation. TDM Case Studies and Commuter Testimonials. Prepared for the US EPA. 1997. (p. 10, 36-38) WayToGo 2015 Annual Report. Accessed on March 12, 2017 from http://www.waytogo.org/sites/default/files/attachments/waytogo-annual-report-2015.pdf
Commute Trip Reduction	3.4.13	TRT-13 Implement School Bus Program	38%-63% reduction in school VMT due to school bus service implementation	Adequate - School VMT only.	VMT reduction for school trips based on data beyond a single school district. School district boundaries are also a factor to consider. VMT reduction does not appear to be a factor that was considered in a select review of CA boundaries. VMT reductions apply to school trip VMT only.	5%-30%	Wilson, E., et al. (2007). The implications of school choice on travel behavior and environmental emissions. Transportation Research Part D: Transport and Environment 12(2007), 506-518.
Not Applicable - not a CAPCOA strategy	Not Applicable - not a CAPCOA strategy	Not Applicable - not a CAPCOA strategy	Not Applicable - not a CAPCOA strategy	Not Applicable - not a CAPCOA strategy	Bikeshare car trip substitution rate of 7-19% based on data from Washington DC, and Minneapolis/St. Paul. Annual VMT reduction of 151,000 and 57,000, respectively. Includes VMT for rebalancing and maintenance. VMT reduction of 0.023 miles per day per bikeshare member estimated for Bay Area bikeshare, utilizing Minneapolis/St. Paul data from study above.	57,000-151,000 annual VMT reduction, based on two large US cities. VMT reduction of 0.023 miles per day per member, based on one large US city estimate.	Fishman, E., Washington, S., & Haworth, N. (2014). Bike share's impact on car use: Evidence from the United States, Great Britain, and Australia. Transportation Research Part D: Transport and Environment, 31, 13-20. TDM Methodology: Impact of Carsharing Membership, Transit Passes, Bikesharing Membership, Unbundled Parking, and Parking Supply Reductions on Driving. Center for Neighborhood Technology, Peter Haas and Cindy Copp, with TransForm staff, May 5, 2016.

ATTACHMENT B

DRAFT

Relevant Strategies for Implementation in WRCOG Jurisdictions Due to Land Use Context

CAPCOA Category	CAPCOA #	CAPCOA Strategy	CAPCOA Reduction	Strength of Substantial Evidence for CEQA Impact Analysis?	New Information Since CAPCOA Was Published in 2010		
					New information	Change in VMT reduction compared to CAPCOA(1)	Literature or Evidence Cited
Land Use/ Location	3.1.3	LUT-3 Increase Diversity of Urban and Suburban Developments	9%-30% VMT reduction due to mixing land uses within a single development	Adequate	1) VMT reduction due to mix of land uses within a single development; 2) Reduction in VMT due to regional change in entropy index of diversity.	1) 0%-12% 2) 0.3%-4%	1) Ewing, R. and Cervero, R. (2010). Travel and the Built Environment - A Meta-Analysis. Journal of the American Planning Association, 76(3), 265-294. Cited in California Air Pollution Control Officers Association. (2010). Quantifying Greenhouse Gas Mitigation Measures. Retrieved from: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf Frank, L., Greenwald, M., Kavage, S. and Devlin, A. (2011). An Assessment of Urban Form and Pedestrian and Transit Improvements as an Integrated GHG Reduction Strategy. WSDOT Research Report WA-RD 765.1. Washington State Department of Transportation. Retrieved from: http://www.wsdot.wa.gov/research/reports/fullreports/765.1.pdf Nasri, A. and Zhang, L. (2012). Impact of Metropolitan-Level Built Environment on Travel Behavior. Transportation Research Record: Journal of the Transportation Research Board, 2323(1), 75-79. Sadek, A. et al. (2011). Reducing VMT through Smart Land-Use Design. New York State Energy Research and Development Authority. Retrieved from: https://www.dot.ny.gov/divisions/engineering/technical-services/trans-r-and-d-repository/C-08-29%20Final%20Report,December%202011%20%282%29.pdf Spears, S. et al. (2014). Impacts of Land-Use Mix on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm 2) Zhang, Wengia et al. "Short- and Long-Term Effects of Land Use on Reducing Personal Vehicle Miles of Travel."
Neighborhood Site Enhancements	3.2.1	SDT-1 Provide Pedestrian Network Improvements	0%-2% reduction in VMT for creating a connected pedestrian network within the development and connecting to nearby destinations	Adequate	VMT reduction due to provision of complete pedestrian networks.	0.5%-5.7%	Handy, S. et al. (2014). Impacts of Pedestrian Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm
Neighborhood Site Enhancements	3.2.2	SDT-2 Provide Traffic Calming Measures	0.25%-1% VMT reduction due to traffic calming on streets within and around the development	Adequate	Reduction in VMT due to building out a low-stress bike network; reduction in VMT due to expansion of bike networks in urban areas.	0%-1.7%	1) California Air Resources Board. (2016). Greenhouse Gas Quantification Methodology for the California Transportation Commission Active Transportation Program Greenhouse Gas Reduction Fund Fiscal Year 2016-17. Retrieved from: https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/ctc_atp_finalqm_16-17.pdf . 2) Zahabi, S. et al. (2016). Exploring the link between the neighborhood typologies, bicycle infrastructure and commuting cycling over time and the potential impact on commuter GHG emissions. Transportation Research Part D: Transport and Environment. 47, 89-103.
Neighborhood Site Enhancements	3.4.9	TRT-9 Implement Car-Sharing Program	0.4% - 0.7% VMT reduction due to lower vehicle ownership rates and general shift to non-driving modes	Adequate	Vehicle trip reduction due to car-sharing programs; reduction assumes 1%-5% penetration rate. Car sharing effect on VMT is still evolving due to TNC effects. UCD research showed less effect on car ownership due to car sharing participation and an uncertain effect on VMT.	0.3%-1.6%	Lovejoy, K. et al. (2013). Impacts of Carsharing on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm Clewlow, Regina R. and Mishra, Gouri Shankar, (2017). Disruptive Transportation: The Adoption, Utilization, and Impacts of Ride-Hailing in the United States. UC Davis, Institute of Transportation Studies. Research Report - UCD-ITS-RR-17-07.
Transit System	3.5.4	TST-4 Increase Transit Service Frequency/Speed	0.02%-2.5% VMT reduction due to reduced headways and increased speed and reliability	Adequate	Reduction in vehicle trips due to increased transit frequency/decreased headway.	0.3%-6.3%	Handy, S. et al. (2013). Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions - Policy Brief and Technical Background Document. California Air Resources Board. Retrieved from: https://arb.ca.gov/cc/sb375/policies/policies.htm

Relevant Strategies for Implementation in WRCOG Jurisdictions Due to Land Use Context

CAPCOA Category	CAPCOA #	CAPCOA Strategy	CAPCOA Reduction	Strength of Substantial Evidence for CEQA Impact Analysis?	New Information Since CAPCOA Was Published in 2010		
					New information	Change in VMT reduction compared to CAPCOA(1)	Literature or Evidence Cited
Commute Trip Reduction	3.4.6	TRT-6 Encourage Telecommuting and Alternative Work Schedules	0.07%-5.5% commute VMT reduction due to reduced commute trips	Adequate - Effectiveness is building/tenant specific. Do not use with "TRT-1 Implement CTR Program - Voluntary" or "TRT-2 Implement CTR Program - Required Implementation/Monitoring."	VMT reduction due to adoption of telecommuting	0.2%-4.5%	Handy, S. et al. (2013). Policy Brief on the Impacts of Telecommuting Based on a Review of the Empirical Literature. California Air Resources Board. Retrieved from: https://www.arb.ca.gov/cc/sb375/policies/telecommuting/telecommuting_brief120313.pdf
Commute Trip Reduction	3.4.3	TRT-3 Provide Ride-Sharing Programs	1%-15% commute VMT reduction due to employer ride share coordination and facilities	Adequate - Effectiveness is building/tenant specific. Do not use with "TRT-1 Implement CTR Program - Voluntary" or "TRT-2 Implement CTR Program - Required Implementation/Monitoring."	Commute vehicle trips reduction due to employer ride-sharing programs	2.5%-8.3%	Victoria Transport Policy Institute. (2015). Ridesharing: Carpooling and Vanpooling. Online TDM Encyclopedia. Retrieved from: http://vtpi.org/tdm/tdm34.htm

NOTES:

(1) For specific VMT reduction ranges, refer to the cited literature.

Mitigation Programs

TECHNICAL MEMORANDUM

Date: 11.7.18

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

From: Ronald T. Milam, AICP, PTP and Jason Pack, PE

Subject: Assessment of VMT Mitigation Programs for SB 743

OC18-0567

This technical memorandum presents an assessment of VMT mitigation programs that could be used for SB 743 implementation in the WRCOG region. The intent of this effort is to identify an approach to mitigation that goes beyond conventional project-site transportation demand management (TDM) strategies alone. The land use and transportation context for the WRCOG region presents a challenge to the effectiveness of common TDM strategies for VMT reduction when applied at individual project sites due to limited travel choices.

The approach to the overall assessment includes two parts. The first part evaluated how VMT reduction strategies or projects could be developed or incorporated into existing funding programs such as the Transportation Uniform Mitigation Fee (TUMF) program. The purpose of incorporating VMT reduction strategies directly into existing programs is to provide greater certainty and effectiveness for VMT impact mitigation. The second part of the assessment identified potential new mitigation program concepts that may be worthy of further evaluation.

Existing Programs

Two existing programs in Riverside County connect land use development projects to transportation network improvements: the Transportation Uniform Mitigation Fee (TUMF) and the Congestion Management Program (CMP). WRCOG developed and administers the TUMF as a traditional transportation impact fee program. The program collects a fair-share fee payment from new development to contribute to the cost of a capital improvement program (CIP) consisting of long-term transportation network expansion projects identified to accommodate planned population and employment growth. The TUMF program largely focuses on roadway capacity expansion with a total program cost of \$3.76 billion. The CMP is prepared by the Riverside County Transportation Commission (RCTC). The CMP is designed to assess and monitor traffic congestion and transit performance while also

developing strategies to better manage congestion and its impacts on air quality. It includes a local land use development review component that normally occurs during the environmental review of projects. This review considers potential impacts that new land use projects may have on the CMP network. A common theme for the TUMF and CMP is that they focus on vehicle LOS as the key metric for determining deficiencies and developing CIP projects although the CMP includes a public transit element.

In their current form, the TUMF and CMP would not qualify as VMT impact mitigation programs. For the example, the TUMF CIP is largely focused on roadway capacity expansion that contributes to VMT increases. Direct evidence of the VMT increase can be found in program documentation such as the following table excerpt from the TUMF nexus study. The table includes a comparison of VMT with and without the TUMF program. The TUMF projects induce total VMT under 2040 conditions from 29,277,587 to 31,022,272.

**Table 4.6 – Regional Highway System Measures of Performance
(2012 Baseline and 2040 No-Build Scenarios to 2040 TUMF Build Scenario)**

Measure of Performance*	Peak Periods (Total)		
	2012 Baseline	2040 No-Build	2040 Build
VMT - Total ALL FACILITIES	19,532,437	29,277,587	31,022,272
VMT - FREEWAYS	11,019,155	14,487,570	13,411,377
VMT - ALL ARTERIALS	8,513,282	14,790,016	17,610,895
TOTAL - TUMF ARTERIAL VMT	5,585,202	9,089,495	9,902,433
VHT - TOTAL ALL FACILITIES	575,154	1,361,907	1,180,647
VHT - FREEWAYS	296,542	736,433	530,849
VHT - ALL ARTERIALS	278,611	625,474	649,797
TOTAL TUMF ARTERIAL VHT	181,151	396,981	354,639
VHD - TOTAL ALL FACILITIES	175,765	739,075	489,238
VHD - FREEWAYS	117,430	502,549	312,669
VHD - ALL ARTERIALS	58,334	236,527	176,569
TOTAL TUMF ARTERIAL VHD	45,080	172,944	114,833
VMT LOS E - TOTAL ALL FACILITIES	6,188,644	16,966,992	14,299,498
VMT LOS E - FREEWAYS	4,532,703	10,156,363	8,982,566
VMT LOS E & F - ALL ARTERIALS	1,655,941	6,810,629	5,316,932
TOTAL TUMF ARTERIAL VMT w/ LOS E or worse	1,462,061	5,160,911	3,735,762
% of TUMF ARTERIAL VMT w/ LOS E or worse	26%	57%	38%

* Based on RIVTAM 2012 network provided by Riverside County Transportation Department and SCAG 2016 RTP/SCS SED with updated 2015 arterial network completed by WSP, September 2016.

NOTES:

Volume is adjusted by PCE factor

VMT = vehicle miles of travel (the total combined distance that all vehicles travel on the system)

VHT = vehicle hours of travel (the total combined time that all vehicles are traveling on the system)

VHD = vehicle hours of delay (the total combined time that all vehicles have been delayed on the system based on the difference between forecast travel time and free-flow (ideal) travel time)

LOS = level of service (based on forecast volume to capacity ratios).

LOS E or Worse was determined by V/C ratio that exceeds 0.9 thresholds as indicated in the Riverside County General Plan.

Despite this VMT increase, the TUMF program does include some transit, bicycle, and pedestrian projects that could contribute to VMT reduction. For example, the following table from the TUMF Nexus Study identifies specific transit projects that are included in the program.

Table 4.3 - Unit Costs for Transit Capital Expenditures

Component Type*	Cost Assumptions as published October 18, 2002	Cost Assumptions per 2009 Nexus Update October 5, 2009	Cost Assumptions per 2015 Nexus Update	Description
Transit Center 1			\$6,000,000	Relocation/expansion of existing Regional Transit Center with up to 14 bus bays and park and ride
Transit Center 2	\$6,000,000	\$5,655,000	\$9,000,000	New Regional Transit Center with up to 14 bus bays and park and ride
Transfer Facility			\$1,000,000	Multiple route transfer hub
O & M Facility			\$50,000,000	Regional Operations and Maintenance Facility
Bus Stop	\$10,000	\$27,000	\$40,000	Bus Stop Amenities Upgrade on TUMF Network
BRT Service Capital	\$540,000	\$550,000	\$60,000	BRT/Limited Stop Service Capital (per stop**)
Vehicle Fleet 1			\$155,000	Medium Sized Bus Contract Operated
Vehicle Fleet 2	\$325,125	\$550,000	\$585,000	Large Sized Bus Directly Operated
COA Study			\$950,000	Comprehensive Operational Analysis Study component of Nexus Study Update

* Transit Cost Component Types were restructured as part of the 2015 Nexus Update in accordance with the RTA Comprehensive Operational Analysis (January 2015)

** BRT Service Capital Cost Assumption was based on a per mile unit in 2009 Nexus Update. 2016 Nexus Update uses a per stop unit cost for BRT Service Capital

If the transit, bicycle, and pedestrian projects were separated into a stand-alone CIP with a supporting nexus study based on VMT reduction, then a new VMT fee program could be developed that is dedicated to VMT impact mitigation. This could be a new program implemented by WRCOG or individual jurisdictions. An example of this type of program has been developed the City of Los Angeles as part of their Coastal Transportation Corridor Specific Plan and West Los Angeles Transportation Improvement and Mitigation Specific Plan. Details are provided at the following website.

<http://www.westsidemobilityplan.com/ctcspwla-timp-final-eir/>

The nexus relies on VMT reduction and the nexus study is included as Appendix B in the Draft EIR link on the website.

It may also be possible for a development project applicant to fully fund a transit, bicycle, or pedestrian project from the TUMF as an alternative to paying the fee directly. The TUMF program currently allows fee credits for development that expedites and completes TUMF-identified projects (most recently exhibited by the development funding the Cajalco Interchange project). Using this option requires inclusion of the mitigation in a development agreement or an EIR.

The CMP program could also be adapted to blend the congestion management objectives with VMT reduction. The current focus is to expand roadway capacity to address vehicle LOS deficiencies. This approach does not reduce congestion (i.e., travel speeds do not increase). Instead, expanding roadway capacity in congested areas induces new vehicle travel that diminishes congestion relief benefits and generates new VMT and emissions. Refer to the following websites for more research information and technical details.

- http://www.dot.ca.gov/newtech/researchreports/reports/2015/10-12-2015-NCST_Brief_InducedTravel_CS6_v3.pdf
- https://www.arb.ca.gov/cc/sb375/policies/hwycapacity/highway_capacity_brief.pdf
- <https://trrjournalonline.trb.org/doi/abs/10.3141/2653-02>

Managing and reducing demand could accomplish the CMP goal especially by focusing on reducing peak period VMT. The main source of congestion as defined by the CMP is that vehicles move too slow (i.e., peak period speeds are lower than posted speed limits). This definition of congestion describes a symptom and fails to recognize that peak period travel consists of vehicles with poor seat utilization caused by not managing demand more effectively and mispricing travel demand. The existing roadway network has a limited capacity and this capacity is routinely filled up during peak periods in Riverside County by vehicles with solo drivers (i.e., low seat utilization). Further, limited facilities exist that prioritize travel by high occupancy vehicles. Increasing vehicle speeds and reducing delays substantially requires much greater seat utilization in existing vehicles (i.e., private vehicles and public transit). This change would also reduce VMT. Hence, refocusing the CMP on the combination of congestion management and VMT reduction would result in a different CIP that could qualify as VMT impact mitigation.

New Mitigation Program Concepts

Beyond the conventional programs described above are two new concepts that are not currently available in Riverside County. For purposes of this study, these programs are defined as follows.

- **VMT Mitigation Exchange** – An exchange program is a concept where VMT generators can select from a pre-approved list of mitigation projects that may be located within the same jurisdiction or possibly from a larger area. The intent is to match the project's needed VMT

reduction with a specific mitigation project of matching size and to provide evidence that the VMT reduction will reasonably occur.

- **VMT Mitigation Bank** – A mitigation bank is intended to serve as an entity or organization that pools fees from development projects across multiple jurisdictions to spend on larger scale mitigation projects. This concept differs from the more conventional impact fee program approach described above in that the fees are directed to a few larger projects that have the potential for a more significant reduction in VMT and the program is regional in nature.

As these new mitigation program concepts are still evolving, the specific descriptions and elements of the programs will likely change. The first resource document to describe and assess these programs was recently published by U.C. Berkeley and is entitled, "[Implementing SB 743, An Analysis of Vehicle Miles Traveled Banking and Exchange Frameworks](#)," The University of California Institute of Transportation Studies, October 2018. This document is a useful starting place for a dialogue about these programs.

The findings of the report are supportive of these concepts noting the following about the reasoning for their consideration.

Yet while methods for reducing VMT impacts—such as mileage pricing mechanisms, direct investments in new public transit infrastructure, transit access subsidies, and infill development incentives—are well understood, they may be difficult in some cases to implement as mitigation projects directly linked or near to individual developments. As a result, broader and more flexible approaches to mitigation may be necessary. In response, state and local policy makers are considering the creation of mitigation “banks” or “exchanges.” In a mitigation bank, developers would commit funds instead of undertaking specific on-site mitigation projects, and then a local or regional authority could aggregate these funds and deploy them to top-priority mitigation projects throughout the jurisdiction. Similarly, in a mitigation exchange, developers would be permitted to select from a list of pre-approved mitigation projects throughout the jurisdiction (or propose their own), without needing to mitigate their transportation impacts on-site. Both models can be applied at a city, county, regional, and potentially state scale, depending on local development patterns, transportation needs and opportunities, and political will.

This reasoning is important for lead agencies in the WRCOG area because mitigating VMT impacts on a project-by-project basis is challenging especially in suburban and rural land use contexts where travel choices are limited. That said, the UCB report and research conducted for this study identified the following key challenges with these types of programs.

- Challenges for Mitigation Exchanges
 - Potential mismatch between funds and mitigation projects available
 - Potential for reduced oversight of project selection
 - Difficulty in verifying VMT reductions and their sustainability especially with VMT generation changing over time due to disruptive transportation trends such as transportation network companies (TNCs) and autonomous vehicles (AVs)
 - Difficulty in demonstrating an essential nexus
 - Potential opposition to mitigation not directly occurring in the project impact area especially if impacts are concentrated in or near disadvantaged communities and the mitigation occurs in more affluent areas
- Challenges for Mitigation Banks
 - Increased need to conduct careful CEQA/Mitigation Fee Act analysis
 - Accounting challenge in delay from fee payment to project funding
 - Greater need for program administration budget
 - Political difficulty in distributing mitigation projects and coordinating across jurisdictions
 - Difficulty in verifying VMT reductions and their sustainability especially with VMT generation changing over time due to disruptive transportation trends such as transportation network companies (TNCs) and autonomous vehicles (AVs)
 - Difficulty in demonstrating an essential nexus
 - Potential opposition to mitigation not directly occurring in the project impact area especially if impacts are concentrated in or near disadvantaged communities and the mitigation occurs in more affluent areas

Another important element for either of these concepts is to have an entity that is responsible for establishing, operating, and maintaining the program. This is a potential role for a sub-regional or regional entity especially for programs that would extend mitigation projects beyond individual jurisdictional boundaries. A key part of 'operations' is that the entity will need the capability to provide verification of the VMT reduction performance and to adjust the program projects over time. Whether the entity is regional or sub-regional is another important consideration. A sub-regional entity could help minimize potential concerns about mitigation not occurring near the project site or in the same community,

The potential desire for VMT Mitigation Exchanges or Banks may depend on how lead agencies and developers respond to the initial implementation of SB 743 currently schedule to go into effect July 1, 2020. If many projects are found to have significant VMT impacts and problems occur with finding feasible mitigation measures for individual projects, then interest may grow for more program-based mitigation.

Summary

To help understand the full range of VMT impact mitigation and their particular benefits and challenges, Table 1 provides a high-level summary comparison.

DRAFT

Table 1 – Summary of VMT Impact Mitigation Options

Mitigation Option	Description	Benefits	Challenges
No feasible action	This option recognizes that feasible mitigation is not available due to the land use or transportation context.	- Recognizes the limitations of VMT impact mitigation when alternatives to driving are not reasonably available.	Could result in more significant and unavoidable (SAU) impacts that require an EIR instead of a negative declaration.
Change project	This option would tend to focus on changing built environment characteristics of a project such as its land use density or diversity to reduce vehicle travel.	- Mitigation may not require long-term monitoring (see substantial evidence summarized in the <i>SB 743 Implementation TDM Strategy Assessment Technical Memorandum dated 6.11.18</i>). - Mitigation reduces VMT (and other vehicle travel) in immediate vicinity of the project site.	Project applicants may resist land use or other built environment changes due to financial concerns and market feasibility.
TDM	This option relies on strategies to reduce vehicle travel through incentives and disincentives often tied to the cost and convenience of vehicle travel.	- Mitigation reduces VMT (and other vehicle travel) in immediate vicinity of the project site. - Multiple mitigation strategies to choose from such that a project applicant may find co-benefits from the strategies also serving as project amenities.	- Mitigation monitoring required because effectiveness depends on building tenants, which can change over time. As a result, impacts will remain SAU. - Creates potential financial equity issues between existing and new land uses. Existing land use with TDM mitigation will have lower operating costs.

Table 1 – Summary of VMT Impact Mitigation Options

Mitigation Option	Description	Benefits	Challenges
Impact fee program	This option requires developing a new impact fee program with a nexus based on VMT reduction. This type of nexus would allow the fee program capital improvement program (CIP) to include transit, bicycle, pedestrian and other types of projects that can demonstrate VMT reduction effectiveness.	- Provides clear expectations for developers about the VMT mitigation costs. - Increases funding for VMT reduction projects such that larger and more effective projects may be implemented. - May result in greater levels of VMT reduction compared to project-by-project mitigation.	- Requires lead agency to develop stakeholder support and funding to create and maintain the fee program. - Mitigation (e.g., CIP projects) may not occur in immediate vicinity of the project site where impacts of vehicle travel will be most directly felt by neighbors.
Mitigation bank/exchange	This option matches VMT generators with VMT reducers within or beyond jurisdictional boundaries through a third party.	- Could create mitigation options that may not otherwise be available or feasible. - Not limited to jurisdictional boundaries. - Could create incentive for new innovative mitigation ideas.	- Requires an entity capable of operating and maintaining the program with the ability to verify VMT reductions. - Mitigation may not occur in immediate vicinity of the project site where impacts of vehicle travel will be most directly felt by neighbors.
General plan coverage	This option would address VMT impacts through a general plan update or amendment EIR and rely on CEQA Guidelines Section 15183 for subsequent project streamlining (as summarized in the <i>SB 743 Implementation Thresholds Assessment Technical Memorandum dated 10.31.18</i>).	- Addresses VMT reduction expectations in consideration of other jurisdictional objectives. - Offers a wider range of mitigation options than at the project-scale. - For subsequent projects consistent with the general plan, additional VMT impact analysis would not be required.	- General plan updates or amendments require substantial time and funding commitments.



Western Riverside Council of Governments

Public Works Committee

Staff Report

Subject: Regional Streetlight Program Activities Update

Contact: Daniel Soltero, Staff Analyst, dsoltero@wrcoq.us, (951) 405-6738.

Date: November 14, 2019

The purpose of this item is to provide an update on the Streetlight Operations and Maintenance services provided by Siemens, and a Regional Retrofit timeline update.

Requested Action:

1. Receive and file.

Background

The Regional Streetlight Program provides the 11 participating jurisdictions with streetlight retrofit, and operations and maintenance (O&M) services. In 2017, WRCOG released RFQ 17-04 to solicit proposals for these services, and in 2018, Siemens was selected as the provider. As jurisdictions are taking ownership of their streetlights, they are required to maintain them should any issues arise such as lamp burnouts, damaged equipment, or pole knockdowns. One of the main reasons for selecting Siemens as the O&M provider for the region is improved level of service when compared to the previous owner and operator of the streetlights, Southern California Edison (SCE).

There are 10 participating jurisdictions in the Program that are or will be utilizing Siemens O&M services. In 2018, the City of Murrieta was the first jurisdiction to acquire streetlights, and the only jurisdiction to initiate Siemens' services that year. In 2019 to date, nine more jurisdictions have acquired streetlights and are utilizing Siemens' services. As each jurisdiction initiates Siemens' services, they are provided with a log-in to the Maintenance Portal which shows all the work orders for that jurisdiction. The Portal will display all open, pending, and closed work orders, response dates and times, as well as brief descriptions of the issue and work conducted. In addition to the 10 jurisdictions utilizing Siemens, the City of Moreno Valley is utilizing its own public electric utility, Moreno Valley Utility, to retrofit, operate, and maintain its acquired and city-owned streetlights.

Ongoing Operations and Maintenance (O&M) Update

Of the 11 participating jurisdictions in the Regional Streetlight Program, 10 have completed the acquisition process and have commenced with Siemens O&M services. The City of Menifee is the remaining jurisdiction to acquire its streetlights and is anticipated to commence with O&M services in the fourth quarter of 2019.

This process has ultimately resulted in different O&M start dates for all jurisdictions. For example, the City of Murrieta became the first jurisdiction to commence with O&M services in September 2018, while the City of Menifee is anticipated to commence with O&M in the fourth quarter of 2019.

It is important to note that O&M services for most jurisdictions in the Program starts before LED retrofit occurs, meaning most of the initial work orders are for the existing High-Pressure Sodium (HPS) and/or Low-Pressure

Sodium (LPS) streetlights. Staff expects an initial increase in work orders due to the existing lamps having shorter life span, were of varying age at acquisition, and are prone to require additional maintenance or replacement due to the lamp technology. As jurisdictions retrofit their streetlights to LED fixtures, staff anticipate a decrease in work orders as LED's have a longer lifespan, operate more efficiently, and were all new at the time of installation.

Siemens has responded to 683 work orders across the region from September 27, 2018, to October 31, 2019. The regional average response time to routine O&M work orders is currently 4.99 work days, which includes responding to lamp burnouts, cycling and flickering lights due to bad ballasts, or day burning streetlights due to photocell malfunction. Additionally, the regional average response time to Extraordinary O&M work is currently 1.84 days, which can include pole knockdowns, tracing power feed issues or securing live wires, and overhead wiring replacement. In emergency responses for pole knockdowns, Siemens responds immediately and returns public safety within an average of 2.56 hours. Additionally, Siemens has responded to a total of 16 pole knockdowns since September 2018.

Currently, staff is reviewing all work orders for each jurisdiction in order to develop a detailed O&M Report. This Report will include metrics for typical response times, most common maintenance issues, and number of routine and extraordinary O&M work orders. Staff will bring a more detailed Report (City-level data) at a later Committee meeting.

Regional Streetlight Retrofit Update

The below table reflects the streetlight retrofit progress or anticipated retrofit start of each jurisdiction in the Program. The three jurisdictions highlighted in green in the table below, the Cities of Eastvale, Murrieta, and Wildomar, have substantially completed the major portion of their streetlight retrofit. These three jurisdictions are currently working with SCE to review any poles missed during the initial SCE true-up and/or sale, as well as identifying any remaining poles for conversion. Moreover, the five jurisdictions highlighted in yellow in the table below, the Cities of Hemet, Lake Elsinore, Moreno Valley, and San Jacinto, and the Jurupa Community Services District, are still undergoing the streetlight retrofit and/or installing pole tags. Once these jurisdictions complete the major portion of streetlight retrofit, they will enter a project closeout phase which includes working with SCE to discuss remaining streetlights for acquisition, as well as identifying any remaining streetlights for retrofit. The remaining three jurisdictions without highlighting, the Cities of Menifee, Perris, and Temecula, are anticipated to start retrofitting streetlights by the end of 2019, and during the first quarter of 2020.

Milestone Description	Streetlight Count	Progress	Start
Eastvale	4,107	99%	6/4/2019
Murrieta	6,436	99%	2/11/2019
Wildomar	1,405	99%	7/19/2019
Hemet	3,993	90%	8/15/2019
JCSD	1,905	97%	9/30/2019
Lake Elsinore	3,739	38%	10/7/2019
Moreno Valley	11,257	85%	12/18/2018
San Jacinto	1,945	95%	9/19/2019
Menifee	Est. 6,780		Q4 2019
Perris	4,581		Q1 2020
Temecula	7,279		Est. 11/15/2019

Prior Actions:

November 4, 2019: The Executive Committee received and filed.

September 19, 2019: The Technical Advisory Committee received and filed.

Fiscal Impact:

This item is for informational purposes only; therefore, there is no fiscal impact.

Attachment:

None.

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