



Western Riverside Council of Governments Public Works Committee

AGENDA

**Thursday, March 14, 2019
2:00 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 (Patty Romo, 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 February 14, 2019, Public Works Committee Meeting P. 1
are Available for Consideration.**

Requested Action: 1. *Approve the Summary Minutes from the February 14, 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** **Christopher Gray** **P. 7**

Requested Action: 1. *Receive and file.*

- B. **TUMF Revenue and Expenditures Update** **Andrew Ruiz** **P. 25**

Requested Action: 1. *Receive and file.*

7. REPORTS / DISCUSSION

- A. **Regional Energy Network Development Update** **Anthony Segura, WRCOG** **P. 33**

Requested Action: 1. *Discuss and provide input on interested program sectors for REN development.*

- B. **Assembly Bill 2766 Report and Available Funding to Local Jurisdictions** **Lane Garcia, SCAQMD** **P. 45**

Requested Action: 1. *Receive and file.*

- C. **2019 TUMF Network Administrative Amendment** **Daniel Ramirez-Cornejo, WRCOG** **P. 47**

Requested Action: 1. *Recommend that the Executive Committee approve the 2019 TUMF Network Administrative Amendment.*

- D. **Understanding the Transportation Analysis Implications of Senate Bill 743** **Christopher Gray, WRCOG** **P. 59**

Requested Action: 1. *Receive and file.*

- E. **Fee Comparison Analysis – Final Report** **Christopher Tzeng, WRCOG** **P. 153**

Requested Action: 1. *Receive and file.*

8. **REPORT FROM THE DIRECTOR OF TRANSPORTATION & PLANNING** **Christopher Gray**

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, April 11, 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 2:00 p.m. by Committee member Brad Brophy at WRCOG's office, Citrus Conference Room.

2. ROLL CALL

Members present:

Lori Askew, City of Calimesa
Nelson Nelson, City of Corona (2:05 p.m. arrival)
Craig Bradshaw, Cities of Eastvale and Wildomar
Jonathan Smith, City of Menifee
Henry Ngo, City of Moreno Valley (2:03 p.m. arrival)
Brad Brophy, Cities of Perris and San Jacinto (Chair)
Amer Attar, City of Temecula
Alvin Medina, County of Riverside
Rohan Kuruppu, Riverside Transit Agency

Staff present:

Christopher Gray, Director of Transportation & Planning
Andrew Ruiz, Interim Chief Financial Officer
Daniel Ramirez-Cornejo, Program Manager
Christopher Tzeng, Program Manager
Jessica May, Staff Analyst

Guests present:

Darren Henderson, WSP / WRCOG consultant
Todd Warden, South Coast Air Quality Management District (AQMD)
Paul Rodriguez, Rodriguez Consulting Group
Jenny Chan, Riverside County Transportation Commission
Jennifer Nguyen, Riverside Transit Agency
Kristen Warsinski, Riverside Transit Agency
Darin Johnson, Mark Thomas & Company, Inc.

3. PLEDGE OF ALLEGIANCE

Committee member Brad Brophy led the members and guests in the pledge of allegiance.

4. PUBLIC COMMENTS

Todd Warden, AQMD staff, shared information on AQMD rebates for commercial electric landscape equipment and encouraged member agencies to consider the benefits of electric equipment, such as quieter and cleaner operation, and incorporate electric equipment into their operations.

5. MINUTES *(Eastvale / Perris) 11 yes; 0 no; 0 abstention. Item 5.A was approved. The Cities of Banning, Beaumont, Canyon Lake, Hemet, Jurupa Valley, Lake Elsinore, Murrieta, Norco, and Riverside, the March Joint Powers Authority, and the Riverside County Transportation Commission were not present.*

A. Summary Minutes from the December 13, 2018, Public Works Committee Meeting are Available for Consideration.

Action: 1. *Approved Summary Minutes from the December 13, 2018, Public Works Committee meeting.*

6. CONSENT CALENDAR (Menifee / Moreno Valley) 11 yes; 0 no; 0 abstention. Items 6.A and 6.B were approved. The Cities of Banning, Beaumont, Canyon Lake, Hemet, Jurupa Valley, Lake Elsinore, Murrieta, Norco, and Riverside, the March Joint Powers Authority, and the Riverside County Transportation Commission 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.*

7. REPORTS / DISCUSSION

A. Riverside Transit Agency Activities Update

Rohan Kuruppu, Riverside Transit Agency (RTA) Director of Planning, provided an update on activities underway and recently completed using TUMF funding contributions. A number of bus stops were recently improved within RTA's network, and there are several mobility hubs in development to improve transit services throughout the subregion, such as the UCR Mobility Hub.

Action: 1. *Received and filed.*

B. Fee Comparison Analysis Update

Christopher Tzeng presented preliminary findings from the Fee Comparison Analysis update currently underway to update the results of a similar study completed in 2016. The purpose of the Analysis was to understand the fees required of development projects in and around the WRCOG subregion, the effects of other development costs, and the economic benefits of transportation investments. Fees on all land uses, except for retail, generally increased either at or below inflation and school fees increased by the highest percentage. Staff estimates that the full, completed Analysis should be available by the March Committee meeting.

Christopher Gray added that WRCOG has development proformas and can share information on the percentage of development fees related to the total cost of project development.

Action: 1. *Received and filed.*

C. Fiscal Year 2019/2020 SB 821 – Bicycle and Pedestrian Facilities Program Call for Projects

Jenny Chan reported that the SB 821 call for projects opened on February 4, 2019, and that the Riverside County Transportation Commission (RCTC) has approximately \$3.8 million available for bike and/or pedestrian facility projects. RCTC staff encourage interested jurisdictions to schedule one-on-one meetings with RCTC staff for application assistance prior to the application deadline on April 25, 2019, at 5:00 p.m.

Committee member Brad Brophy asked if there was a maximum funding amount per project.

Ms. Chan responded that there is no maximum currently established but encouraged jurisdictions to keep in mind that RCTC has a total program amount available of approximately \$3.8 million.

Action: 1. *Received and filed.*

D. High-Cube Warehouse Calculation

Daniel Ramirez-Cornejo presented a proposed adjustment to the High-Cube Warehouse component of the TUMF Calculation Handbook based on the results of the TUMF High-Cube Warehouse Trip Generation Study completed in January 2019. The proposed adjustment would increase the multiplier in the High-Cube Warehouse calculation from 0.32 to 0.36. The adjustment to the High-Cube Warehouse TUMF calculation would account for the higher number of observed trips generated by large fulfillment centers and would recognize fulfillment centers as a subset of the general High-Cube Warehouse fee calculation category.

Committee member Jonathan Smith asked about the purpose of the proposed increase to this fee and how the subregion's fees on industrial projects compares to fees in neighboring areas.

Mr. Ramirez-Cornejo explained that a study was undertaken in response to comments received during the Nexus Study update to determine whether High-Cube Warehouses have a higher trip generation than standard industrial uses. This study was completed in January 2019 and the proposed revision is based on the results of this study.

Christopher Gray added that the higher number of passenger car trips observed with these types of warehouses in WRCOG's Trip Generation Study is not currently taken into account in the High-Cube Warehouse fee calculation. The update to the fee calculation would reflect this new phenomenon. The fee increase associated with this update to the High-Cube Warehouse methodology would be a small percentage increase compared to the total amount of fees these projects are paying. Fees in Western Riverside County are currently comparable to fees that would be paid in San Bernardino County.

Darren Henderson reminded the Committee that the current High-Cube Warehouse calculation provides these uses with a discount because trip generation at these uses is different than a traditional industrial use and emphasized that the proposed update to this calculation would simply take into account the new observed trend of increased automobile and van trips for rapid delivery.

Committee member Smith noted that policymakers in the region are concerned with remaining competitive within the area to attract these uses.

Mr. Gray emphasized that industrial projects comprise the second highest percentage of TUMF fees collected this year. Member agencies are encouraged to consider the implications of this study when planning fulfillment centers, as this study provides early insight into a new trend in transportation.

Christopher Tzeng added that the Fee Comparison Analysis found that industrial fees per square footage were slightly lower in Riverside County than in San Bernardino County.

Todd Henderson asked if the study took into account mega-warehouses.

Mr. Henderson responded that mega-warehouses would likely still meet the definition of High-Cube Warehouses.

Action: 1. *Recommended that the Executive Committee approve the adjustment to the High-Cube Warehouse component of the TUMF Calculation Handbook.*

(Eastvale / Perris) 11 yes; 0 no; 0 abstention. Item 7.B was approved. The Cities of Banning, Beaumont, Canyon Lake, Hemet, Jurupa Valley, Lake Elsinore, Murrieta, Norco, and Riverside, the March Joint Powers Authority, and the Riverside County Transportation Commission were not present.

E. TUMF Calculation Handbook Revisions

Daniel Ramirez-Cornejo presented several proposed minor revisions to the TUMF Calculation Handbook to clarify implementation of the 3,000 square foot (SF) deduction policy for retail and service uses and the credit for existing uses exemption outlined in the TUMF Administrative Plan. The 3,000 SF deduction policy has been in effect since 2017; however, the Handbook was not updated at that time. It appears as though the Executive Committee will leave this exemption for the foreseeable future, and staff recommend adding this policy to the Fee Calculation Handbook.

Darren Henderson recommended calculating the current value of an existing use to determine the credit that would be awarded for the existing uses exemption. In instances where the credit may exceed the amount of TUMF that would be due for the new use, WRCOG should not reimburse developers.

The Committee discussed and reached consensus that the most straightforward approach for administration of the credit for existing uses would be to calculate the credit based on the current value of an existing use.

- Actions:**
1. *Recommended that the Executive Committee approve the proposed revisions to the TUMF Fee Calculation Handbook to include clarification language on the 3,000 square foot deduction policy for retail and service uses.*
 2. *Discussed and provided input on proposed clarification to the issuance of credit for existing uses for the exemption outlined in the TUMF Administrative Plan.*

(Menifee / Eastvale) 11 yes; 0 no; 0 abstention. Item 7.B was approved. The Cities of Banning, Beaumont, Canyon Lake, Hemet, Jurupa Valley, Lake Elsinore, Murrieta, Norco, and Riverside, the March Joint Powers Authority, and the Riverside County Transportation Commission were not present.

8. REPORT FROM THE DIRECTOR OF TRANSPORTATION & PLANNING

Christopher Gray encouraged Committee members to move projects forward if there is funding on the TIP and to reach out to staff if Committee members would like to move funding on the TIP to allow for timely project reimbursements.

Committee member Jonathan Smith requested additional information on the Bundy Canyon / Scott Road project and increased communication and coordination between Zones along this corridor due to the political nature of this corridor.

Mr. Gray noted that staff recommended this project be designated as a regional project during recent discussions with RCTC staff. There may also be additional opportunities for Zone money and staff will continue to work with member agencies to move projects forward along this corridor.

Christopher Tzeng reiterated staff's request for recent traffic count data as the model update is still underway. Additionally, Mr. Tzeng announced that several workshops will be held to share information on SB 743 implementation.

9. ITEMS FOR FUTURE AGENDAS

Christopher Gray indicated that the City of Jurupa Valley requested a presentation on recently approved Federal small cell legislation; staff will plan to add this to the March Committee meeting agenda.

10. GENERAL ANNOUNCEMENTS

Todd Warden noted that there is a loaner program if jurisdictions would like to test the electric yard and lawn equipment prior to purchasing.

11. NEXT MEETING

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

12. ADJOURNMENT

The meeting of the Public Works Committee adjourned at 2:57 p.m.

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Western Riverside Council of Governments Public Works Committee

Staff Report

Subject: WRCOG Committees and Agency Activities Update

Contact: Rick Bishop, Executive Director, rbishop@wrcog.us, (951) 405-6701

Date: March 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 summaries of actions and activities from recent WRCOG standing Committee meetings that have taken place for meetings which have occurred during the month of February.

Prior Action:

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

Fiscal Impact:

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

Attachments:

1. WRCOG February Committees Activities Matrix (Action items only).
2. Summary recaps from February Committee meetings.

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Item 6.A

WRCOG Committees and Agency
Activities Update

Attachment 1

WRCOG February Committees
Activities Matrix (Action items only)

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<u>WRCOG Committees Activities Matrix (Action Items Only)</u>	<u>Executive Committee</u>	<u>Administration & Finance Committee</u>	<u>Technical Advisory Committee</u>	<u>Planning Directors Committee</u>	<u>Public Works Committee</u>	<u>Finance Directors Committee</u>	<u>Solid Waste Committee</u>
Date of Meeting:	2/4/19	2/13/19	2/21/19	2/14/19	2/14/19	Did not meet	Did not meet
Current Programs / Initiatives:							
Regional Streetlights Program	Received and filed.	n/a	Received and filed.	n/a	n/a		
Property Assessed Clean Energy (PACE) Programs	Accepted the Cities of Santa Barbara and Alameda as Associate Members of the Western Riverside Council of Governments; 2) adopted WRCOG Resolution Number 02-19; 3) authorized staff to implement a \$15,000.00 deposit for all new Commercial PACE Providers to work within the WRCOG Program; 4) supported the Administration & Finance Committee's recommendation to direct and authorize the Executive Director to enter into contract negotiations and execute any necessary documents to include Lord Capital, LLC, under WRCOG's statewide PACE umbrella; 5) supported the Ad Hoc Committee's recommendation to direct and authorize the Executive Director to enter into contract negotiations and execute any necessary documents to include Twain Financial Partners Holding, LLC, under WRCOG's PACE umbrella;	Considered the recommendation from the PACE Ad Hoc Committee recommending that the Executive Committee authorize the Executive Director to enter into contract negotiations and execute any necessary documents to include Lever Energy Capital under WRCOG's Commercial PACE umbrella.	Received and filed.	n/a	n/a		
Community Choice Aggregation (CCA) / Western Community Energy	n/a	n/a	Received and filed.	n/a	n/a		
TUMF	Received and filed.	n/a	Received and filed.	n/a	Recommended that the Executive Committee approve the proposed revisions to the TUMF Fee Calculation Handbook to include clarification language on the 3,000 square foot deduction policy for retail and service uses; 2) discussed and provided input on proposed clarification to the issuance of credit for existing uses for the exemption outlined in the TUMF Administrative Plan;		
Fellowship	Directed staff to implement the following changes to the Fellowship Program: 1) recruit Fellows from additional universities, both within and outside of the subregion; 2) expand candidate eligibility to students and recent graduates who live, work, attend school in, or are from the region and meet other minimum qualifications; 3) establish a minimum 3.0 GPA threshold for all applicants; 4) alternate Fellow placements over two years so members receive a Fellow every-other year, and 5) admit Fellows to serve in either a part-time or full-time capacity.	n/a	n/a	Received and filed.	n/a		
New Programs / Initiatives:							
EXPERIENCE	n/a	n/a	n/a	n/a	n/a		

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Item 6.A

WRCOG Committees and Agency
Activities Update

Attachment 2

Summary recaps from February
Committee meetings

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**Western Riverside Council of Governments
Executive Committee
Meeting Recap
February 4, 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, click [here](#). To review the meeting PowerPoint presentations, click [here](#).

New Representatives Welcomed

- The Executive Committee approved the appointment of Kevin Bash, City of Norco, as 2nd Vice-Chair for the remainder of the fiscal year.
- The Committee welcomed three new representatives from member jurisdictions including: Daniela Andrade (Banning), Victoria Baca (Moreno Valley) and James “Stew” Stewart (Temecula).

PACE Programs Activities Update

- The Committee approved the institution of a \$15,000 application deposit for commercial PACE providers to cover costs associated with onboarding.
- The Committee approved the addition of two new PACE commercial providers: Twain Financial Partners Holding and Lord Capital, both to operate within the WRCOG statewide “footprint”.

Report from Southern California Association of Governments

- The Honorable Alan Wapner, City of Ontario Council Member and SCAG President, shared that SCAG is in the midst of working on two key initiatives: the Regional Housing Needs Assessment (RHNA) and Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS).
- The RHNA is a plan to address the housing needs of the future population while the RTP/SCS addresses the transportation needs of the future population without adversely impacting the environment. WRCOG will work with members to determine if the subregion should assume responsibility for allocating the RHNA to local jurisdictions instead of SCAG.

Update on the Development of a Sustainability Indicators Report

- WRCOG’s Economic Development and Sustainability Framework, which serves to guide the Agency, included approximately 40+ indicators with data on the subregion’s performance in the six goal areas of the Framework: Economic Development, Energy, Education, Health, Transportation and Water.
- WRCOG has updated a selection of 15 indicators to better understand what areas we are performing well in and where there is room for improvement. For example, the updated indicators revealed that water use per capita has dropped considerably, while the number of those who commute out of the subregion for work, essentially stayed the same at 62%, and the inflation adjusted income has decreased.
- As next steps, WRCOG will compile and share all data, available at the City level upon request, and track these metrics on a regular basis. WRCOG’s semi-annual Future of Cities event, scheduled for late April 2019, will be organized to address some of the key findings of the indicators.

Public Service Fellowship Activities Update

- WRCOG’s Public Service Fellowship Program is designed to support the development of emerging professionals and encourage them to work in the public sector here in the WRCOG subregion.
- The Committee approved several changes aimed at enhancing the Program and instituting greater sustainability. Of note, the Committee approved the adoption of a policy placing Fellows in member agencies every-other-year to help stretch the Program budget and ensure only top tier candidates are admitted.

Next Meeting

The next Executive Committee meeting is scheduled for Monday, March 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
February 13, 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 Activities Update

- Commercial PACE financing is projected to become a viable tool for the development community to comply with energy efficiency mandates with cost effective financing. WRCOG has on boarded three commercial PACE providers (Greenworks, CleanFund, and Ygrene) to maximize this opportunity.
- The Administration & Finance Committee recommended that the Executive Committee authorize the Executive Director to enter into contract negotiations and execute any necessary documents to include Lever Energy Capital under WRCOG's Commercial PACE umbrella.
- Lever Energy Capital has over a century of combined real estate finance, underwriting and securitization experience and has originated more than \$30 million in Commercial PACE financing.

Appointment of a WRCOG Representative to a SCAG Policy Committee

- The Committee recommended City of Eastvale Councilmember Joseph Tessari for appointment to SCAG's Community, Economic & Human Development Committee (CEHD).

Fiscal Year 2017/2018 Comprehensive Annual Financial Report (CAFR)

- The Fiscal Year (FY) 2017/2018 CAFR determined that WRCOG's Financial Statements are in conformity with US Generally Accepted Auditing Standards. WRCOG's auditors are providing an unmodified opinion on the FY 2017/2018 CAFR, which is the highest form of assurance an auditing firm can provide to its client.

28th Annual General Assembly & Leadership Address Update

- The 28th annual General Assembly & Leadership Address will be held Thursday, June 20, 2019, at Pechanga Resort and Casino featuring keynote speaker Josh Earnest, former White House Press Secretary (2014-2017).

General Announcements

- The WRCOG Public Service Fellowship Program is now accepting applications for the 2019-2020 year. Applications will close on March 30, 2019. Interested candidates can find more information at wrcog.us/169/Fellowship.

Next Meeting

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



**Western Riverside Council of Governments
Technical Advisory Committee
Meeting Recap
February 21, 2019**

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

2020 Census Update

- The County of Riverside and the UCR Center for Social Innovation have partnered together to develop a framework to facilitate the 2020 Decennial Census process.
- Population data from the Census will play a key role in critical issues, such as Congressional redistricting and the allocation of federal grants and other funds.
- One of the major challenges of the Census is reaching hard to count (HTC) populations. Examples of these populations include students, renters, immigrants, and seniors.
- The County and UCR have developed collaborative strategies to streamline efforts across partnerships to reach HTC populations. One advantage of this year's Census is that, for the first-time participants can respond online.

County of Riverside Efforts to Address Homelessness

- Homelessness is a critical issue for Riverside County that requires significant coordination between organizations. Natalie Profant Komuro, Deputy County Executive Officer for the County of Riverside, has been tasked to oversee the issue of homelessness within the County.
- Ms. Komuro provided a detailed account of the work of various County departments to address homelessness and discussed some of the challenges to a comprehensive solution and the vision for the County's involvement moving forward.
- Ms. Komuro will be invited to return to the TAC to provide members with regular updates.

Potential WRCOG Assistance for Regional Housing Needs Assessment (RHNA) Update

- The state-wide housing crisis is creating challenges locally in housing the subregion's growing population, complying with changing legislation, meeting RHNA targets, and avoiding growing risks of non-compliance.
- WRCOG has identified three options for assisting local agencies in navigating the 6th Cycle RHNA:
 1. Informational capacity
 2. Provide assistance in reviewing SCAG data
 3. Subregional delegation
- Staff is evaluating the pros and cons of subregional delegation, at the request of member agencies, but TAC members noted a strong aversion to taking on subregional delegation, noting the high cost and potential for conflict between WRCOG and member agencies as primary reasons not to pursue the option.
- Staff will return with an update on all options within the coming months. A final decision regarding subregional delegation must be made by the end of June 2019.

High-Cube Warehouse Trip Generation Study

- Based on the results of the Trip Generation Study and recommendation from the subcommittee (comprised of the Cities of Eastvale, Jurupa Valley, Moreno Valley, Perris, and Riverside), staff recommended an adjustment to the current High-Cube Warehouse TUMF Calculation to better accommodate the higher number of trips generated by large fulfillment centers.
- Per committee recommendation, staff will conduct additional research regarding trips created by large fulfillment centers and report back to the Committee for further discussion

General Announcements

- WRCOG's 28th Annual General Assembly & Leadership Conference will be held on Thursday, June 20, at Pechanga Resort and Casino. This year's event will include a full-day Conference beginning with a State of the Region and panel conference in the morning and afternoon, followed by the General Assembly in the evening, featuring Keynote Speaker Josh Earnest, former White House Press Secretary (2014-2017).

Next Meeting

The next meeting of the Technical Advisory Committee is scheduled for Thursday, March 21, 2019, at 9:30 a.m. in WRCOG's office, located at 3390 University Avenue, Suite 450, Riverside.



**Western Riverside Council of Governments
Planning Directors Committee
Meeting Recap
February 14, 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](#).

Housing Workshop Discussion

- The state-wide housing shortage has led to an onslaught of new legislation in recent years with the aim of fostering increased housing production. Despite this, production still lags and WRCOG member agencies are experiencing/anticipating significant challenges complying with the new laws.
- Committee members engaged in a thoughtful discussion aimed at clarifying the local challenges to developing more housing and identifying potential solutions.
- Among the issues discussed, members present reported that, while a significant number of sites are entitled in most jurisdictions for projects similar to what is being built, but permit rates lag. Various challenges were discussed including:
 - There is no silver bullet to increasing housing production, all barriers will need to be reduced.
 - Construction costs remain high and state solar regulations have increased costs by approximately \$25,000 per home.
 - Riverside County has a shortage of construction workers, and companies are diverting the resources available to more profitable regions, such as Orange County.
 - CEQA typically extends a project timeline by 12-18 months.
 - Outside agencies, such as water districts, that are beyond control of the city or county, hold significant power in the construction process and can prohibit development.
- Accompanying this meeting summary is a list of questions pertaining to housing development. WRCOG asks that each member agency respond to these questions to help WRCOG better understand the barriers and potential solutions to building more housing in the subregion.

Fee Comparison Analysis

- WRCOG is in the process of finalizing an update to the 2016 WRCOG fee comparison analysis, which examined fees required of development projects, the effect of other development costs, and the economic benefits of transportation investment.
- The study found that, with the exception of retail, fees on land uses increased at or below the rate of inflation (6.5%)
- Since 2016, the TUMF program instituted a fee reduction for retail, accounting for an overall reduction in total fees for retail uses from \$24.11 to \$23.63 per square foot.
- The TUMF fee collected is usually the 3rd largest fee.
- As a percentage, school fees increased more than any other fee category (10%).

Resilient IE Update

- The project team is now working to develop a comprehensive, city-level inventory of Hazard and Evacuation Maps.
- PDC members are asked to please share any existing evacuation maps and/or preferred routes by Thursday, February 28, 2019, by emailing ahoward@wrcog.us.
- The consultant team will develop recommended routes for all jurisdictions needing additional/all routes/maps.

CAPtivate 2.0 Consultant Selected

- Six proposals were received in response to the RFP to update CAPtivate 2.0 and, after holding interviews, Environmental Science Associates (ESA) was the selected to lead the update.
- Grant funds will cover updates to the transportation and land use measures only; WRCOG is looking for additional funds to cover the costs of updating the water, waste, and energy measures to conduct a comprehensive update.
- The project is anticipated to commence in early March 2019 and be completed in February 2021.
- If there is sufficient interest in conducting a program Environmental Impact Report (EIR) to make a CEQA qualified CAP, WRCOG would likely explore cost-sharing measures with interested member agencies. Staff will return with additional details regarding EIR options at future meetings.

Announcements

- WRCOG is currently exploring the pros and cons of subregional delegation, to assume responsibility for preparing the subregional housing needs allocation in place of SCAG for the sixth cycle of RHNA. Staff will be researching the process and bringing the option forward for consideration by the WRCOG committee structure over the next few months. A final decision must be made by June 28, 2019.

Next Meeting

The next Planning Directors Committee meeting is scheduled for Thursday, March 14, 2019 at WRCOG's office, located at 3390 University Avenue, Suite 450, Riverside.



**Western Riverside Council of Governments
Public Works Committee
Meeting Recap
February 14, 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](#).

Riverside Transit Agency Activities Update

- Rohan Kuruppu, Riverside Transit Agency (RTA), Director of Planning, provided an update on activities underway and recently completed with TUMF funding contributions.

Fee Comparison Analysis Update

- Staff presented preliminary findings from the Fee Comparison Analysis Study currently underway to update the results of a similar study completed in 2016. The purpose of the study was to understand the fees required of development projects in and around the WRCOG subregion, the effects of other development costs, and the economic benefits of transportation investment.
- Staff anticipate the final results of the study will be presented at the March Public Works Committee meeting.

Fiscal Year 2019/2020 SB 821 – Bicycle and Pedestrian Facilities Program Call for Projects

- Riverside County Transportation Commission (RCTC) staff announced that the call for projects was released on February 4, 2019 and that proposals are due on April 25, 2019 by 5 p.m. at the RCTC office.
- RCTC staff encourage interested jurisdictions to schedule 1:1 coordination sessions with RCTC to offer insight and assistance prior to the deadline.

High-Cube Warehouse Calculation

- Staff presented the proposed adjustment to the High-Cube Warehouse component of the TUMF Calculation Handbook based on the results of the TUMF High-Cube Warehouse Trip Generation Study completed in January 2019.
- The adjustment to the High-Cube Warehouse TUMF calculation would account for the higher number of observed trips generated by large fulfillment centers and would recognize fulfillment centers as a subset of the general High-Cube Warehouse fee calculation category.
- The Committee recommended that the Executive Committee approve the adjustment to the High-Cube Warehouse component of the TUMF Calculation Handbook.

TUMF Calculation Handbook Revisions

- Staff presented several proposed minor revisions to the TUMF Calculation Handbook to clarify implementation of the 3,000 square foot deduction policy for retail and service uses and the credit for existing uses exemption outlined in the TUMF Administrative Plan.

- The Committee recommended that the Executive Committee approve the proposed revisions to the TUMF Calculation Handbook related to the 3,000 SF deduction policy.
- The Committee indicated that credits for existing uses should be determined based on the current policies and rates in effect at the time a project is requesting credit.

Next Meeting

The next Public Works Committee meeting is scheduled for Thursday, March 14, 2019, at 2:00 p.m., in 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, Interim Chief Financial Officer, aruiz@wrcog.us, (951) 405-6741

Date: March 14, 2019

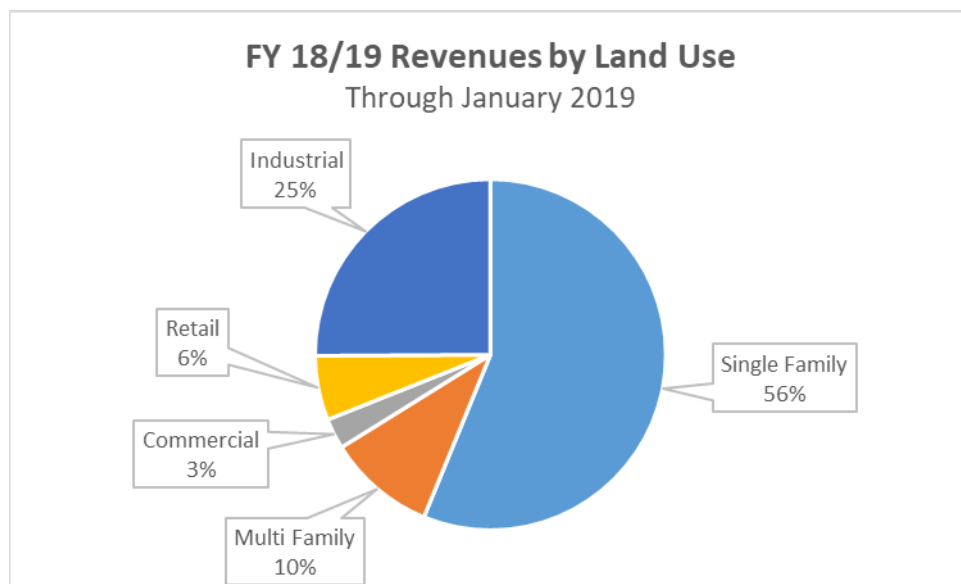
The purpose of this item is to provide an update on the TUMF revenues, expenditures, and reimbursements for the current month and since Program inception.

Requested Action:

1. Receive and file.
-

January 2019 Remittances

For the month of January 2019, the TUMF Program collected \$4,294,872. As shown in the chart below, of the \$35 million collected this fiscal year to date, approximately 56%, or \$20 million, has been from single-family residential projects, followed by approximately 25%, or \$9 million, from industrial projects.



February 2019 Reimbursements

TUMF reimbursements were made for the following projects during February 2019:

- Central Zone: Scott Road / I-215 Interchange
- Northwest Zone: Temescal Canyon Road Widening
- Southwest Zone: Bundy Canyon Road (Cherry Street to Sunset Road)

Member agencies are encouraged to submit reimbursement requests as project costs are incurred for projects that have available funding on the appropriate, approved Transportation Improvement Program (TIP) for the current fiscal year. Staff preference is that reimbursement requests generally be submitted in increments of no less than \$10,000.

Historic Payments and Collections

To date, revenues received into the TUMF Program total \$814,808,647. Interest amounts to \$33,618,427, for a total collection of \$848,427,074.

WRCOG has dispersed a total of \$394,108,978 primarily through project reimbursements and refunds, and \$25,081,210 in administrative expenses.

The Riverside County Transportation Commission shared payments have totaled \$367,035,208 through February 28, 2019.

Prior Action:

None.

Fiscal Impact:

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

Attachment:

1. Summary TUMF Program revenues.

Item 6.B

TUMF Revenue and Expenditures
Update

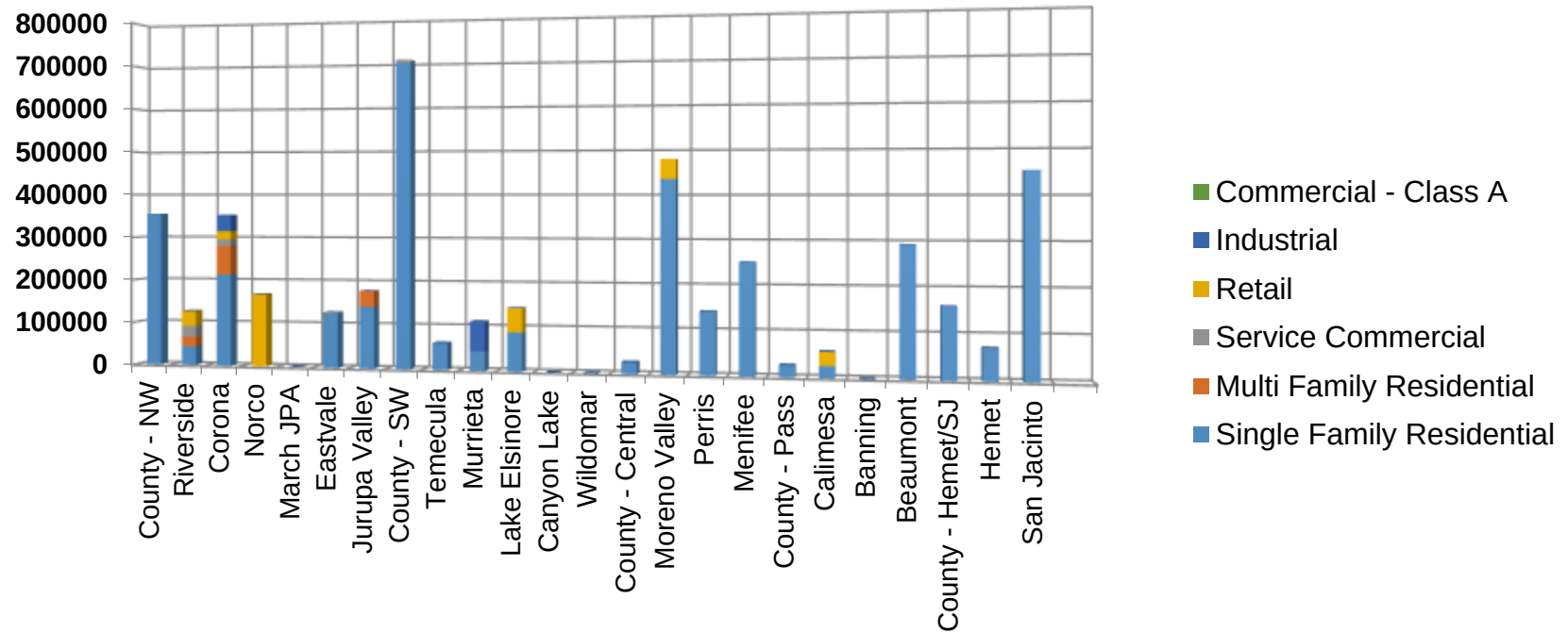
Attachment 1

Summary TUMF Program revenues

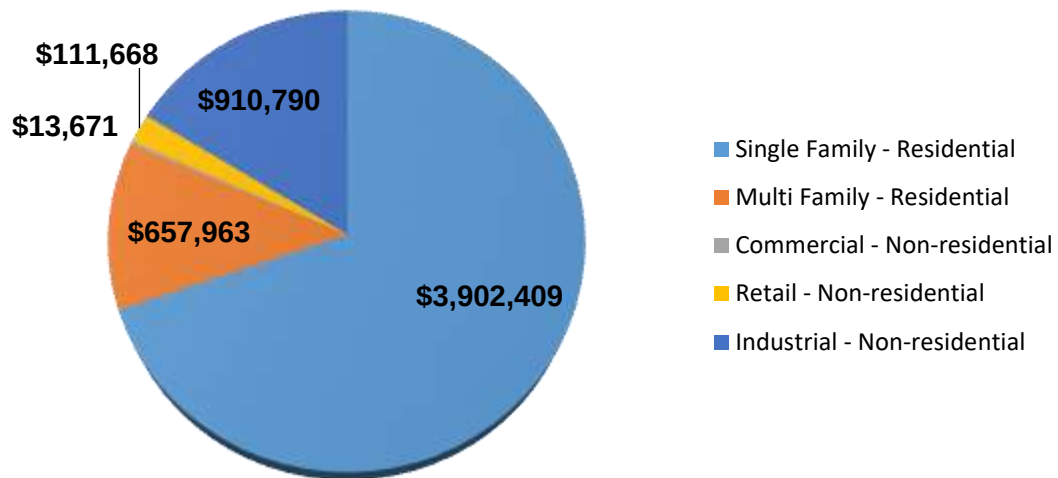
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TUMF Revenues by Jurisdiction

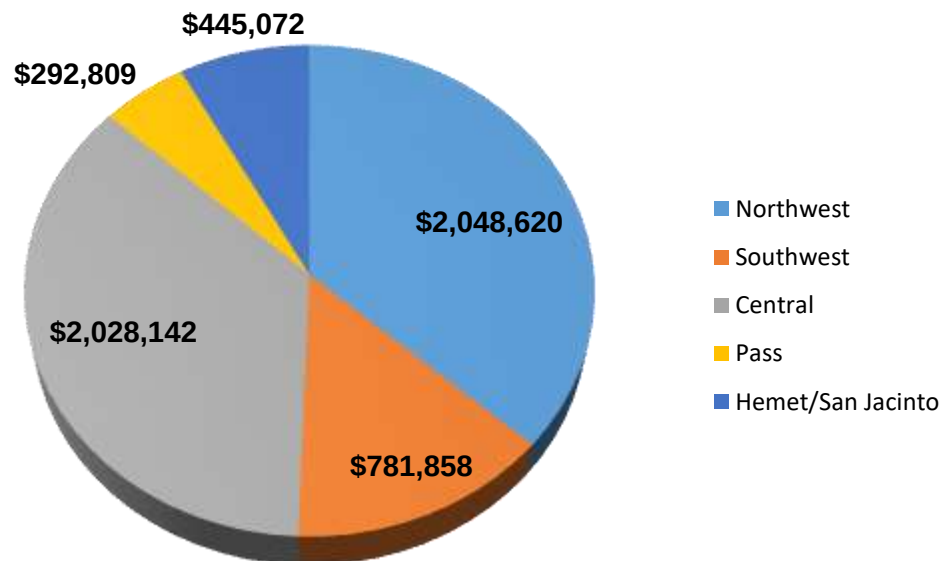
Total Revenue - \$4,294,872



January 2019 TUMF revenues by land-use type



January 2019 TUMF Revenues by Zone



Jurisdiction	Fiscal Year 17-18	2018 July	August	September	October	November	December	2019 January	Fiscal Year 18-19
Banning	\$34,831	\$0	\$0	\$0	\$0	\$8,873	\$0	\$0	\$8,873
Beaumont	\$1,122,229	\$266,190	\$177,460	\$640,153	\$0	\$204,079	\$150,841	\$292,809	\$1,731,532
Calimesa	\$17,782	\$8,873	\$0	\$8,873	\$8,873	\$0	\$0	\$57,722	\$84,341
Canyon Lake	\$84,301	\$17,746	\$0	\$8,873	\$0	\$8,873	\$0	\$0	\$35,492
Corona	\$1,789,431	\$133,095	\$62,111	\$86,141	\$754,985	\$797,314	\$141,968	\$352,770	\$2,328,385
Eastvale	\$4,234,019	\$0	\$62,111	\$88,010	\$0	\$246,082	\$0	\$128,176	\$524,379
Hemet	\$655,213	\$18,292	\$4,359	\$24,770	\$141,968	\$34,365	\$0	\$71,557	\$380,771
Jurupa Valley	\$5,613,221	\$283,936	\$603,364	\$882,363	\$480,879	\$440,450	\$141,968	\$178,772	\$3,246,372
Lake Elsinore	\$4,042,675	\$53,238	\$115,349	\$452,523	\$17,746	\$60,551	\$125,560	\$143,578	\$1,202,601
March JPA	\$2,009,269	\$0	\$0	\$154,348	\$742,413	\$0	\$0	\$0	\$896,761
Menifee	\$3,221,139	\$0	\$460,096	\$342,134	\$285,916	\$296,045	\$355,151	\$251,990	\$1,991,331
Moreno Valley	\$6,971,308	\$523,507	\$1,125,812	\$194,029	\$1,594,874	\$1,767,561	\$0	\$478,630	\$5,684,412
Murrieta	\$3,142,420	\$354,034	\$259,801	\$257,317	\$150,841	\$70,984	\$0	\$112,370	\$1,205,348
Norco	\$253,632	\$5,424	\$205,656	\$0	\$748,545	\$0	\$8,873	\$168,456	\$1,136,954
Perris	\$769,084	\$301,682	\$17,746	\$593,560	\$0	\$35,492	\$146,897	\$141,968	\$1,237,345
Riverside	\$3,567,176	\$1,564,054	\$280,738	\$146,047	\$647,399	\$1,426,528	\$115,349	\$127,141	\$4,307,255
San Jacinto	\$2,445,168	\$409,034	\$70,984	\$177,460	\$292,809	\$120,681	\$35,492	\$452,523	\$1,638,840
Temecula	\$1,822,548	\$91,212	\$259,701	\$1,267	\$177,329	\$65,991	\$21,905	\$62,111	\$679,516
Wildomar	\$1,309,894	\$35,492	\$8,873	\$8,873	\$67,119	\$0	\$110,882	\$0	\$231,239
County Central	\$3,779,337	\$1,202,953	\$239,571	\$44,365	\$150,841	\$26,619	\$186,333	\$26,619	\$1,939,412
County Hemet/S.J.	\$515,274	\$17,746	\$12,092	\$380,390	\$44,953	\$74,532	\$8,873	\$159,708	\$815,412
County Northwest	\$2,169,944	\$62,111	\$106,476	\$177,460	\$17,746	\$416,033	\$80,583	\$354,920	\$1,304,059
County Pass	\$144,898	\$17,746	\$8,873	\$0	\$0	\$26,619	\$0	\$26,619	\$79,857
County Southwest	\$3,700,525	\$230,136	\$366,272	\$737,857	\$834,498	\$116,277	\$384,733	\$706,435	\$3,493,668
Total	\$ 53,415,318	\$ 5,596,500	\$4,447,445	\$ 5,406,812	\$ 7,159,735	\$6,243,949	\$2,015,407	\$ 4,294,872	\$ 36,184,152

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Western Riverside Council of Governments

Public Works Committee

Staff Report

Subject: Regional Energy Network Activities Update

Contact: Anthony Segura, Staff Analyst, asegura@wrcog.us, (951) 405-6733

Date: March 14, 2019

The purpose of this item is to provide information on the development of a Regional Energy Network between the Coachella Valley Association of Governments (CVAG), San Bernardino Council of Governments (SBCOG), and WRCOG; and the status of the Request for Proposal (RFP) for consultant support.

Requested Action:

1. Discuss and provide input on interested program sectors for REN development.

Evolution of Local Government Partnerships & Development of Regional Energy Network

Local Government Partnerships Background: Local Government Partnerships (LGP) were approved by the California Public Utilities Commission (CPUC) in 2009 and allow Investor Owned Utilities (IOUs) to work with local governments on the implementation of LGPs. Through this model, LGPs were developed to focus on three objectives: 1) retrofitting local government buildings; 2) promoting utility core programs; and 3) supporting qualified energy efficiency activities included in the Energy Efficiency Strategic Plan.

The Western Riverside Energy Partnership (WREP) is an LGP which formed in 2010 and is administered by WRCOG to achieve these three objectives. WREP works closely with WRCOG's member agencies, Southern California Edison (SCE), and SoCal Gas to provide project support and community outreach through a number of energy efficiency initiatives. There are currently more than 40 LGPs in the state which are facing three immediate challenges that could affect the continuity of their status and ongoing support of energy efficiency projects / outreach they provide to their members. These challenges include:

1. Decreases in funding: IOUs are decreasing the funding that LGPs will be receiving; this will start to take effect in January 2019. For LGPs performing work in the territories of Pacific Gas & Electric (PG&E), SoCal Gas, and SCE, there has been an average decrease in funding of 31%.
2. IOUs bidding out Energy Efficiency Programs: IOUs will be exporting approximately 60% of their Energy Efficiency Portfolio / Programs and will bid them out to third party providers to take over the role that LGPs currently have as partners with the IOUs. The reason for this export of programs is that IOUs believe that there are other resources to make its energy efficiency programs more effective. In doing so, the IOUs are looking at distributing a Request for Proposal (RFP) to identify a potential contractor that can better assist with meeting their goals. The RFP is expected to be released in March 2019 and a selected contractor will begin conducting work in 2020.
3. Eliminating Strategic Planning: IOUs will stop offering Strategic Plan funding as of January 2019. The reasoning behind this approach is that there is no quantifiable way to calculate or identify the effectiveness of energy efficiency with these programs. Programs that have been funded in the past through this source include Benchmarking services and Online Permitting Systems.

Regional Energy Network (REN) might be the next evolution: A potential solution WRCOG has been examining to address these challenges is to work with SBCOG and CVAG (which implement its own individual LGPs) to develop and implement a Regional Energy Network. The result would be that the REN would cover both Riverside and San Bernardino Counties.

The following provides a brief overview of RENs in California.

What is the difference between a REN and an LGP? RENs differ from LGPs from the fact that the CPUC sought for the RENs to address the following three operational areas:

1. Undertake programs that the IOUs cannot or do not intend to do.
2. Target hard to reach areas.
3. Design programs that have the potential to be scaled to larger geographic areas.

In addition to these focus areas, the CPUC also directed RENs to address the areas of Workforce Education & Training (WE&T), Technology development, and Water – Energy Nexus.

Where are there RENs and what do they accomplish? To date, there are three active RENs which includes SoCal REN (administered by the County of Los Angeles), BAYREN (administered by the Association of Bay Area Governments (ABAG)), and 3CREN (administered by Santa Barbara, San Luis Obispo, and Ventura Counties). These three REN implementers work cohesively with their respective IOUs and administer the following programs for their regions:

1. Residential & Commercial Energy Efficiency Installation Programs
2. Workshops & Trainings
3. Financing Mechanisms for Energy Efficiency Projects
4. Working with 3rd party providers for either municipal / business energy efficiency support

Why do RENs exist? The goal of each REN is to implement and administer energy efficiency programs the current IOUs cannot or do not have the available resources to implement within each service territory. As directed by the CPUC, RENs look to fill the gap that IOUs cannot reach. For RENs, the term “filling the gap” means areas that are hard to reach or low-income communities.

What are the benefits of a REN? RENs focus on opportunities to grow and educate in the field of energy efficiency by providing programs that benefit communities considered to be low income or that do not have a high penetration rate by IOU providers. Furthermore, RENs have more access to funding to implement regional programs offered to various members involved within RENs than what current LGPs have within their funding cycle.

What does the funding look like for the existing RENs? The table below compares the 2019 WREP budget to the total amount of funding that each REN will be looking to utilize for 2019. More specifically, the flow of money is different between a REN and an LPG. In an LPG, the IOUs approved the budget and reimburse. In a REN, the money is sent directly from the CPUC in advance.

2019 Energy Program Funding	
Program	Funding Allocation
SoCal REN	\$ 21,800,800
BAYREN	\$ 24,702,000
3C REN	\$ 5,964,400
WREP	\$ 216,000

On December 3, 2018, the Executive Committee, authorized staff to continue working with both CVAG and SBCOG to develop a joint cooperative agreement and release a Request for Proposal to identify a consultant to assist all three entities with development / implementation of a REN of a not to exceed amount of \$150,000 (\$50,000 per COG).

Request for Proposal – REN Development

On January 31, 2019, WRCOG released an RFP to identify and select a consultant(s) to support CVAG, SBCOG, and WRCOG to develop a REN through the creation of a Business Plan that will be submitted to the CPUC for approval. In order for RENs to be established, a Business Plan would need to be developed and filed to the CPUC for its final approval. The Business Plan is the framework for RENs as they lay the foundation for future work by RENs as it provides information on the Program's service boundary, energy efficiency analysis, energy efficiency measures / programs interested in implementing within the service territory, and how the RENs programs will meet California's energy efficiency goals for the upcoming years.

The Business Plan for all three entities will highlight the various program sectors that each agency will look into providing to the region. As part of this presentation to this Committee, staff would like to inquire the level of interest of each member jurisdiction in each market sector. Examples of program sectors that have been mentioned in prior meetings but not yet confirmed include Residential (single / multi-family), small commercial, Workforce Education & Training, and financing initiatives to help the region's growth of energy efficiency continue.

The Business Plan will also go through stakeholder review from the CPUC's Energy Division & the California Energy Efficiency Coordination Committee (CAEECC) where various entities will provide comments on the proposed Business Plan before it reaches the CPUC for final approval. If approved by the CPUC, staff anticipates the REN to launch by Fall 2020.

The following table lists the schedule of events for the RFP:

Event	Date
1. RFP Distribution	January 31, 2019
2. Questions from Vendors about scope or approach due	February 14, 2019
3. Responses to questions posted on website	February 26, 2019
4. Proposal Due Date	March 7, 2019
5. Review of proposals	Week of March 11, 2019
6. Potential Interviews	Week of March 18, 2019
7. Anticipated decision and selection of Vendor(s)	Week of March 25, 2019
8. Anticipated commencement date of work	Upon approval of contract by Administration & Finance Committee

As for next steps, CVAG, SBCOG, and WRCOG will be meeting with the qualified bidders for the interview process and once a firm is selected then WRCOG will report out through the Committee structure.

For additional questions or information on the REN development, please contact Anthony Segura at asegura@wrcog.us.

Prior Actions:

December 3, 2018: The Executive Committee 1) authorized the Executive Director to develop a joint cooperation agreement between CVAG, SBCOG, and WRCOG; and 2) directed the Executive Director to release a Request for Proposals for feasibility & implementation of a Regional Energy Network.

November 14, 2018: The Administration & Finance Committee recommended that the Executive Committee 1) authorize the Executive Director to develop a joint cooperation agreement between CVAG, SBCOG, and WRCOG; and 2) direct the Executive Director to release a Request for Proposals for feasibility & implementation of a Regional Energy Network.

Fiscal Impact:

REN Program development has been included in WRCOG's 2nd Quarter Budget Amendment.

Attachment:

1. Final WRCOG REN White Paper.

Item 7.A

Regional Energy Network Activities Update

Attachment 1

Final WRCOG REN White Paper

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White Paper Evolution of Local Government Energy Partnerships with Utilities and Regional Energy Networks (RENs)

This paper describes the purpose and role of Local Government Partnerships (LGPs), the challenges they are facing, and a solution local governments can utilize to continue their work to provide localized energy efficiency programs for their communities.

What are Local Government Partnerships (LGPs)?

Local Government Partnerships (LGPs) were approved by the California Public Utilities Commission (CPUC) in 2009 and allow Investor Owned Utilities (IOUs) [*Southern California Edison (SCE)*, *Southern California Gas Company (SoCal Gas)*] to work with local governments to support various energy efficiency programs and activities. LGPs work to help meet the state's energy efficiency goals and provide support to local governments with assistance on various energy efficiency projects. There are over 40 LGPs in California that provide local jurisdictions with energy efficiency support.

LGPs were developed to focus on three objectives: 1) retrofitting local government buildings; 2) promoting utility programs such as residential & customer energy efficiency support; and 3) supporting qualified energy efficiency activities included in the CPUC Energy Efficiency Strategic Plan.

The Western Riverside Energy Partnership (WREP), an LGP administered by WRCOG formed in 2010, works closely with SCE, SoCal Gas, and 15 WRCOG member agencies in Western Riverside County. The following cities are involved with the WREP Partnership: Calimesa, Canyon Lake, Corona, Eastvale, Hemet, Jurupa Valley, Lake Elsinore, Menifee, Moreno Valley, Murrieta, Norco, Perris, San Jacinto, Temecula, and Wildomar. Since the Partnership's inception, activities undertaken by the member jurisdictions have resulted in a total of over 16.7 million kWh savings (equates to 2,000 homes electricity use for 1 year) and over 9,000 therms (equates to 8 homes electricity use for 1 year).

LGPs are facing challenges that could impact their continued work

LGPs (like WREP) in the state are facing three challenges that could affect the long-term viability of their existence. These include:

1. **Decreases in Funding**: For LGPs performing energy efficiency work in the in utilities territories throughout the state, there has been an average decrease in funding of 31%.
2. **IOUs Outsourcing Energy Efficiency Programs**: IOUs will be exporting approximately 60% of their Energy Efficiency Portfolio / Programs and will bid them out to third party providers to take over the role that LGPs currently have as partners with the IOUs. The reason for outsourcing the programs is that the current model the

programs are being run on is not cost effective, and the utilities are looking at another model to meet the cost effectiveness of their programs.

3. **Eliminating Strategic Planning**: IOUs have stopped offering Strategic Plan funding as of January 2019 which were funds made available for benchmarking and Energy Action Plan (EAP) models. Strategic Plan funding has been eliminated because there is no quantifiable method to calculate the energy savings from the utilities side. Strategic Planning projects were considered to be “non-resource” projects which do not have any energy savings tied to them and are, therefore, not deemed cost effective.

Regional Energy Networks (REN) represent the next iteration of LGPs

In 2012, the CPUC authorized a new model for administering energy efficiency programs outside the traditional IOU-administered paradigm which has utilized Local Government Partnerships. These new models are known as Regional Energy Networks (RENs).

The CPUC sought for the RENs to address the following three operational areas:

1. Undertake programs that the IOUs cannot or do not intend to do. RENs have the opportunity to work on “Pilot” programs that are different or unique in approach to have a potential to scale and or target hard to reach customers. Examples of pilot programs can include offering new emerging technologies and regional workforce trainings.
2. Target hard to reach areas which includes communities that are considered to be areas that do not have easy access to program information or participation in energy efficiency programs due to language, geographic location, housing type (rent / lease, multi-family & mobile home tenants), and socioeconomic status.
3. Design programs that have the potential to be scaled to larger geographic areas. Programs of this subject includes a regional implementation of emerging energy efficiency technologies and regional workforce trainings.

What are RENs and how do they differ from LGPs?

The following provides a brief overview of RENs in California.

Why do RENs exist?

- The goal of a REN is to implement and administer energy efficiency programs the current IOUs cannot or do not have the available resources to implement within each service territory.
- As directed by the CPUC, RENs look to fill the gap that IOUs cannot reach. For RENs, the term “filling the gap” means areas that are hard to reach or low-income communities. These areas are considered to be at a disadvantage due to language barrier, geographic location, economically demographic, and housing type (rent / lease, multi-family & mobile home tenants).

What is the difference between a REN and a LGP?

- RENs provide a greater level of local control in the development and implementation of programs that are specific to the region the REN represents. LGPs do not have the same control to design regionally specific programs and are beholden to the programs developed by the IOUs.
- RENs are also able to develop programs to support Workforce Education & Training, Technology development and Marketing & Outreach programs.
- A significant difference between an LGP and REN is the size of budget. The WREP budget is approximately \$216,000 annually, compared to a REN budget, which can range from approximately \$6,000,000 to \$24,000,000 annually. The difference in budget is because with LGPs, each implementer such as WREP is allocated funding based off of their members involved, project pipeline, and estimated gas / energy savings. Whereas with RENs, there are more opportunities to implement, create, and design programs in a regional approach which will be focused to a larger audience. This type of work requires a larger budget and also provides RENs with more flexibility to create new programs to continue the growth of energy efficiency. Such programs that can be created through RENs are residential / customer Direct Install Programs for hard to reach areas.

What are the benefits of a REN?

- RENs focus on opportunities to grow and educate in the field of energy efficiency by providing programs that benefit communities considered to be low income or that do not have a high penetration rate by IOU providers.
- Furthermore, RENs have more access to funding to implement regional programs offered to various members involved within RENs than what current LGPs have within their funding cycle.

Where are RENs in California and what do they accomplish?

- To date, there are three active RENs which includes SoCal REN (administered by the County of Los Angeles), BAYREN (administered by the Association of Bay Area Governments (ABAG)), and 3CREN (administered by Santa Barbara, San Luis Obispo, and Ventura Counties).
- These three REN implementers work with their respective IOUs and administer the following programs for their regions:
 1. Residential & Commercial Energy Efficiency Installation Programs
 2. Workshops & Trainings
 3. Financing Mechanisms for Energy Efficiency Projects

4. Working with 3rd party providers for either municipal / business energy efficiency support

How are RENs funded?

The table below compares the 2019 WREP budget to the total amount of funding that each REN will be looking to utilize for 2019. More specifically, the flow of money is different between a REN and an LPG. In an LPG, the IOUs approved the budget and reimburse. In a REN, the money is sent directly from the CPUC in advance.

2019 Energy Program Funding	
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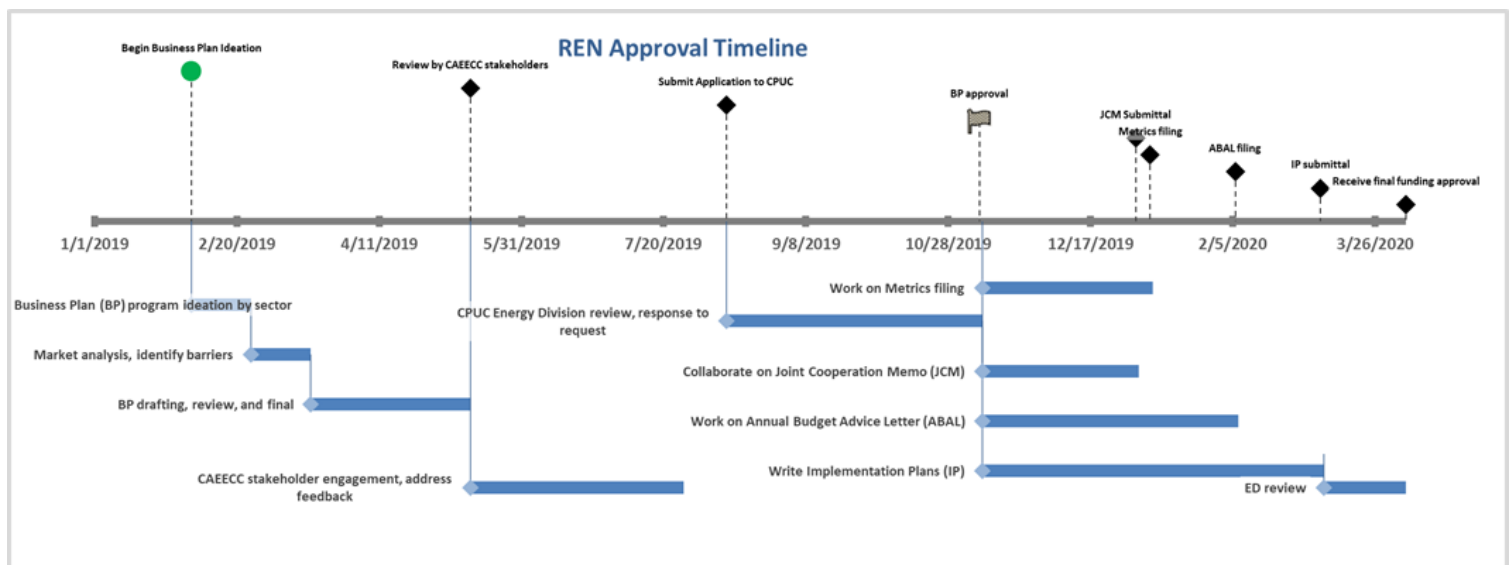
Conclusion and moving forward

A potential solution WRCOG has been examining to address these challenges is to work with San Bernardino Council of Governments (SBCOG) and Coachella Valley Association of Governments (CVAG) (which implement its own individual LGPs) to develop and implement a Regional Energy Network. The result would be a REN covering both Riverside and San Bernardino Counties.

With the Utilities going out to bid and exporting 60% of their energy efficiency programs to a new provider, SBCOG, CVAG and WRCOG are working together to continue promoting and offering energy efficiency programs to their members. Each Council of Governments (COGs) currently has an existing LGP in their region and their goal with the implementation of a REN is to evolve their LGPs because both San Bernardino & Riverside County are areas with so much potential for the field of energy efficiency.

All three COGs are interested in working together to create a REN within the Inland Empire because it allows for the idea of local control & regional perspective. With the opportunity to create and grow energy programs in both Counties, RENs allow the agencies to provide programs to their members that catch their interest and provide support with energy efficiency. In comparison to an LGP, RENs have the opportunity to design and implement programs with a much larger budget than that of an LGP. Additionally, by working collectively, each COG will be able to provide offerings within the Inland Empire which has a lot of jurisdictions that meet the criteria of hard to reach. With a REN, the COGs will provide its members with resources to grow their businesses, prolong the life of their homes / buildings, and increase the awareness of energy efficiency for a region that needs support.

In order for a REN to be established in both San Bernardino & Riverside County, all three COGs would need to create and submit a Business Plan to the CPUC. This Business Plan is the framework behind a REN as it lays out the foundation for the proposed REN. The Business Plan will consist of the proposed budget, projected cost savings & cost effectiveness, the target sector for energy efficiency (residential, commercial, etc), energy efficiency metrics, and new technologies to be implemented. Once the Business Plan is approved at the CPUC level, then the creation of an Implementation Plan, Annual Budget Advice Letter (ABAL), and Joint Cooperation Memo will need to be completed before the funds are dispersed to the REN. The timeline for all these documents to be created and approved at the CPUC level vary, but all three COGs look to have an active REN running in 2020.



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Western Riverside Council of Governments Public Works Committee

Staff Report

Subject: Assembly Bill 2766 Report and Available Funding to Local Jurisdictions

Contact: Lane Garcia, Air Quality Specialist, South Coast Air Quality Management District,
LGarcia@aqmd.gov, (909) 396-3297

Date: March 14, 2019

The purpose of this item is to provide a report on Assembly Bill 2766 and discuss funding opportunities for local jurisdictions.

Requested Action:

1. Receive and file.

Lane Garcia, South Coast Air Quality Management District, Air Quality Specialist, will present an overview of the most recent AB 2766 annual report data, with a focus on WRCOG local government activities.

Prior Action:

None.

Fiscal Impact:

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

Attachment:

None.

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Western Riverside Council of Governments

Public Works Committee

Staff Report

Subject: 2019 TUMF Network Administrative Amendment

Contact: Daniel Ramirez-Cornejo, Program Manager, dramirez-cornejo@wrcog.us, (951) 405-6712

Date: March 14, 2019

The purpose of this item is to present an administrative amendment to the TUMF Network which would designate the Cherry Valley Boulevard Interchange, Highland Springs Avenue Interchange, and I-10 Bypass as regional projects.

Requested Action:

1. Recommend that the Executive Committee approve the 2019 TUMF Network Administrative Amendment.

WRCOG's Transportation Uniform Mitigation Fee (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. Each of WRCOG's member jurisdictions and the March JPA participates in the Program through an adopted ordinance, collects fees from new development, and remits the fees to WRCOG. WRCOG, as administrator of the TUMF Program, allocates TUMF to the Riverside County Transportation Commission (RCTC), groupings of jurisdictions – referred to as TUMF Zones – based on the amounts of fees collected in these groups, the Western Riverside County Regional Conservation Authority (RCA) and the Riverside Transit Agency (RTA).

Background

On December 3, 2018, the Executive Committee directed staff to update the TUMF Network and designate the following projects on the backbone portion of the TUMF Network: 1) Cherry Valley Boulevard Interchange; 2) Highland Springs Avenue Interchange; 3) I-10 Bypass. Staff would note that this update does not change the project type, land use type, and/or topography type of these projects in the TUMF Network. Therefore, the overall TUMF Network cost would remain as approved in the 2016 Nexus Study.

Regional projects are designated within the Nexus Study and are potentially eligible for RCTC's (Riverside County Transportation Commission) share of the TUMF funds. Prior to the City of Beaumont rejoining the TUMF Program, there were no regional projects within the Pass Zone. While this Zone would benefit from Regional Projects in other Zones (since those residents travel daily to other areas in Western Riverside County) the fact is that Pass Zone jurisdictions were the only jurisdictions in the Program that did not have a designated regional project.

The action by the Executive Committee at its December 3, 2018, meeting regarding the designation of regional projects coincided with additional action items. These additional action items were related to the approval of allocation of funds from the Beaumont Settlement.

Nexus Study implications

The TUMF Nexus Study is periodically updated to ensure that the Program's assumptions regarding future growth, transportation needs, and costs remain current by establishing a nexus between the fee levels and anticipated costs to make TUMF Network improvements. The TUMF Network administratively distinguishes between facilities of "Regional Significance" (backbone facilities) and facilities of "Zonal Significance" (secondary facilities). Backbone facilities are generally anticipated to carry a greater number of vehicles per day at general plan build-out and extend across planning districts. All other facilities in the TUMF Network are considered secondary facilities. Portions of the TUMF fee are designated specifically for improvements on the backbone and secondary facilities.

The changes recommended by the Executive Committee in December 2018 do not affect this nexus because the designation of backbone and secondary projects is purely an administrative designation intended to distinguish between regionally and zonally significant projects. More specifically, the nexus is unaffected because changing the designation of select projects from secondary to backbone does not change the cost associated with any defined improvements.

Staff would note that this amendment to the TUMF Network is not a Nexus Study update. The last comprehensive Nexus Study update was approved by the Executive Committee in July 2017. At the time the updated Nexus Study was approved, staff was directed to bring back a Nexus Study update in four years, following the completion of the 2020 SCAG Regional Transportation Plan (RTP).

Staff anticipates that the next Nexus Study update process will commence in late 2019 and will include a review of all projects included in the TUMF Network.

Prior Action:

December 3, 2018: The Executive Committee directed staff to coordinate with the Riverside County Transportation Commission to add the I-10 Bypass, the I-10 / Cherry Valley Boulevard Interchange, and the I-10 / Highland Springs Interchange to the list of Regional TUMF Projects in the Pass Zone along with the SR-60 / Potrero Boulevard Interchange.

Fiscal Impact:

Transportation Department activities are included in the Agency's adopted FY 2018/2019 Budget under the Transportation Department.

Attachment:

1. 2019 TUMF Network Amendment.

Item 7.C

2019 TUMF Network Administrative
Amendment

Attachment 1

2019 TUMF Network Amendment

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EXHIBIT H-1 TUMF Network Detailed Cost Estimate

Updated: December 3, 2018

AREA	PLAN	DIST	CITY	STREETNAME	SEGMENT	FROM	TO	NETWORK	MILES	EXISTING	LN	FUTURE	LN	% COMPLETE	INCREASE	LN	MILES	TOPO	LANDUSE	INTERCHG	BRIDGE	RRXING	NEW	LN	COST	ROW	COST	INTCHG	COST	BRDG	COST	RRX	COST	PLNG	ENG	CONTIG	TOTAL COST	MAXIMUM TUMF SHARE			
Central			Menifee	Ethanac	Goetz		Murrieta	Backbone	0.99	2		2		0%		0.00	1		2	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Ethanac	Murrieta		I-215	Backbone	0.90	2		2		0%		0.00	1		2	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Ethanac	I-215		interchange	Backbone	0.00	0		0		0%		0.00	1		2	3	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Ethanac	Sherman		Matthews	Backbone	0.61	2		4		0%		1.23	1		3	0	0	0	0	\$848,000	\$352,000	\$0	\$0	\$12,343,000	\$0	\$0	\$0	\$0	\$0	\$0	\$1,234,000	\$3,086,000	\$1,234,000	\$17,897,000	\$15,766,000		
Central			Menifee	Ethanac	BNSF San Jacinto Branch		railroad crossing	Backbone	0.00	2		4		0%		0.00	1		3	0	0	0	1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Menifee	SR-74 (Pinacate)		Simpson	Backbone	2.49	2		2		0%		0.00	1		3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Menifee	Salt Creek		bridge	Backbone	0.00	2		2		0%		0.00	1		3	0	200	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Menifee	Simpson		Aldergate	Backbone	0.64	4		4		0%		0.00	1		3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Menifee	Aldergate		Newport	Backbone	0.98	4		4		0%		0.00	1		3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Menifee	Newport		Holland	Backbone	1.07	4		4		0%		0.00	1		3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Menifee	Holland		Garbani	Backbone	1.03	4		4		0%		0.00	1		3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Menifee	Garbani		Scott	Backbone	1.00	2		4		0%		2.00	1		3	0	0	0	0	\$1,382,000	\$573,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$138,000	\$346,000	\$196,000	\$2,635,000	\$2,635,000	
Central			Menifee	Menifee/Whitewood	Scott		Murrieta City Limit	Backbone	0.53	4		4		0%		0.00	1		3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Menifee	Newport		Goetz	Backbone	1.81	6		6		0%		0.00	1		3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Menifee	Murrieta		I-215	Backbone	2.05	4		6		0%		4.10	1		3	0	0	0	0	\$2,835,000	\$1,176,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	Newport		Menifee	Backbone	0.95	6		6		0%		0.00	1		3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Menifee	Newport		Lindenberger	Backbone	0.77	6		6		0%		0.00	1		3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Menifee	Newport		Lindenberger	Backbone	3.58	6		6		0%		0.00	1		3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Menifee	Scott		I-215	Backbone	2.04	4		4		0%		0.00	1		3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Menifee	Scott		I-215	Backbone	0.00	0		0		0%		0.00	1		3	2	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Central			Menifee	Menifee	Scott		Sunset	Backbone	1.01	2		4		0%		2.01	1		3	0	0	0	0	\$1,392,000	\$578,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	Scott		Murrieta	Backbone	1.94	2		6		0%		7.77	1		3	0	0	0	0	\$5,379,000	\$2,231,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,086,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Central			Menifee	Menifee	SR-74		Matthews	Backbone	1.89	4		6		0%		3.79	1		3	0	0	0	0	\$2,620,000	\$1,0																

EXHIBIT H-1 TUMF Network Detailed Cost Estimate

Updated: December 3, 2018

AREA	PLAN	DIST	CITY	STREETNAME	SEGMENTFROM	SEGMENTTO	NETWORK	MILES	EXISTINGLN	FUTURELN	% COMPLETE	INCREASESLN	MILES	TOPO	LANDUSE	INTERCHG	BRIDGE	RRXING	NEWLNCOST	ROWCOST	INTCHG	CGCOST	BRDGCOST	RRXCOST	PLNG	ENG	CONTIG	TOTAL COST	MAXIMUM	TUMF SHARE	
Northwest	Unincorporated	Alessandro		Trautwein	Vista Grande		Backbone	1.22	6	6	0%	0.00	2	2	2	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Unincorporated	Alessandro		Vista Grande	I-215		Backbone	1.26	6	6	0%	0.00	2	2	2	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Unincorporated	Cajalco		El Sobrante	Harley John		Backbone	0.76	2	6	0%	3.02	2	3	0	0	0	0	\$2,656,000	\$868,000	\$0	\$0	\$0	\$0	\$0	\$266,000	\$664,000	\$352,000	\$4,806,000	\$3,465,000	
Northwest	Unincorporated	Cajalco		Harley John	Harvil		Backbone	5.79	2	6	0%	23.16	1	2	0	0	0	0	\$16,026,000	\$52,409,000	\$0	\$0	\$0	\$0	\$1,603,000	\$4,007,000	\$6,844,000	\$80,889,000	\$66,905,000		
Northwest	Unincorporated	Cajalco		Harvil	I-215		Backbone	0.28	4	6	0%	0.57	1	3	0	0	0	0	\$393,000	\$163,000	\$0	\$0	\$0	\$0	\$0	\$39,000	\$98,000	\$56,000	\$749,000	\$749,000	
Northwest	Unincorporated	Cajalco		Temescal Canyon	La Sierra		Backbone	3.21	2	6	0%	12.84	3	3	0	0	0	0	\$13,662,000	\$3,685,000	\$0	\$0	\$0	\$0	\$1,366,000	\$3,416,000	\$1,735,000	\$23,864,000	\$23,864,000		
Northwest	Unincorporated	Cajalco		Temescal Wash	bridge		Backbone	0.00	2	6	0%	0.00	3	3	0	175	0	0	\$0	\$0	\$0	\$2,226,000	\$0	\$0	\$0	\$223,000	\$557,000	\$223,000	\$3,229,000	\$3,229,000	
Northwest	Unincorporated	Cajalco		La Sierra	El Sobrante		Backbone	6.11	2	6	0%	24.44	3	3	0	0	0	0	\$26,004,000	\$7,014,000	\$0	\$0	\$0	\$0	\$2,600,000	\$6,501,000	\$3,302,000	\$45,421,000	\$45,421,000		
Northwest	Unincorporated	Van Buren		Mockingbird Canyon	Wood		Backbone	4.41	4	6	0%	8.81	1	2	0	0	0	0	\$6,099,000	\$19,946,000	\$0	\$0	\$0	\$0	\$0	\$610,000	\$1,525,000	\$2,605,000	\$30,785,000	\$28,309,000	
Northwest	Unincorporated	Van Buren		Orange Terrace	I-215		Backbone	1.89	4	6	42%	2.19	1	2	0	0	0	0	\$1,513,000	\$4,949,000	\$0	\$0	\$0	\$0	\$0	\$151,000	\$378,000	\$646,000	\$7,637,000	\$7,637,000	
Pass	Banning	Highland Springs		Wilson (8th)	Sun Lakes		Backbone	0.76	4	6	50%	0.76	1	2	0	0	0	0	\$527,000	\$1,724,000	\$0	\$0	\$0	\$0	\$0	\$53,000	\$132,000	\$225,000	\$2,661,000	\$2,661,000	
Pass	Banning	Highland Springs		I-10	interchange		Backbone	0.00	0	0	0%	0.00	1	2	3	0	0	0	\$0	\$0	\$12,343,000	\$0	\$0	\$0	\$1,234,000	\$3,086,000	\$1,234,000	\$17,897,000	\$17,897,000		
Pass	Banning	Highland Springs		Oak Valley (14th)	Wilson (8th)		Backbone	0.73	2	4	0%	1.47	1	2	0	0	0	0	\$1,016,000	\$3,322,000	\$0	\$0	\$0	\$0	\$0	\$102,000	\$254,000	\$434,000	\$5,128,000	\$5,128,000	
Pass	Banning	Highland Springs		Cherry Valley	Oak Valley (14th)		Backbone	1.53	2	2	0%	0.00	1	2	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pass	Banning	I-10 Bypass South		I-10	Morongo Trail (Apache Trail)		Backbone	3.29	0	2	0%	6.57	1	2	0	0	0	0	\$4,547,000	\$14,871,000	\$0	\$0	\$0	\$0	\$0	\$455,000	\$1,137,000	\$1,942,000	\$22,952,000	\$22,952,000	
Pass	Banning	I-10 Bypass South		I-10	interchange		Backbone	0.00	0	0	0%	0.00	1	2	3	0	0	0	\$0	\$0	\$12,343,000	\$0	\$0	\$0	\$1,234,000	\$3,086,000	\$1,234,000	\$17,897,000	\$17,897,000		
Pass	Banning	I-10 Bypass South		San Gorgonio	bridge		Backbone	0.00	0	2	0%	0.00	1	2	0	300	0	0	\$0	\$0	\$0	\$0	\$1,908,000	\$0	\$0	\$191,000	\$477,000	\$191,000	\$2,767,000	\$2,767,000	
Pass	Banning	I-10 Bypass South		UP/Hargrave	railroad crossing		Backbone	0.00	0	2	0%	0.00	1	2	0	0	1	0	\$0	\$0	\$0	\$0	\$0	\$12,752,000	\$1,275,000	\$3,188,000	\$1,275,000	\$18,490,000	\$18,490,000		
Pass	Beaumont	Beaumont		Oak Valley (14th)	I-10		Backbone	1.37	4	4	0%	0.00	1	2	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pass	Beaumont	Potrero		Oak Valley (San Timoteo Can	SR-60		Backbone	0.72	2	4	15%	1.22	1	3	0	0	0	0	\$847,000	\$351,000	\$0	\$0	\$0	\$0	\$0	\$85,000	\$212,000	\$120,000	\$1,615,000	\$1,615,000	
Pass	Beaumont	Potrero		SR-60	interchange		Backbone	0.00	0	0	0%	0.00	1	3	2	0	0	0	\$0	\$0	\$0	\$25,558,000	\$0	\$0	\$0	\$2,556,000	\$6,390,000	\$2,556,000	\$37,060,000	\$23,760,000	
Pass	Beaumont	Potrero		UP	railroad crossing		Backbone	0.00	2	4	50%	0.00	1	3	0	0	2	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$547,000	\$1,367,000	\$547,000	\$7,927,000	\$7,927,000	
Pass	Beaumont	Potrero		Noble Creek	bridge		Backbone	0.00	2	4	50%	0.00	1	3	0	500	0	0	\$0	\$0	\$0	\$0	\$1,590,000	\$0	\$0	\$159,000	\$398,000	\$159,000	\$2,306,000	\$2,306,000	
Pass	Beaumont	Potrero		SR-60	4th		Backbone	0.45	0	4	0%	1.80	1	3	0	0	0	0	\$1,246,000	\$517,000	\$0	\$0	\$0	\$0	\$0	\$125,000	\$312,000	\$176,000	\$2,376,000	\$2,376,000	
Pass	Beaumont	SR-79 (Beaumont)		I-10	Mellow		Backbone	0.80	4	4	0%	0.00	1	2	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pass	Beaumont	SR-79 (Beaumont)		I-10	interchange		Backbone	0.00	0	0	0%	0.00	1	2	3	0	0	0	\$0	\$0	\$12,343,000	\$0	\$0	\$0	\$0	\$1,234,000	\$3,086,000	\$1,234,000	\$17,897,000	\$17,897,000	
Pass	Calimesa	Cherry Valley		I-10	interchange		Backbone	0.00	0	0	0%	0.00	1	3	2	0	0	0	\$0	\$0	\$25,558,000	\$0	\$0	\$0	\$0	\$2,556,000	\$6,390,000	\$2,556,000	\$37,060,000	\$36,617,000	
Pass	Calimesa	Cherry Valley		Roberts	Desert Lawn		Backbone	0.75	2	2	0%	0.00	1	3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pass	Unincorporated	Cherry Valley		Bellflower	Noble		Backbone	1.47	0	4	0%	5.88	1	3	0	0	0	0	\$4,069,000	\$1,688,000	\$0	\$0	\$0	\$0	\$0	\$407,000	\$1,017,000	\$576,000	\$7,757,000	\$7,757,000	
Pass	Unincorporated	Cherry Valley		Highland Springs	Bellflower		Backbone	0.44	2	2	0%	0.00	1	3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pass	Unincorporated	Cherry Valley		Roberts	Noble		Backbone	3.40	2	2	0%	0.00	1	3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pass	Unincorporated	Cherry Valley		San Timoteo Wash	bridge		Backbone	0.00	2	2	0%	0.00	1	3	0	300	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pass	Unincorporated	SR-79 (Beaumont)		Mellow	California		Backbone	0.38	4	4	0%	0.00	1	2	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Pass	Unincorporated	SR-79 (Lamb Canyon)		California	Gilman Springs		Backbone	4.87	4	4	0%	0.00	2	3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
San Jacinto	Hemet	Domenigoni		Warren	Sanderson		Backbone	1.77	4	6	0%	3.54	1	3	0	0	0	0	\$2,452,000	\$1,017,000	\$0	\$0	\$0	\$0	\$0	\$245,000	\$613,000	\$347,000	\$4,674,000	\$4,674,000	
San Jacinto	Hemet	Domenigoni		Sanderson	State		Backbone	2.14	4	4	0%	0.00	1	3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
San Jacinto	Hemet	SR-74		Winchester	Warren		Backbone	2.59	4	6	11%	4.61	1	2	0	0	0	0	\$3,187,000	\$10,421,000	\$0	\$0	\$0	\$0	\$0	\$319,000	\$797,000	\$1,361,000	\$16,085,000	\$16,085,000	
San Jacinto	San Jacinto	Mid-County (Ramona)		Warren	Sanderson		Backbone	1.73	4	6	0%	3.45	1	2	0	0	0	0	\$2,390,000	\$7,817,000	\$0	\$0	\$0	\$0	\$0	\$239,000	\$598,000	\$1,021,000	\$12,065,000	\$12,065,000	
San Jacinto	San Jacinto	Mid-County (Ramona)		Sanderson/SR-79 (Hemet Bypc	interchange		Backbone	0.00	0	0	0%	0.00	1	2	2	0	0	0	\$0	\$0	\$25,558,000	\$0	\$0	\$0	\$0	\$2,556,000	\$6,390,000	\$2,556,000	\$37,060,000	\$37,060,000	
San Jacinto	San Jacinto	Ramona		Sanderson	State		Backbone	2.39	6	6	0%	0.00	1	2	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
San Jacinto	San Jacinto	Ramona		State	Main		Backbone	2.66	4	4	0%	0.00	1	2	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
San Jacinto	San Jacinto	Ramona		Main	Cedar		Backbone	2.08	0	4	60%	3.33	1	2	0	0	0	0	\$2,303,000	\$7,531,000	\$0	\$0	\$0	\$0	\$0	\$230,000	\$576,000	\$983,000	\$11,623,000	\$11,139,000	
San Jacinto	San Jacinto	Ramona		Cedar	SR-74		Backbone	1.10	4	4	0%	0.00	1	2	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
San Jacinto	Unincorporated	Domenigoni		SR-79 (Winchester)	Warren		Backbone	3.10	4	6	0%	6.20	1	3	0	0	0	0	\$4,287,000	\$1,778,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
San Jacinto	Unincorporated	Domenigoni		San Diego Aqueduct	bridge		Backbone	0.00	4	6	0%	0.00	1	3	0	300	0	0	\$0	\$0	\$0	\$0	\$1,908,000	\$0	\$0	\$0	\$191,000	\$477,000	\$191,000	\$2,767,000	\$2,767,000
San Jacinto	Unincorporated	Gilman Springs		Bridge	Sanderson		Backbone	2.95	2	4	0%	5.90	1	3	0	0	0	0	\$4,082,000	\$1,693,000	\$0	\$0	\$0	\$0	\$0	\$408,000	\$1,021,000	\$578,000	\$7,782,000	\$7,782,000	
San Jacinto	Unincorporated	Mid-County (Ramona)		Bridge	Warren		Backbone	2.35	2	6	0%	9.40	1	3	0	0	0	0	\$6,503,000	\$2,697,000	\$0	\$0	\$0	\$0	\$0	\$650,000	\$1,626,000	\$920,000	\$12,396,000	\$11,045,000	
San Jacinto	Unincorporated	SR-74		Briggs	SR-79 (Winchester)		Backbone	3.53	4	6	0%	7.05	1	3	0	0	0	0	\$4,879,000	\$2,024,000	\$0	\$0	\$0	\$0	\$0	\$488,000	\$1,220,000	\$690,000	\$9,301,000	\$9,301,000	
San Jacinto	Unincorporated	SR-79 (Hemet Bypass)		SR-74 (Florida)	Domenigoni		Backbone	3.22	0	4	0%	12.88	1	3	0	0	0	0	\$8,913,000	\$3,697,000	\$0	\$0	\$0	\$0	\$0	\$891,000	\$2,228,000	\$1,261,000	\$16,990,000	\$16,990,000	
San Jacinto	Unincorporated	SR-79 (Hemet Bypass)		San Diego Aqueduct	bridge		Backbone	0.00	0	4	0%	0.00	1	3	0	300	0	0	\$0	\$0	\$0	\$3,816,000	\$0	\$0	\$0	\$382,000	\$954,000	\$382,000	\$5,534,000	\$5,534,000	
San Jacinto	Unincorporated	SR-79 (Hemet Bypass)		Domenigoni	Winchester		Backbone	1.50	0	4	0%	6.00	1	3	0	0	0	0	\$4,152,000	\$1,722,000	\$0	\$0	\$0	\$0	\$0	\$415,000	\$1,038,0				

EXHIBIT H-1 TUMF Network Detailed Cost Estimate

Updated: December 3, 2018

AREA	PLAN	DIST	CITY	STREETNAME	SEGMENT	FROM	TO	NETWORK	MILES	EXISTING	LN	FUTURE	LN	% COMPLETE	INCREASE	LN	MILES	TOPO	LAND	USE	INTER	CHG	BRIDGE	RR	XING	NEW	LN	COST	ROW	COST	INT	CHG	COST	BRD	G	COST	RR	X	COST	PLNG	ENG	CONTIG	TOTAL	COST	MAXIMUM	TUMF	SHARE								
Central			Menifee	Briggs	Newport	Scott		Secondary	3.05	2		2		0%		0.00		1	3		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Menifee	Goetz	Juanita	Lesser Lane		Secondary	2.61	2		4		0%		5.22		1	3		0		0		0		\$3,611,000		\$1,498,000		\$0		\$0		\$0		\$0		\$0		\$361,000		\$903,000		\$511,000		\$6,884,000		\$6,593,000		\$0		\$0		
Central			Menifee	Goetz	Newport	Juanita		Secondary	1.36	2		2		0%		0.00		1	3		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Menifee	Holland	Houn	Antelope		Secondary	1.00	0		4		0%		4.00		1	2		0		0		0		\$2,768,000		\$9,052,000		\$0		\$0		\$0		\$0		\$0		\$277,000		\$692,000		\$1,182,000		\$13,971,000		\$13,971,000		\$0		\$0		
Central			Menifee	Holland	I-215 overcrossing	bridge		Secondary	0.00	0		4		0%		0.00		1	2		0		0		350		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Menifee	McCall	I-215	Aspel		Secondary	1.23	4		4		0%		0.00		1	3		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0						
Central			Menifee	McCall	I-215	interchange		Secondary	0.00	0		0		0%		0.00		1	3		3		0		0		\$0		\$0		\$12,343,000		\$0		\$0		\$0		\$0		\$0		\$1,234,000		\$3,086,000		\$1,234,000		\$17,897,000		\$16,930,000		\$0		\$0
Central			Menifee	McCall	Aspel			Secondary	0.95	2		2		0%		1.91		1	3		0		0		0		\$1,320,000		\$548,000		\$0		\$0		\$0		\$0		\$0		\$132,000		\$330,000		\$187,000		\$2,517,000		\$2,517,000		\$0		\$0		
Central			Menifee	Murrieta	Ethanac	McCall		Secondary	1.95	2		2		37%		0.00		1	3		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Menifee	Murrieta	McCall	Newport		Secondary	2.03	4		4		0%		0.00		1	3		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Menifee	Murrieta	Newport	Bundy Canyon		Secondary	3.00	2		2		0%		0.00		1	3		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Moreno Valley	Cactus	I-215	Heacock		Secondary	1.81	4		6		84%		0.58		1	2		0		0		0		\$401,000		\$1,310,000		\$0		\$0		\$0		\$0		\$0		\$40,000		\$100,000		\$171,000		\$2,022,000		\$2,022,000		\$0		\$0		
Central			Moreno Valley	Cactus	I-215	interchange		Secondary	0.00	0		0		0%		0.00		1	2		2		0		0		\$0		\$0		\$25,558,000		\$0		\$0		\$0		\$0		\$0		\$2,556,000		\$4,390,000		\$2,556,000		\$37,060,000		\$37,060,000		\$0		\$0
Central			Moreno Valley	Day	SR-60	Ironwood		Secondary	0.28	4		4		0%		0.00		1	2		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Moreno Valley	Day	SR-60	interchange		Secondary	0.00	0		0		0%		0.00		1	2		3		0		0		\$0		\$0		\$12,343,000		\$0		\$0		\$0		\$0		\$0		\$1,234,000		\$3,086,000		\$1,234,000		\$17,897,000		\$17,897,000		\$0		\$0
Central			Moreno Valley	Day	SR-60	Eucalyptus		Secondary	0.77	6		6		0%		0.00		1	2		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Moreno Valley	Eucalyptus	I-215	Towngate		Secondary	1.00	4		6		42%		1.16		1	2		0		0		0		\$802,000		\$2,624,000		\$0		\$0		\$0		\$0		\$0		\$80,000		\$201,000		\$343,000		\$4,050,000		\$4,050,000		\$0		\$0		
Central			Moreno Valley	Eucalyptus	Towngate	Frederick		Secondary	0.67	4		4		0%		0.00		1	2		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Moreno Valley	Eucalyptus	Frederick	Heacock		Secondary	1.01	4		4		0%		0.00		1	2		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Moreno Valley	Eucalyptus	Heacock	Kitching		Secondary	1.01	2		2		0%		0.00		1	2		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Moreno Valley	Eucalyptus	Kitching	Moreno Beach		Secondary	2.42	2		4		98%		0.10		1	2		0		0		0		\$67,000		\$219,000		\$0		\$0		\$0		\$0		\$0		\$7,000		\$17,000		\$29,000		\$339,000		\$339,000		\$0		\$0		
Central			Moreno Valley	Eucalyptus	Moreno Beach	Theodore		Secondary	2.28	0		4		47%		4.83		1	2		0		0		0		\$3,345,000		\$10,938,000		\$0		\$0		\$0		\$0		\$0		\$335,000		\$836,000		\$1,428,000		\$16,882,000		\$16,882,000		\$0		\$0		
Central			Moreno Valley	Frederick	SR-60	Alessandro		Secondary	1.55	4		4		0%		0.00		1	2		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Moreno Valley	Heacock	Cactus	San Michele		Secondary	2.79	2		4		77%		1.28		1	2		0		0		0		\$888,000		\$2,904,000		\$0		\$0		\$0		\$0		\$0		\$89,000		\$222,000		\$379,000		\$4,482,000		\$4,482,000		\$0		\$0		
Central			Moreno Valley	Heacock	Reche Vista	Cactus		Secondary	4.73	4		4		90%		0.00		1	2		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Moreno Valley	Heacock	San Michele	Harley Knox		Secondary	0.74	2		4		0%		1.48		1	3		0		0		0		\$1,027,000		\$426,000		\$0		\$0		\$0		\$0		\$0		\$103,000		\$257,000		\$145,000		\$1,958,000		\$1,532,000		\$0		\$0		
Central			Moreno Valley	Ironwood	SR-60	Day		Secondary	1.33	2		4		71%		0.77		1	2		0		0		0		\$534,000		\$1,746,000		\$0		\$0		\$0		\$0		\$0		\$53,000		\$134,000		\$228,000		\$2,695,000		\$2,695,000		\$0		\$0		
Central			Moreno Valley	Ironwood	Day	Heacock		Secondary	2.01	4		4		0%		0.00		1	2		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Moreno Valley	Lasselle	Alessandro	John F Kennedy		Secondary	1.00	4		4		0%		0.00		1	2		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Moreno Valley	Lasselle	John F Kennedy	Oleander		Secondary	3.14	4		4		0%		0.00		1	2		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Moreno Valley	Moreno Beach	SR-60	Reche Canyon		Secondary	1.37	2		4		0%		2.73		1	2		0		0		0		\$1,892,000		\$6,186,000		\$0		\$0		\$0		\$0		\$0		\$189,000		\$473,000		\$808,000		\$9,548,000		\$9,548,000		\$0		\$0		
Central			Moreno Valley	Moreno Beach	SR-60 overcrossing	bridge		Secondary	0.00	2		4		0%		0.00		1	2		0		250		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$1,590,000		\$0		\$159,000		\$398,000		\$159,000		\$2,306,000		\$2,306,000
Central			Moreno Valley	Nason	SR-60	Alessandro		Secondary	1.51	4		4		0%		0.00		1	2		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Moreno Valley	Pigeon Pass	Ironwood	SR-60		Secondary	0.43	4		4		0%		0.00		1	2		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Moreno Valley	Pigeon Pass/CETAP Corridor	Cantarini	Ironwood		Secondary	3.23	2		2		80%		0.00		1	2		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Moreno Valley	Reche Canyon	Moreno Valley City Limit	Locust		Secondary	0.35	2		2		0%		0.00		2	3		0		0		0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0		\$0				
Central			Moreno Valley	Redlands	Locust	Alessandro		Secondary	2.68	2		4		0%		5.36		1	2		0		0		0		\$3,709,000		\$12,130,000		\$0		\$0		\$0		\$0		\$0		\$371,000		\$927,000		\$1,584,000		\$18,721,000		\$18,721,000		\$0		\$0		
Central			Moreno Valley	Redlands	SR-60	interchange		Secondary	0.00	0		0		0%		0.00		1	2		2		0		0		\$0		\$0		\$25,558,000		\$0		\$0		\$0		\$0		\$0		\$2,556,000		\$6,390,000		\$2,556,000		\$37,060,000		\$37,060,000		\$0		\$0
Central			Moreno Valley	Theodore	Eucalyptus			Secondary	0.26	2		4		0%		0.52		1	2		0		0		0		\$360,000		\$1,177,000</																										

EXHIBIT H-1 TUMF Network Detailed Cost Estimate

Updated: December 3, 2018

AREA	PLAN	DIST	CITY	STREETNAME	SEGMENT	FROM	TO	NETWORK	MILES	EXISTING	LN	FUTURE	LN	% COMPLETE	INCREASE	LN	MILES	TOPO	LANDUSE	INTERCHG	BRIDGE	RRXING	NEW	LN	COST	ROW	COST	INTCHG	COST	BRDG	COST	RRX	COST	PLNG	ENG	CONTIG	TOTAL COST	MAXIMUM TUMF SHARE			
Northwest			Corona	6th	SR-91			Secondary	4.50	4		4		0%		0.00	1		1		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Auto Center	Railroad			Secondary	0.48	4		4		0%		0.00	1		2		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Cajalco	Bedford Canyon			Secondary	0.15	2		4		0%		0.30	1		2		0	0	0	\$208,000	\$679,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$21,000	\$52,000	\$89,000	\$1,049,000	\$1,049,000	\$0	\$0		
Northwest			Corona	Hidden Valley	Norco Hills			Secondary	0.59	4		4		0%		0.00	2		2		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Lincoln	Parkridge			Secondary	3.20	4		4		0%		0.00	1		2		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Magnolia	Sherborn Bridge			Secondary	0.47	4		6		0%		0.94	1		2		0	0	0	\$650,000	\$2,127,000	\$0	\$0	\$0	\$0	\$0	\$0	\$65,000	\$163,000	\$278,000	\$3,283,000	\$3,283,000	\$0	\$0			
Northwest			Corona	Magnolia	Temescal Creek			Secondary	0.00	4		6		0%		0.00	1		2		0	300	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Magnolia	Sherborn Bridge			Secondary	0.52	6		6		0%		0.00	1		2		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Magnolia	Rimpau			Secondary	1.17	6		6		0%		0.00	1		2		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Main	Grand			Secondary	0.88	2		4		0%		1.76	1		3		0	0	0	\$1,219,000	\$506,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Corona	Main	Ontario			Secondary	0.89	4		4		0%		0.00	1		2		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Main	Hidden Valley			Secondary	0.35	4		6		0%		0.70	1		2		0	0	0	\$481,000	\$1,573,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Corona	Main	Parkridge			Secondary	0.86	6		6		0%		0.00	1		1		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Main	SR-91			Secondary	0.86	4		S. Grand		0%		0.00	1		1		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	McKinley	Hidden Valley			Secondary	0.40	4		4		0%		0.00	1		2		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	McKinley	Promenade			Secondary	0.33	6		SR-91		0%		0.00	1		1		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	McKinley	SR-91			Secondary	0.31	4		Magnolia		0%		0.62	1		1		0	0	0	\$431,000	\$1,564,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Corona	McKinley	Arlington Channel			Secondary	0.00	4		6		0%		0.00	1		1		0	100	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	McKinley	BNISF			Secondary	0.00	4		6		0%		0.00	1		1		0	0	1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Ontario	I-15			Secondary	0.89	4		6		0%		1.78	1		2		0	0	0	\$1,232,000	\$4,028,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Corona	Ontario	Lincoln			Secondary	0.32	4		6		0%		0.64	1		2		0	0	0	\$444,000	\$1,453,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Corona	Ontario	Buena Vista			Secondary	0.65	6		6		0%		0.00	1		2		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Ontario	Main			Secondary	0.78	6		6		0%		0.00	1		1		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Ontario	Kellogg			Secondary	0.32	4		6		0%		0.64	1		1		0	0	0	\$443,000	\$1,607,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Corona	Ontario	Fullerton			Secondary	0.42	6		6		0%		0.00	1		1		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Ontario	Rimpau			Secondary	0.60	6		6		0%		0.00	1		1		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Railroad	Auto Club			Secondary	2.45	4		4		0%		0.00	1		2		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Railroad	BNISF			Secondary	0.00	4		4		0%		0.00	1		2		0	0	2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Railroad	Buena Vista			Secondary	0.58	2		4		0%		1.16	1		2		0	0	0	\$803,000	\$2,625,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Corona	River	Corydon			Secondary	2.27	4		4		0%		0.00	1		2		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Corona	Serfas Club	SR-91			Secondary	0.96	4		4		0%		0.00	1		2		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Eastvale	Archibald	San Bernardino County			Secondary	3.63	2		4		82%		1.31	1		3		0	0	0	\$905,000	\$375,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Eastvale	Hamner	Mission			Secondary	3.03	2		6		73%		1.64	1		3		0	0	0	\$1,132,000	\$470,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Eastvale	Hamner	Bellegrave			Secondary	0.20	4		6		0%		0.40	1		3		0	0	0	\$277,000	\$115,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Eastvale	Hamner	Amberhill			Secondary	0.71	2		6		14%		2.44	1		3		0	0	0	\$1,690,000	\$701,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Eastvale	Hamner	Limonite			Secondary	1.00	6		6		0%		0.00	1		3		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Eastvale	Hamner	Schleisman			Secondary	1.00	2		6		50%		2.00	1		3		0	0	0	\$1,384,000	\$574,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Eastvale	Limonite	Santa Ana River			Secondary	1.00	2		6		50%		2.00	1		3		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Eastvale	Limonite	I-15			Secondary	0.35	6		6		0%		0.00	1		3		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Eastvale	Limonite	interchange			Secondary	0.00	0		0		0%		0.00	1		3		3	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Eastvale	Limonite	East Center			Secondary	0.27	5		6		100%		0.00	1		3		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Eastvale	Limonite	Hamner			Secondary	1.00	4		6		50%		1.00	1		3		0	0	0	\$692,000	\$287,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Eastvale	Limonite	Sumner			Secondary	0.50	6		6		0%		0.00	1		3		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Eastvale	Limonite	Harrison			Secondary	0.49	4		6		0%		0.98	1		3		0	0	0	\$678,000	\$281,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Eastvale	Limonite	Archibald			Secondary	1.12	0		4		0%		4.48	1		3		0	0	0	\$3,100,000	\$1,286,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Eastvale	Limonite	Hellman (Keller SBD Co.)			Secondary	0.00	0		4		0%		0.00	1		3		0	200	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Eastvale	Limonite	Cucamonga Creek			Secondary	0.00	0		4		0%		0.00	1		3		0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Northwest			Jurupa Valley	Armstrong	San Bernardino County			Secondary	1.53	2		4		67%		1.01	2		3		0	0	0	\$885,000	\$289,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Northwest			Jurupa Valley	Bellegrave	Cantu-Galleano Ranch			Secondary	0.29	2		4		0%		0.58	1		3		0	0																			

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AREA	PLAN	DIST	CITY	STREETNAME	SEGMENTFROM	SEGMENTTO	NETWORK	MILES	EXISTINGLN	FUTURELN	% COMPLETE	INCREASELN	MILES	TOPO	LANDUSE	INTERCHG	BRIDGE	RXRING	NEWLN	COST	ROWCOST	INTCHGCOST	BRDGCOST	RRXCOST	PLNG	ENG	CONTIG	TOTAL COST	MAXIMUM TUMF SHARE	
Northwest	Riverside	14th	Market		Secondary	Martin Luther King		0.89	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	1st	Market		Secondary	Main		0.08	2	2	0%	0.00	1	1	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	3rd	SR-91		Secondary	I-215		1.34	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	3rd	BNSF		Secondary	railroad crossing		0.00	4	4	0%	0.00	1	2	0	0	0	1	\$0	\$0	\$0	\$0	\$25,504,000	\$2,550,000	\$6,376,000	\$2,550,000	\$36,980,000	\$36,980,000		
Northwest	Riverside	Adams	Arlington		Secondary	SR-91		1.56	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Adams	SR-91		Secondary	Lincoln		0.54	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Adams	SR-91		Secondary	interchange		0.00	0	0	0%	0.00	1	2	3	0	0	0	0	\$0	\$0	\$12,343,000	\$0	\$0	\$1,234,000	\$3,086,000	\$1,234,000	\$17,897,000	\$17,897,000	
Northwest	Riverside	Buena Vista	Santa Ana River		Secondary	Redwood		0.30	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Canyon Crest	Martin Luther King		Secondary	Central		0.95	4	4	0%	0.00	2	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Canyon Crest	Central		Secondary	Country Club		0.59	4	4	0%	0.00	2	3	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Canyon Crest	Country Club		Secondary	Via Vista		0.94	2	4	0%	1.88	2	3	0	0	0	0	0	\$1,653,000	\$540,000	\$0	\$0	\$0	\$1,650,000	\$413,000	\$219,000	\$2,990,000	\$1,855,000	
Northwest	Riverside	Canyon Crest	Via Vista		Secondary	Alessandro		0.68	4	4	0%	0.00	2	3	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Central	Chicago		Secondary	I-215/SR-60		2.15	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Central	SR-91		Secondary	Magnolia		0.76	4	4	30%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Central	Alessandro		Secondary	SR-91		2.05	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Central	Van Buren		Secondary	Magnolia		3.53	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Chicago	Alessandro		Secondary	Spruce		3.42	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Chicago	Spruce		Secondary	Columbia		0.75	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Columbia	Main		Secondary	Iowa		1.09	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Columbia	I-215		Secondary	interchange		0.00	0	0	0%	0.00	1	2	3	0	0	0	0	\$0	\$0	\$0	\$12,343,000	\$0	\$0	\$1,234,000	\$3,086,000	\$1,234,000	\$17,897,000	\$17,897,000
Northwest	Riverside	Iowa	Center		Secondary	3rd		2.25	4	6	12%	3.96	1	2	0	0	0	0	0	\$2,737,000	\$8,951,000	\$0	\$0	\$0	\$0	\$274,000	\$684,000	\$1,169,000	\$13,815,000	\$13,815,000
Northwest	Riverside	Iowa	3rd		Secondary	University		0.51	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Iowa	University		Secondary	Martin Luther King		0.51	2	4	0%	1.01	1	2	0	0	0	0	0	\$699,000	\$2,287,000	\$0	\$0	\$0	\$0	\$70,000	\$175,000	\$299,000	\$3,530,000	\$3,265,000
Northwest	Riverside	JFK	Trautwein		Secondary	Wood		0.48	4	4	0%	0.00	1	3	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	La Sierra	Arlington		Secondary	SR-91		3.56	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	La Sierra	SR-91		Secondary	Indiana		0.19	6	6	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	La Sierra	Indiana		Secondary	Victoria		0.78	6	6	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Lemon (NB One way)	Mission Inn		Secondary	University		0.08	3	3	0%	0.00	1	3	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Lincoln	Van Buren		Secondary	Jefferson		2.00	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Lincoln	Jefferson		Secondary	Washington		1.00	2	4	38%	1.24	1	2	0	0	0	0	0	\$858,000	\$2,806,000	\$0	\$0	\$0	\$0	\$86,000	\$215,000	\$366,000	\$4,331,000	\$4,331,000
Northwest	Riverside	Lincoln	Washington		Secondary	Victoria		1.43	2	4	18%	2.35	1	2	0	0	0	0	0	\$1,623,000	\$5,309,000	\$0	\$0	\$0	\$0	\$8,193,000	\$406,000	\$693,000	\$8,193,000	\$8,193,000
Northwest	Riverside	Madison	SR-91		Secondary	Victoria		0.86	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Madison	BNSF		Secondary	railroad crossing		0.00	4	4	0%	0.00	1	2	0	0	0	2	\$0	\$0	\$0	\$0	\$10,932,000	\$1,093,000	\$2,733,000	\$1,093,000	\$15,851,000	\$10,851,000		
Northwest	Riverside	Magnolia	BNSF Railroad		Secondary	Tyler		2.70	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Magnolia	BNSF		Secondary	railroad crossing		0.00	4	4	0%	0.00	1	2	0	0	0	2	\$0	\$0	\$0	\$0	\$10,932,000	\$1,093,000	\$2,733,000	\$1,093,000	\$15,851,000	\$15,851,000		
Northwest	Riverside	Magnolia	Tyler		Secondary	Harrison		0.65	6	6	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Magnolia	14th		Secondary	14th		5.98	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Main	San Bernardino County		Secondary	1st		2.19	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Market	1st		Secondary	Santa Ana River		2.03	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Martin Luther King	14th		Secondary	I-215/SR-60		2.11	4	6	57%	1.82	1	2	0	0	0	0	0	\$1,256,000	\$4,108,000	\$0	\$0	\$0	\$0	\$126,000	\$314,000	\$536,000	\$6,340,000	\$6,340,000
Northwest	Riverside	Mission Inn	Redwood		Secondary	Lemon		0.79	4	4	0%	0.00	1	3	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Redwood (SB One way)	Mission Inn		Secondary	University		0.08	4	4	0%	0.00	1	3	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Trautwein	Alessandro		Secondary	Van Buren		2.19	4	4	0%	0.00	2	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Tyler	SR-91		Secondary	Magnolia		0.43	6	6	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Tyler	SR-91		Secondary	interchange		0.00	0	0	0%	0.00	1	2	2	0	0	0	0	\$0	\$0	\$25,558,000	\$0	\$0	\$2,556,000	\$6,390,000	\$2,556,000	\$37,060,000	\$3,089,000	
Northwest	Riverside	Tyler	Magnolia		Secondary	Hole		0.27	6	6	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Tyler	Hole		Secondary	Wells		1.06	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Tyler	Arlington		Secondary	1.35		2	4	4	0%	2.70	1	2	0	0	0	0	0	\$1,871,000	\$6,118,000	\$0	\$0	\$0	\$187,000	\$468,000	\$799,000	\$9,443,000	\$9,443,000	
Northwest	Riverside	University	Redwood		Secondary	SR-91		0.86	4	4	0%	0.00	1	3	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	University	SR-91		Secondary	I-215/SR-60		2.01	4	4	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Victoria	Lincoln		Secondary	Arlington		0.16	2	2	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Victoria	Madison		Secondary	Washington		0.52	2	2	0%	0.00	1	2	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Washington	Victoria		Secondary	Hermosa		2.05	2	4	0%	4.11	1	2	0	0	0	0	0	\$2,844,000	\$9,299,000	\$0	\$0	\$0	\$284,000	\$711,000	\$1,214,000	\$14,352,000	\$14,352,000	
Northwest	Riverside	Wood	JFK		Secondary	Van Buren		0.70	2	4	50%	0.70	1	3	0	0	0	0	0	\$484,000	\$201,000	\$0	\$0	\$0	\$48,000	\$121,000	\$69,000	\$923,000	\$923,000	
Northwest	Riverside	Wood	Van Buren		Secondary	Bergamont		0.11	4	4	0%	0.00	1	3	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Riverside	Wood	Bergamont		Secondary	Krameria		0.39	4	4	0%	0.00	1	3	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Unincorporated	Cantu-Galleano Ranch	Hamner		Secondary	Wineville		0.94	4	4	0%	0.00	1	3	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Unincorporated	Dos Lagos (Weirick)	Temescal Canyon		Secondary	I-15		0.21	4	4	0%	0.00	1	3	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Unincorporated	El Cerrito	I-15		Secondary	Ontario		0.56	2	4	100%	0.00	1	3	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Northwest	Unincorporated	El Sobrante	Mockingbird Canyon		Secondary	Cajalco		1.05	2</																					

EXHIBIT H-1 TUMF Network Detailed Cost Estimate

Updated: December 3, 2018

AREA	PLAN	DIST	CITY	STREETNAME	SEGMENT	FROM	TO	NETWORK	MILES	EXISTING	LN	FUTURE	LN	% COMPLETE	INCREASE	LN	MILES	TOPO	LANDUSE	INTERCHG	BRIDGE	RRXING	NEW	LN	COST	ROW	COST	INTCHG	COST	BRDG	COST	RRX	COST	PLNG	ENG	CONTIG	TOTAL COST	MAXIMUM TUMF SHARE			
Pass	Banning	8th	Wilson	I-10	Secondary		0.54	2	2	0%	0.00	1	2	0	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Banning	Lincoln	Sunset	SR-243	Secondary		2.01	2	2	0%	0.00	1	2	0	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Banning	Ramsey	I-10	8th	Secondary		1.70	2	2	0%	0.00	1	2	0	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Banning	Ramsey	8th	Highland Springs	Secondary		3.55	4	4	0%	0.00	1	2	0	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Banning	SR-243	I-10	Wesley	Secondary		0.62	2	2	0%	0.00	1	2	0	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Banning	Sun Lakes	Highland Home	Sunset	Secondary		1.00	0	4	0%	4.00	1	2	0	0	0	\$2,768,000	\$9,052,000	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$277,000	\$692,000	\$1,182,000	\$13,971,000	\$13,971,000			
Pass	Banning	Sun Lakes	Smith Creek	bridge	Secondary		0.00	0	4	0%	0.00	1	2	0	200	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$254,000	\$636,000	\$254,000	\$3,688,000	\$3,688,000			
Pass	Banning	Sun Lakes	Highland Springs	Highland Home	Secondary		1.33	4	4	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Banning	Sunset	Ramsey	Lincoln	Secondary		0.28	2	2	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Banning	Sunset	I-10	interchange	Secondary		0.00	0	0	0%	0.00	1	2	3	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$12,343,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,234,000	\$3,086,000	\$1,234,000	\$17,897,000	\$17,897,000
Pass	Banning	Wilson	Highland Home	8th	Secondary		2.51	4	4	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Banning	Wilson	Highland Springs	Highland Home	Secondary		1.01	2	4	100%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Beaumont	1st	Viele	Pennsylvania	Secondary		1.28	2	2	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Beaumont	1st	Pennsylvania	Highland Springs	Secondary		1.10	2	2	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Beaumont	6th	I-10	Highland Springs	Secondary		2.24	4	4	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Beaumont	Desert Lawn	Champions	Oak Valley (STC)	Secondary		0.99	2	4	65%	0.69	1	3	0	0	0	\$478,000	\$198,000	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Beaumont	Oak Valley (14th)	Highland Springs	Pennsylvania	Secondary		1.13	4	4	0%	0.00	2	3	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Beaumont	Oak Valley (14th)	Pennsylvania	Oak View	Secondary		1.40	4	4	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Beaumont	Oak Valley (14th)	Oak View	I-10	Secondary		0.65	2	4	50%	0.65	1	2	0	0	0	\$450,000	\$1,470,000	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Beaumont	Oak Valley (14th)	I-10	interchange	Secondary		0.00	0	0	0%	0.00	1	2	2	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Beaumont	Oak Valley (STC)	Beaumont City Limits	Cherry Valley (J St / Central Over	Secondary		3.46	2	2	0%	0.00	2	3	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Beaumont	Oak Valley (STC)	Cherry Valley (J St / Central O	I-10	Secondary		1.67	2	2	0%	0.00	1	3	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Beaumont	Pennsylvania	6th	1st	Secondary		0.53	2	4	18%	0.86	1	2	0	0	0	\$598,000	\$1,955,000	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Beaumont	Pennsylvania	I-10	interchange	Secondary		0.00	0	0	50%	0.00	1	2	3	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Calimesa	Bryant	County Line	Avenue L	Secondary		0.38	2	2	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Calimesa	Calimesa	County Line	I-10	Secondary		0.80	4	4	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Calimesa	Calimesa	I-10	interchange	Secondary		0.00	0	0	0%	0.00	1	2	2	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Calimesa	Tukwet Canyon	Roberts	Palmer	Secondary		0.50	4	4	0%	0.00	1	3	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Calimesa	County Line	Roberts	Bryant	Secondary		1.86	2	2	0%	1.86	1	2	0	0	0	\$1,287,000	\$4,209,000	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Pass	Calimesa	County Line	I-10	interchange	Secondary		0.00	0	0	0%	0.00	1	2	3	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Calimesa	Desert Lawn	Palmer	Champions	Secondary		1.42	2	2	0%	0.00	1	3	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Calimesa	Singleton	Avenue L	Condit	Secondary		1.86	0	4	0%	7.45	2	3	0	0	0	\$6,539,000	\$2,138,000	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Calimesa	Singleton	Roberts	Condit	Secondary		0.85	2	2	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Calimesa	Singleton	I-10	interchange	Secondary		0.00	0	0	0%	0.00	1	2	2	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Unincorporated	Live Oak Canyon	Oak Valley (STC)	San Bernardino County	Secondary		2.81	2	2	0%	0.00	2	3	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Unincorporated	Oak Valley (STC)	San Bernardino County	Beaumont City Limits	Secondary		5.65	2	2	0%	0.00	2	3	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Pass	Unincorporated	Oak Valley (STC)	UP	railroad crossing	Secondary		0.00	2	2	0%	0.00	2	3	0	0	1	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
San Jacinto	Hemet	Sanderson	Acacia	Menlo	Secondary		0.98	4	4	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
San Jacinto	Hemet	Sanderson	Domenigoni	Stetson	Secondary		1.08	4	4	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
San Jacinto	Hemet	Sanderson	RR Crossing	Acacia	Secondary		0.42	4	4	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
San Jacinto	Hemet	Sanderson	Stetson	RR Crossing	Secondary		0.58	4	4	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
San Jacinto	Hemet	Sanderson	Menlo	Esplanade	Secondary		1.00	4	4	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
San Jacinto	Hemet	SR-74 (Florida)	Warren	Cawston	Secondary		1.02	4	4	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
San Jacinto	Hemet	SR-74 (Florida)	Columbia	Ramona	Secondary		2.58	4	4	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
San Jacinto	Hemet	SR-74/SR-79 (Florida)	Cawston	Columbia	Secondary		4.03	4	4	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
San Jacinto	Hemet	State	Domenigoni	Chambers	Secondary		1.31	4	4	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
San Jacinto	Hemet	State	Chambers	Stetson	Secondary		0.51	4	4	0%	0.00	1	2	0	0	0	\$0	\$0	\$0	\$0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
San Jacinto	Hemet	State	Florida	Esplanade	Secondary		1.74	4	4	0%	0																														

AREA	PLAN DIST CITY	STREETNAME	SEGMENTFROM	SEGMENTTO	NETWORK	MILES	EXISTINGLN	FUTURELN	% COMPLETE	INCREASELN	MILES TOPO	LANDUSE	INTERCHG	BRIDGE	RRXING	NEWLN	COST	ROWCOST	INTCHG	COST	BRDGCOST	RRXCOST	PLNG	ENG	CONTRG	TOTAL COST	MAXIMUM TUMF SHARE		
Southwest	Lake Elsinore	Corydon	Mission	Grand	Secondary	1.53	2	4	50%	0.00	1	3	0	0	0	\$1,059,000	\$439,000	\$0	\$0	\$0	\$0	\$0	\$106,000	\$265,000	\$150,000	\$2,019,000	\$2,019,000		
	Lake Elsinore	Diamond	Mission	I-15	Secondary	0.24	4	0	100%	0.00	1	3	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
	Lake Elsinore	Franklin (Integral to Railroad C	I-15	interchange	Secondary	0.00	0	0	0%	0.00	1	3	2	0	0	0	\$0	\$0	\$25,558,000	\$0	\$0	\$0	\$2,556,000	\$6,390,000	\$2,556,000	\$37,060,000	\$14,629,000		
	Lake Elsinore	Grand	Lincoln	Toft	Secondary	1.29	4	4	0%	0.00	1	3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
	Lake Elsinore	Grand	Toft	SR-74 (Riverside)	Secondary	0.86	2	4	40%	1.03	1	3	0	0	0	0	\$712,000	\$295,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
	Lake Elsinore	Lake	I-15	Lincoln	Secondary	3.10	2	6	25%	9.31	2	3	0	0	0	0	\$8,175,000	\$2,672,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
	Lake Elsinore	Lake	I-15	interchange	Secondary	0.00	0	0	0%	0.00	2	3	3	0	0	0	\$0	\$0	\$0	\$12,343,000	\$0	\$0	\$0	\$1,234,000	\$3,086,000	\$1,234,000	\$17,897,000	\$7,291,000	
	Lake Elsinore	Lake	Temescal Wash	bridge	Secondary	0.00	2	6	0%	0.00	2	3	0	107	0	0	\$0	\$0	\$0	\$0	\$1,361,000	\$0	\$0	\$0	\$136,000	\$340,000	\$136,000	\$1,973,000	\$822,000
	Lake Elsinore	Mission	Railroad Canyon	Bundy Canyon	Secondary	2.39	4	4	0%	0.00	1	3	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
	Lake Elsinore	Nichols	I-15	Lake	Secondary	1.80	2	4	30%	2.52	1	3	0	0	0	0	\$1,744,000	\$723,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
	Lake Elsinore	Nichols	I-15	interchange	Secondary	0.00	0	0	0%	0.00	1	3	2	0	0	0	\$0	\$0	\$0	\$25,558,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
	Lake Elsinore	SR-74 (Collier/Riverside)	I-15	Lakeshore	Secondary	2.10	2	6	0%	8.41	1	2	0	0	0	0	\$5,816,000	\$19,021,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
	Lake Elsinore	SR-74 (Grand)	Riverside	SR-74 (Ortega)	Secondary	0.64	2	6	0%	2.55	1	2	0	0	0	0	\$1,762,000	\$5,761,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
	Lake Elsinore	SR-74 (Riverside)	Lakeshore	Grand	Secondary	1.74	2	6	10%	6.25	1	2	0	0	0	0	\$4,325,000	\$14,144,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
	Lake Elsinore	Temescal Canyon	I-15	Lake	Secondary	1.21	2	4	0%	2.42	2	3	0	0	0	0	\$2,125,000	\$695,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
	Lake Elsinore	Temescal Canyon	Temescal Wash	bridge	Secondary	0.00	2	4	0%	0.00	2	3	0	246	0	0	\$0	\$0	\$0	\$0	\$1,565,000	\$0	\$0	\$0	\$157,000	\$391,000	\$157,000	\$2,270,000	\$2,270,000
	Murrieta	California Oaks	Jefferson	I-15	Secondary	0.32	4	6	75%	0.16	1	2	0	0	0	0	\$110,000	\$359,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
	Murrieta	California Oaks	I-15	Jackson	Secondary	0.50	6	6	0%	0.00	1	2	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
	Murrieta	California Oaks	Jackson	Clinton Keith	Secondary	1.76	4	4	0%	0.00	1	2	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
	Murrieta	Jackson	Whitewood	Ynez																									

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Western Riverside Council of Governments

Public Works Committee

Staff Report

Subject: Understanding the Transportation Analysis Implications of Senate Bill 743

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

Date: March 14, 2019

The purpose of this item is to provide a summary of the study WRCOG undertook to develop localized guidelines, thresholds, and mitigation measures related to SB 743. This study is funded through the Southern California Association of Governments' (SCAG) Sustainability Planning Grant Program.

Requested Action:

1. Receive and file.

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). 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.

This information is provided on a voluntary basis so that each agency can choose to use this information, tailor it for their own use, or proceed independently based on its preference.

Engagement with Local Jurisdictions and Stakeholders

The Scope of Work designated time and resources to conduct focus group meetings composed of member jurisdiction staff, environmental and transportation consultants, developers, and other key stakeholders to gather feedback on potential VMT methodologies, thresholds, and feasible mitigation measures. These parties were targeted as they work on and dealt with transportation impacts, mitigation measures, and CEQA on a day-to-day basis.

WRCOG and Fehr & Peers (our consultant) provided numerous updates to the WRCOG Planning Directors' Committee and Public Works Committee. In addition, an introductory workshop was offered to staff at local jurisdictions and occurred in June 2018. Lastly, workshops were conducted with the transportation and environmental consultants in September 2018, and with the developers and attorneys in November 2018. The working papers that are summarized in this report were provided in November 2018 to all attendees for feedback.

Next Steps – Implementation and Tool/Website

WRCOG recognizes there are a few follow-on items that may be prompted to provide additional assistance and benefits to member jurisdictions. One item WRCOG is looking into is developing generalized Traffic Study guidelines to address SB 743 analyses. In addition, the methodology to forecast 'project-generated VMT,' the VMT thresholds, and the mitigation measures utilized must be adopted by each jurisdiction. As such, WRCOG will be working on sample staff reports to assist jurisdictions with this process. WRCOG will work on these items in the near future and come back to the appropriate Committee for discussion and input.

As part of the study, a web map is being developed to serve as a screening tool for potential VMT impacts associated with select land use projects in the WRCOG subregion in compliance with SB 743 changes to the California Environmental Quality Act (CEQA) and its associated CEQA Guidelines. As recommended in December 2018 by the California Governor's Office of Planning and Research's (OPR) Technical Advisory on Evaluating Transportation Impacts in CEQA ("Technical Advisory"), screening thresholds can be used to quickly identify when a project may cause a less-than-significant VMT impact. The "Technical Advisory" specifically identifies the use of map-based screening for residential and office projects based on the following criteria: It must be emphasized that the use of the screening tool is only intended for assessing VMT impacts and does not substitute for impact analysis for other transportation system components such as transit, bicycle / scooter, and pedestrian. The web map is being developed as user-friendly as possible, so WRCOG will continue to refine the web map to include updates, latest-and-greatest information / data, and instructions on the screening tool.

Key Issues Addressed

The project team prepared seven working papers for this project, which are included as an attachment to this Staff Report. Each working paper addresses 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 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?

1. 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 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 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.

2. 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 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 subregion; and
4. Thresholds based on baseline VMT performance by jurisdiction or subregion.

3. 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.

Prior Action:

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

Fiscal Impact:

This item is being funded through SCAG; therefore, there is no fiscal impact.

Attachment:

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

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Item 7.D

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

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.

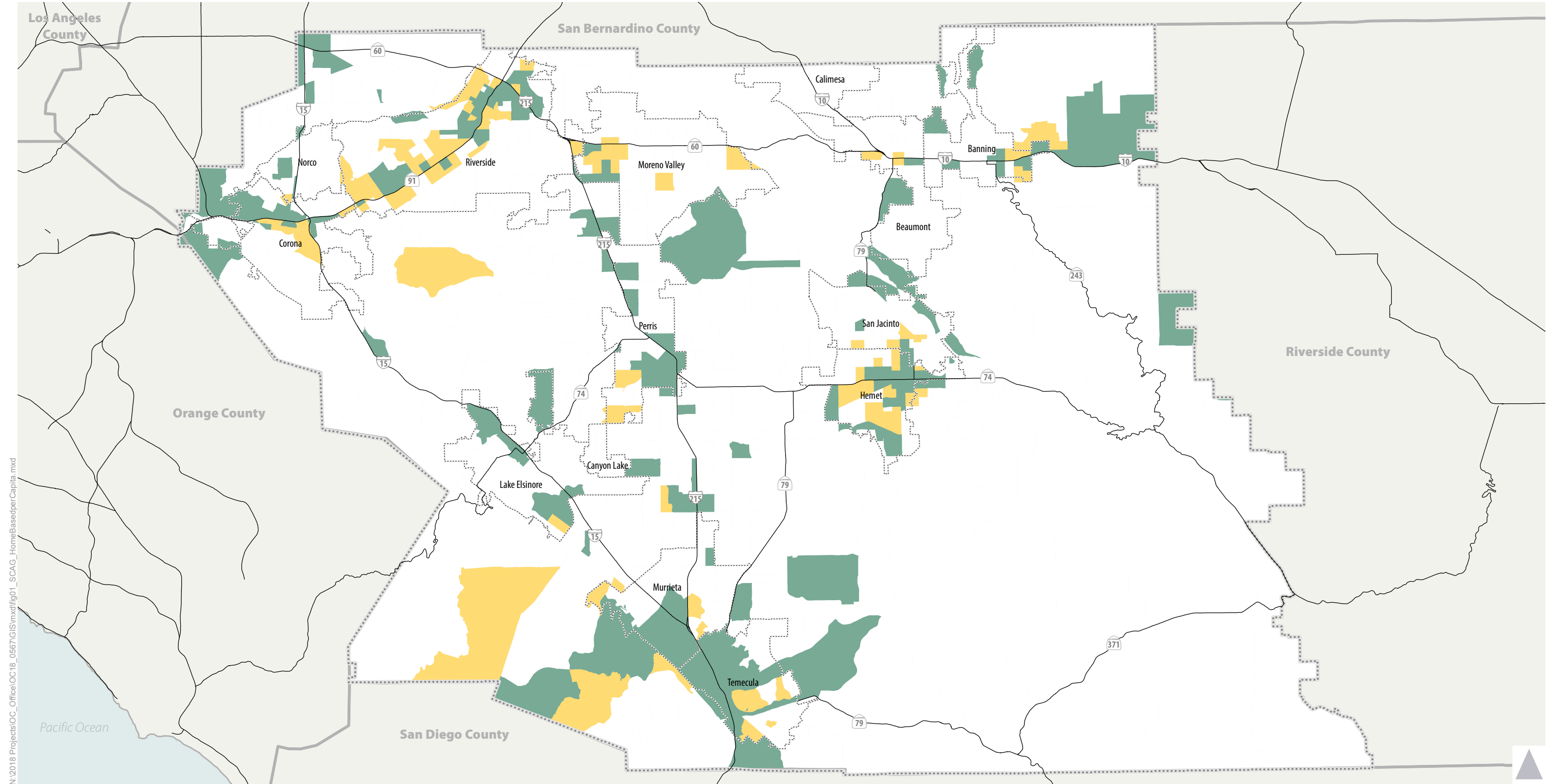
Baseline conditions for CEQA purposes would be specific to the release date of a project's notice of preparation (NOP). Hence, the project team recommends interpolating between the 2012 and 2040 VMT data to establish specific VMT values associated with a baseline year. Spreadsheets containing the 2012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

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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

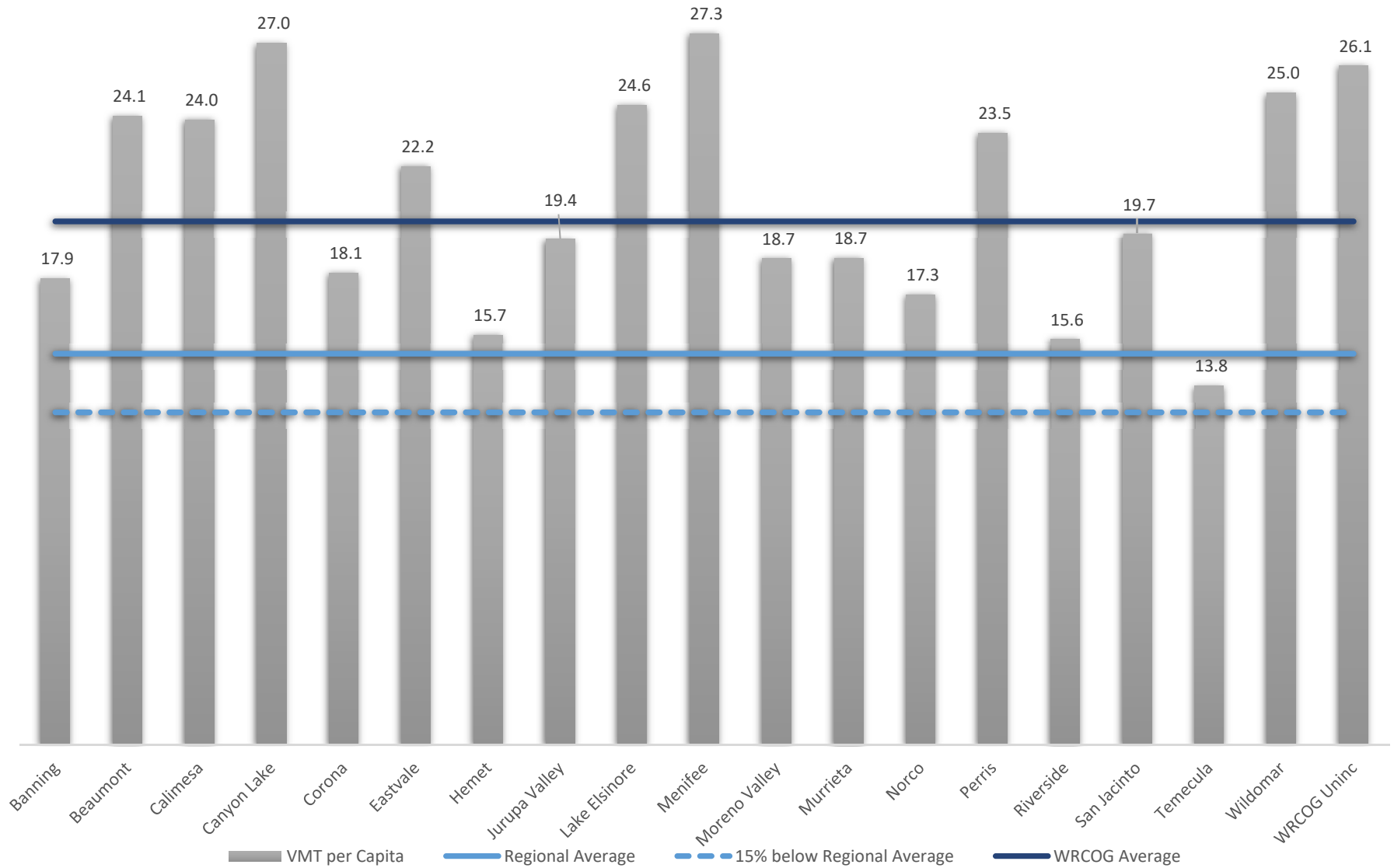
* SCAG Regional Average calculated using SCAG Model.

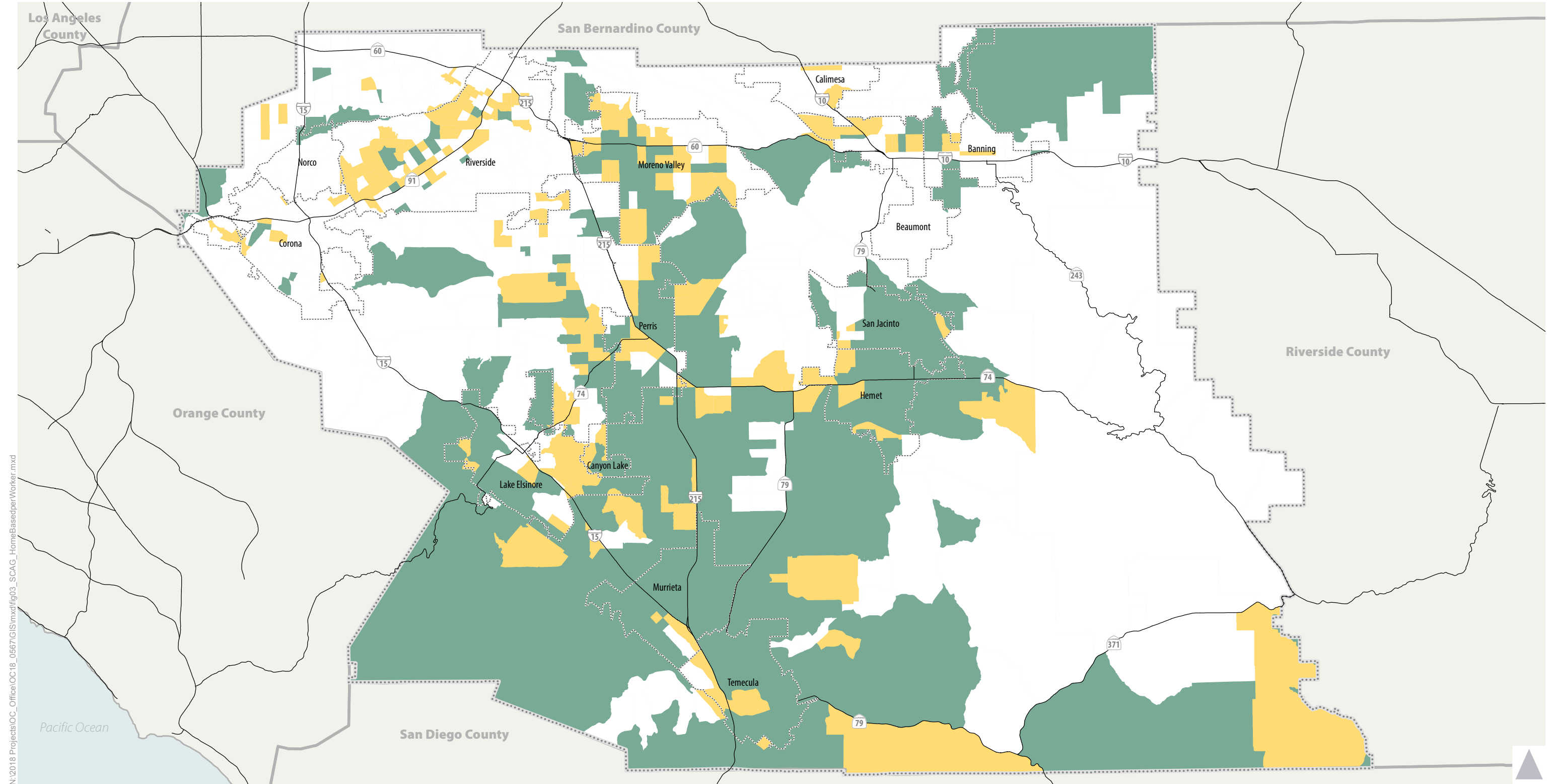
Figure 1



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





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

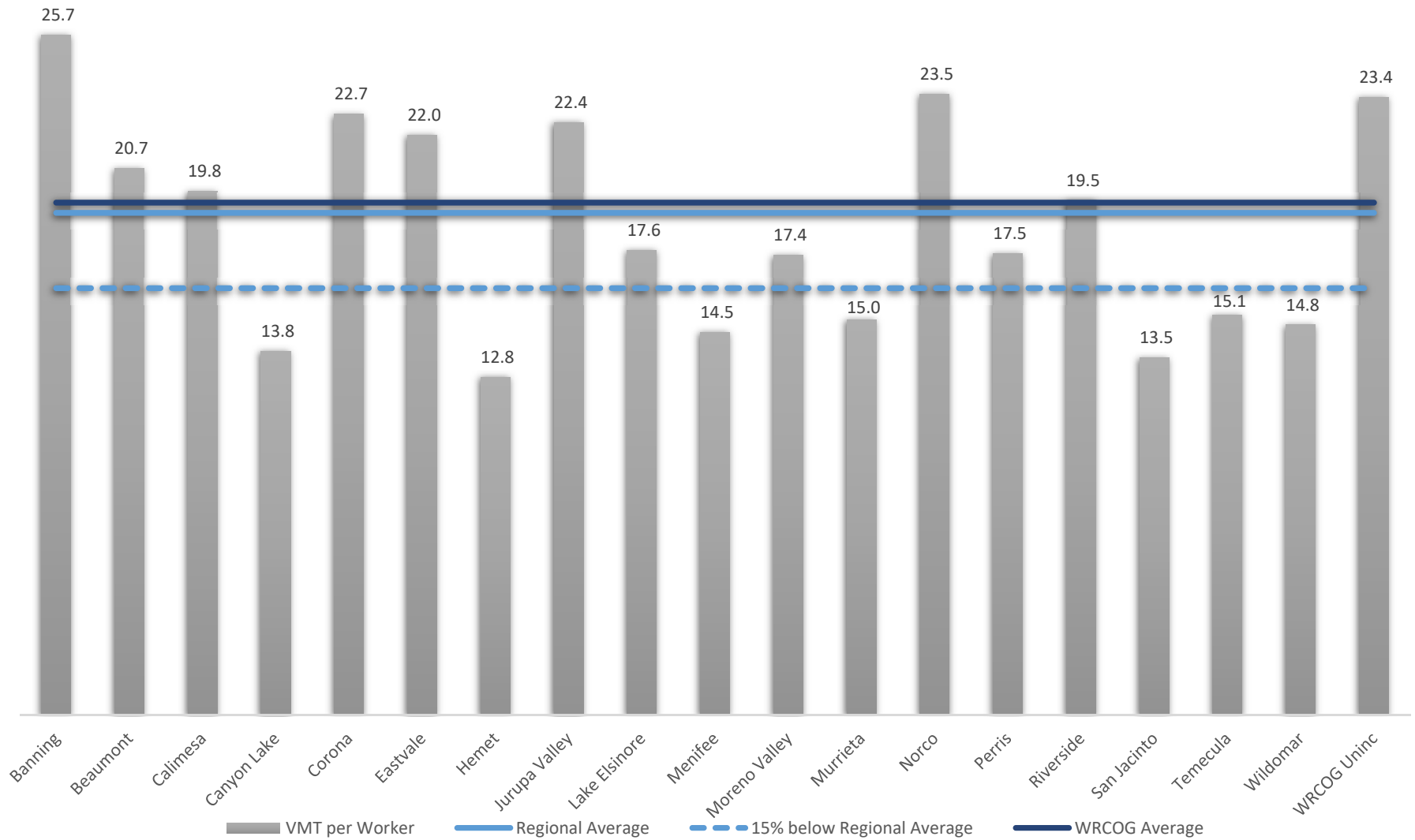
* SCAG Regional Average calculated using SCAG Model.

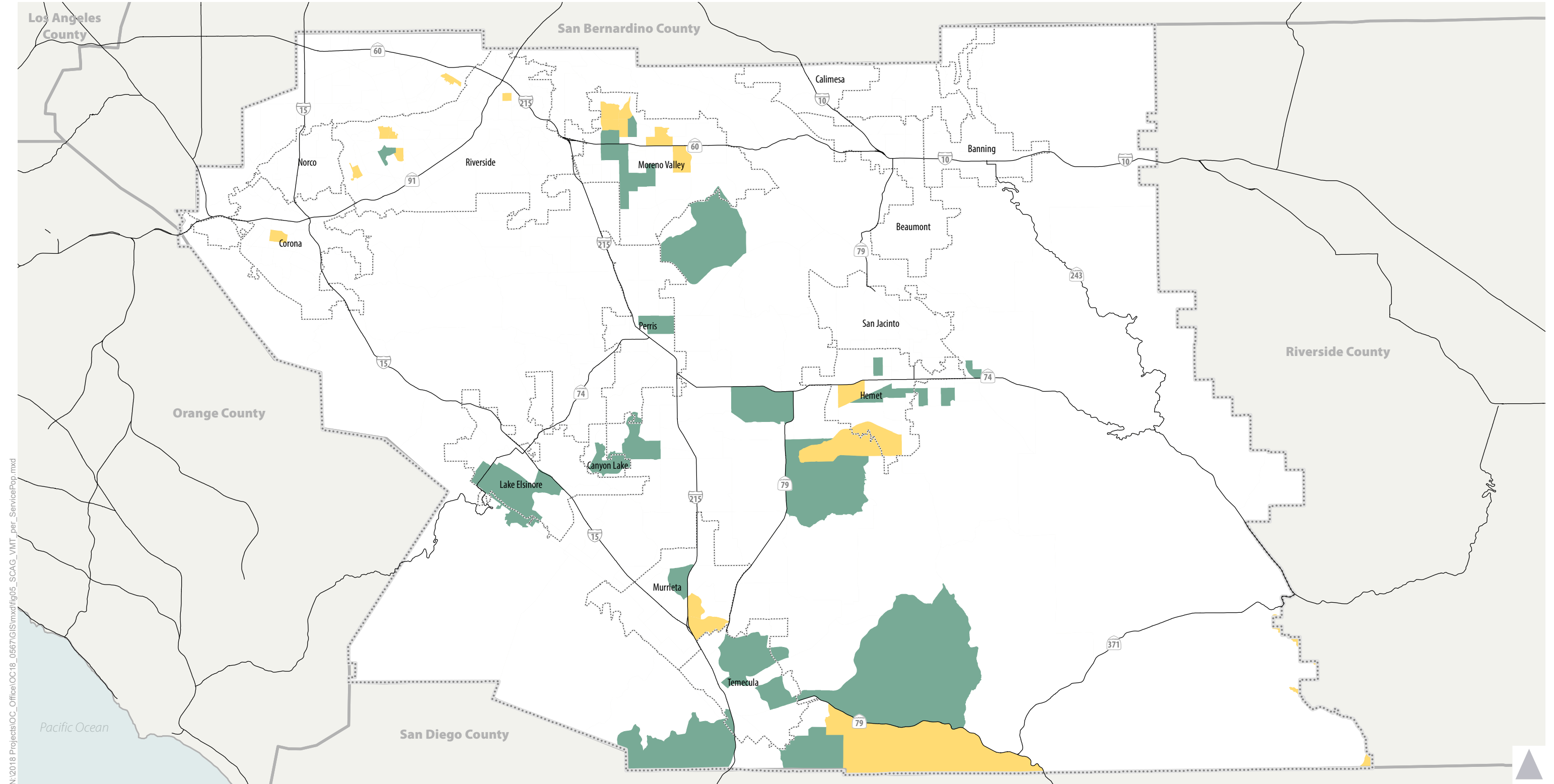
Figure 3



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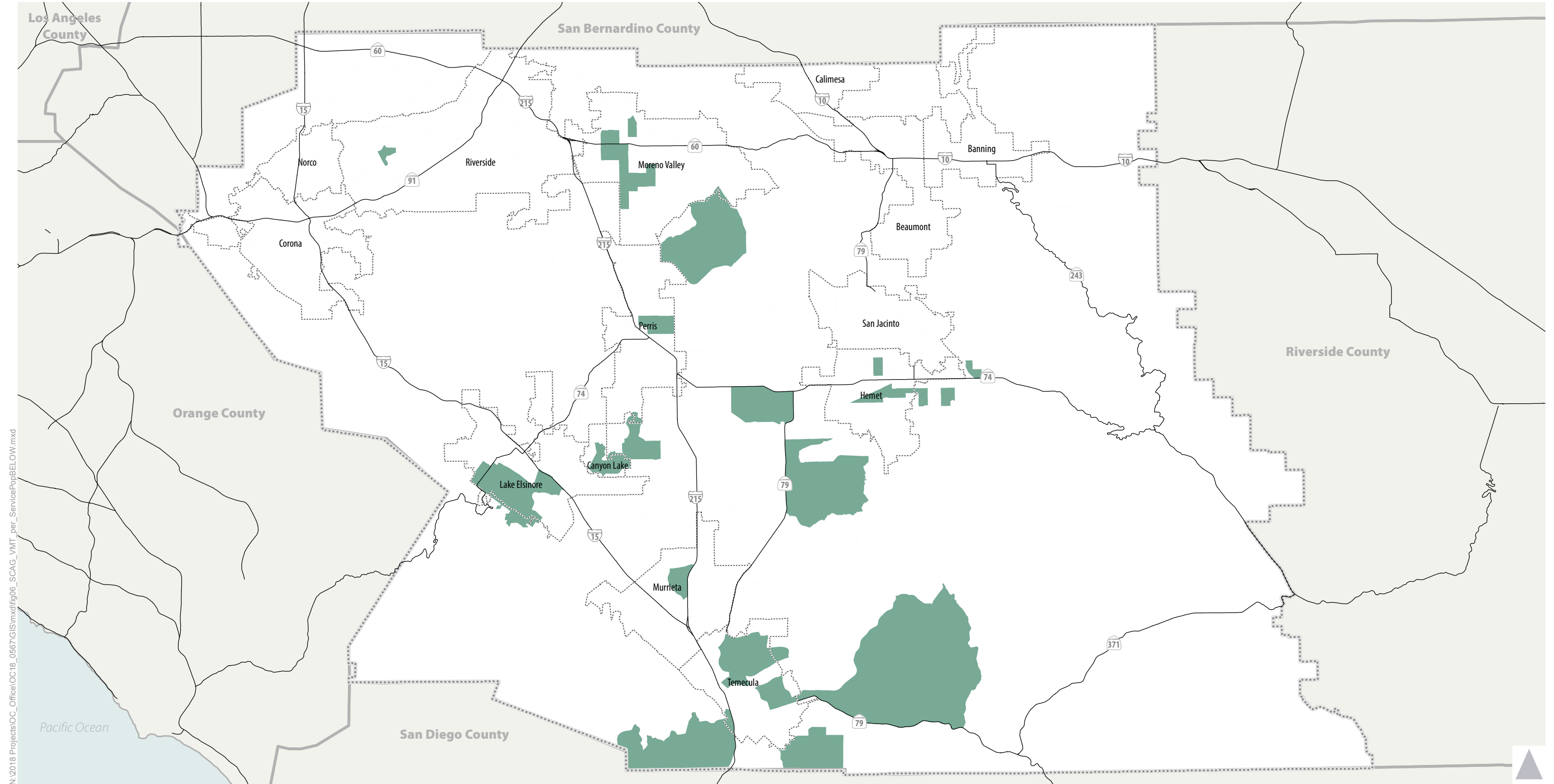
- < -15% below SCAG Regional Average *
- 0 to -15% below SCAG Regional Average
- Higher than SCAG Regional Average
- WRCOG Boundary
- County Boundary
- City Limits

* SCAG Regional Average calculated using SCAG Model.

Figure 5



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



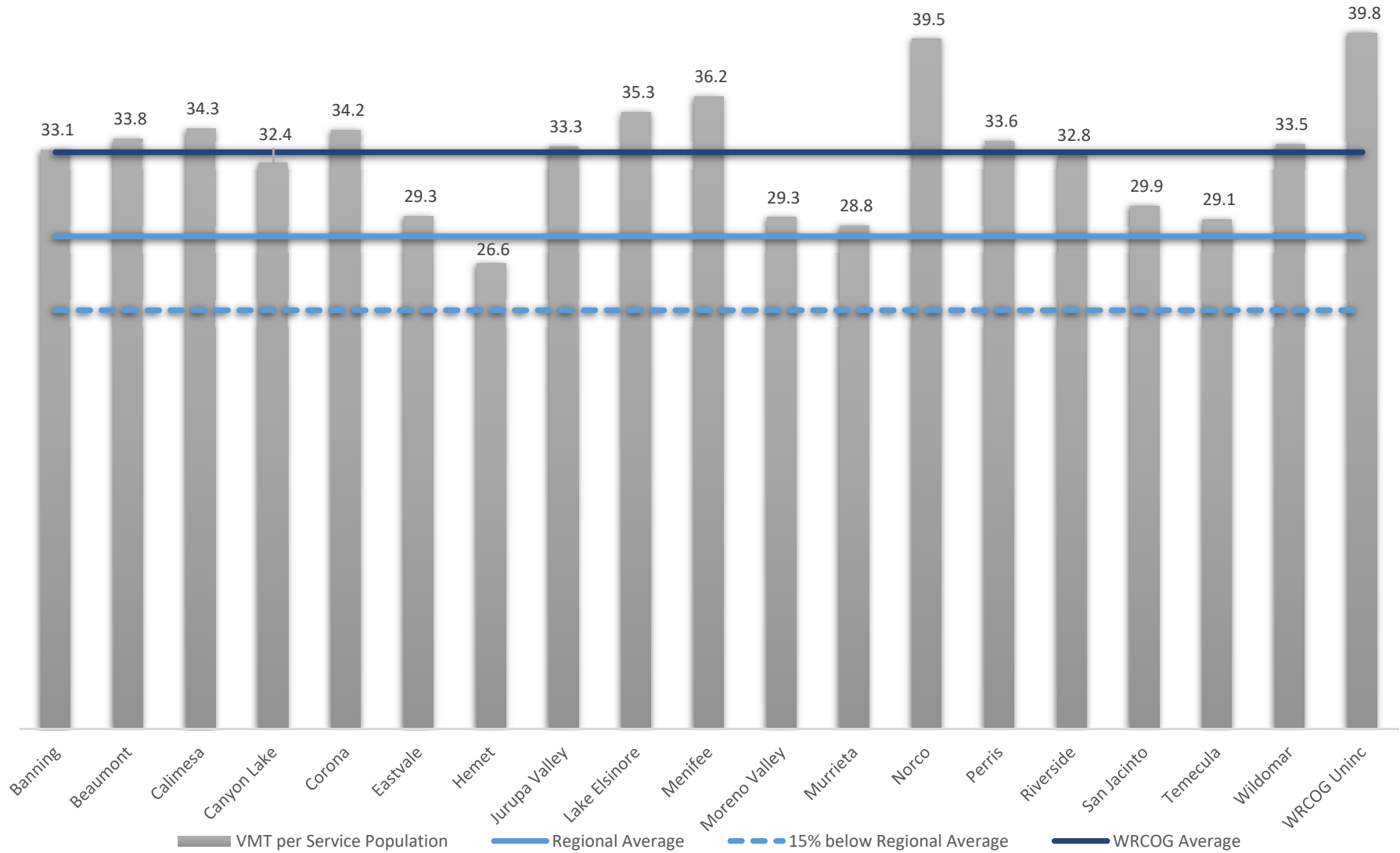
- < -15% below SCAG Regional Average *
 - Higher than SCAG Regional Average
 - WRCOG Boundary
 - County Boundary
 - City Limits
- * SCAG Regional Average calculated using SCAG Model.

Figure 6



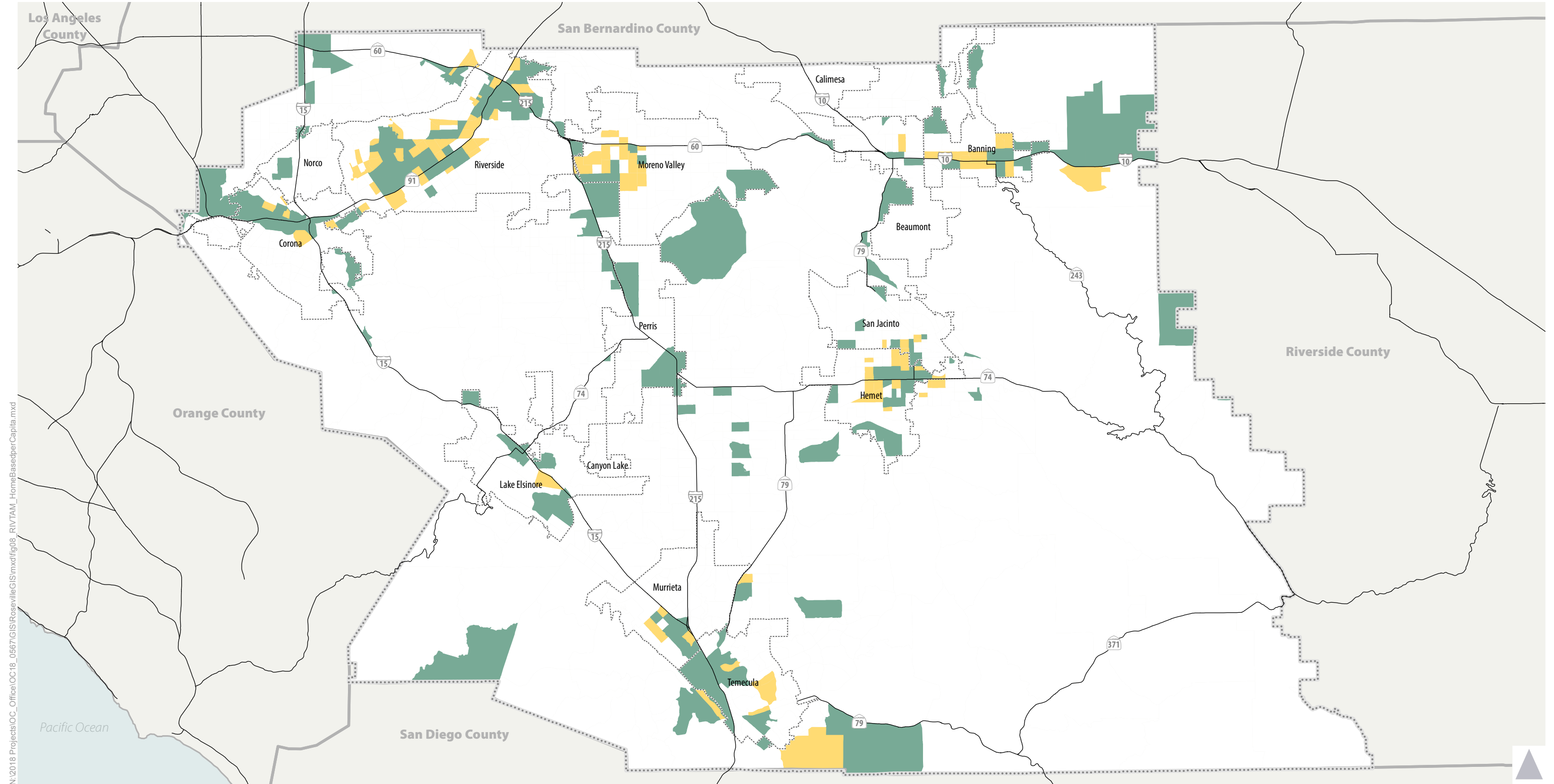
SCAG Model (2012)
TAZs Performing Better than 15% below SCAG Regional Average of
Daily VMT per Service Population in only the SCAG Model

SCAG Model (2012) Daily Total VMT per Service Population



ATTACHMENT B – RIVTAM VMT Data

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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

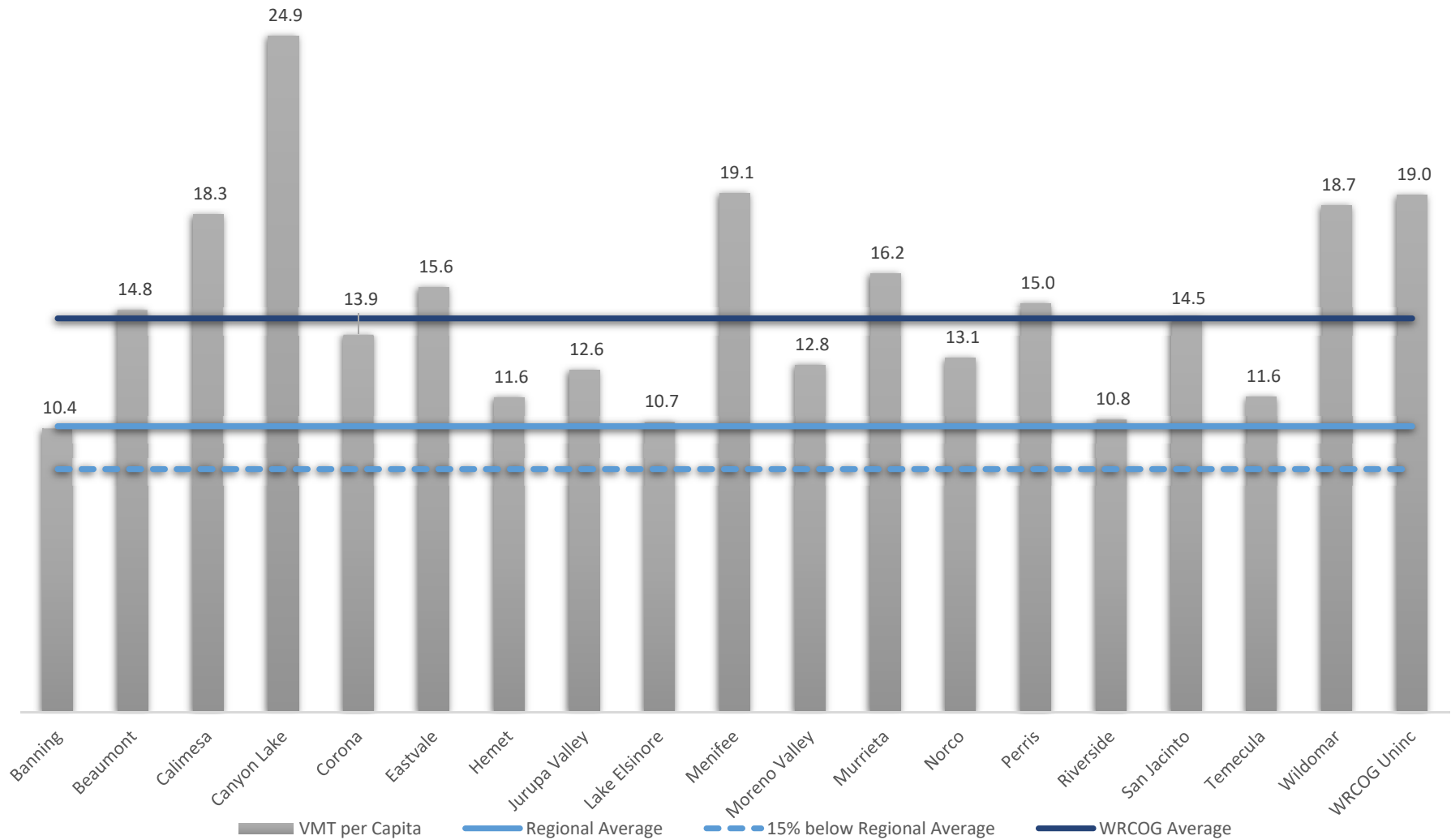
* SCAG Regional Average calculated using RIVTAM Model.

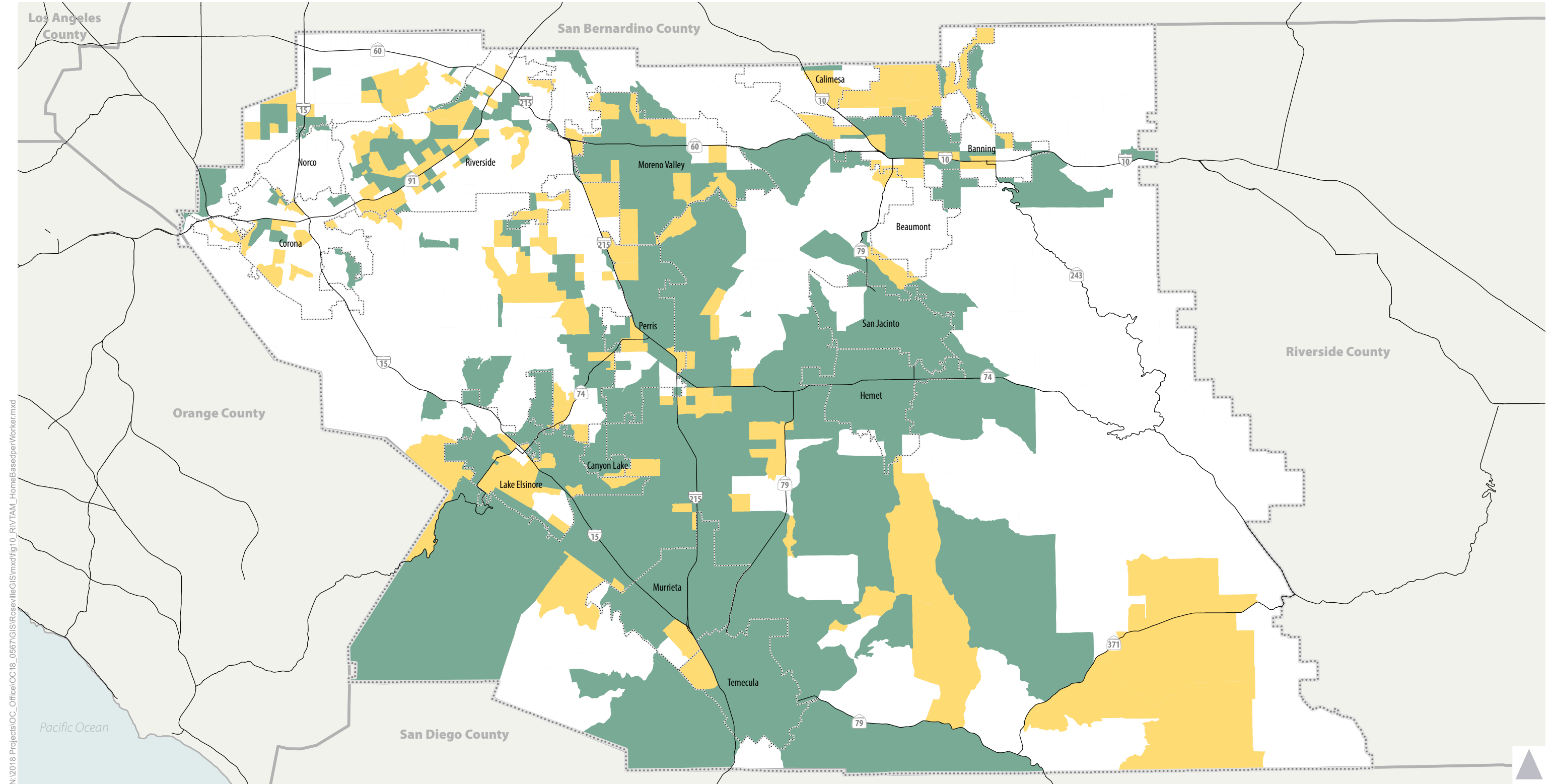
Figure 8



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





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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

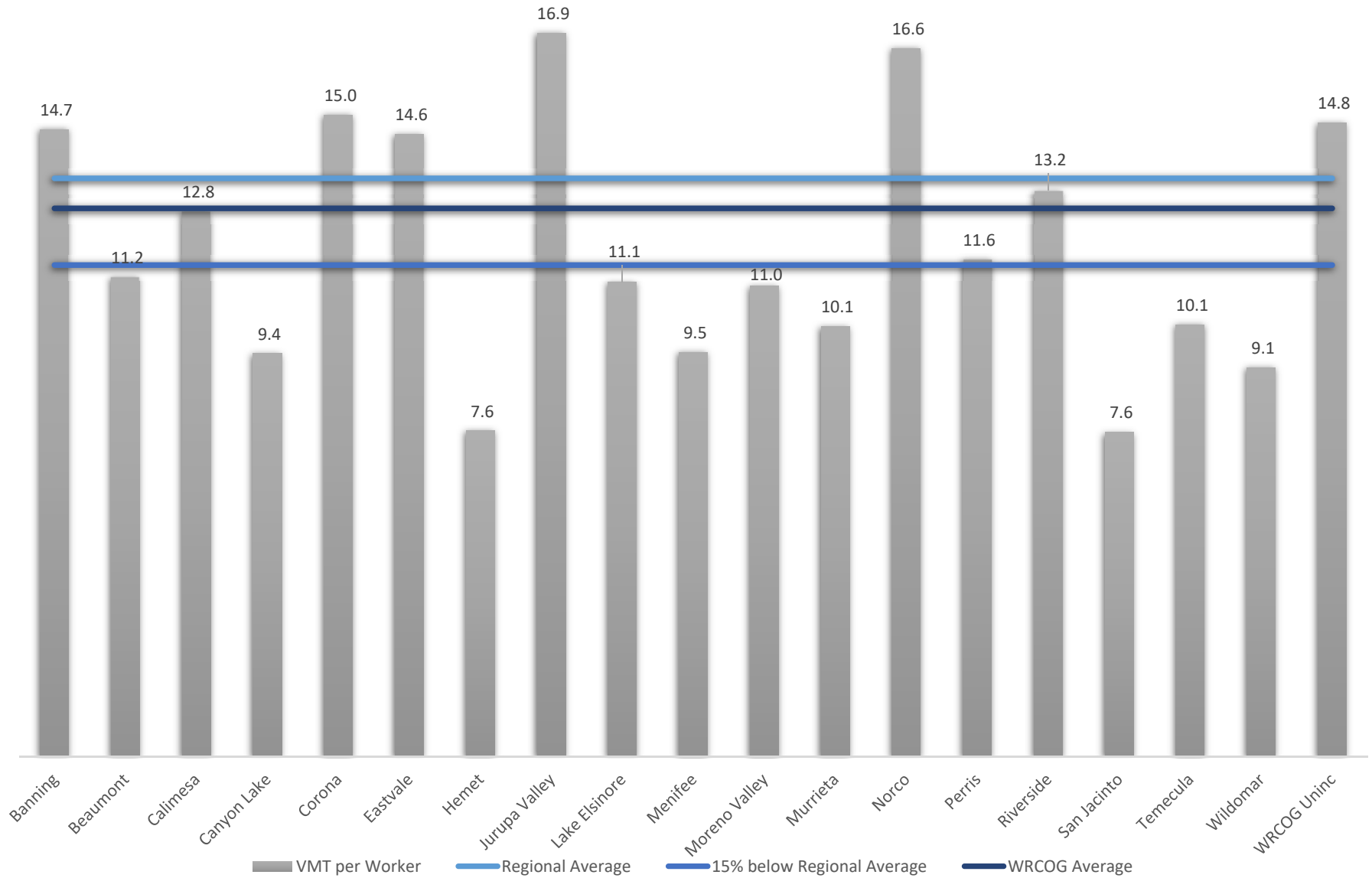
* SCAG Regional Average calculated using RIVTAM Model.

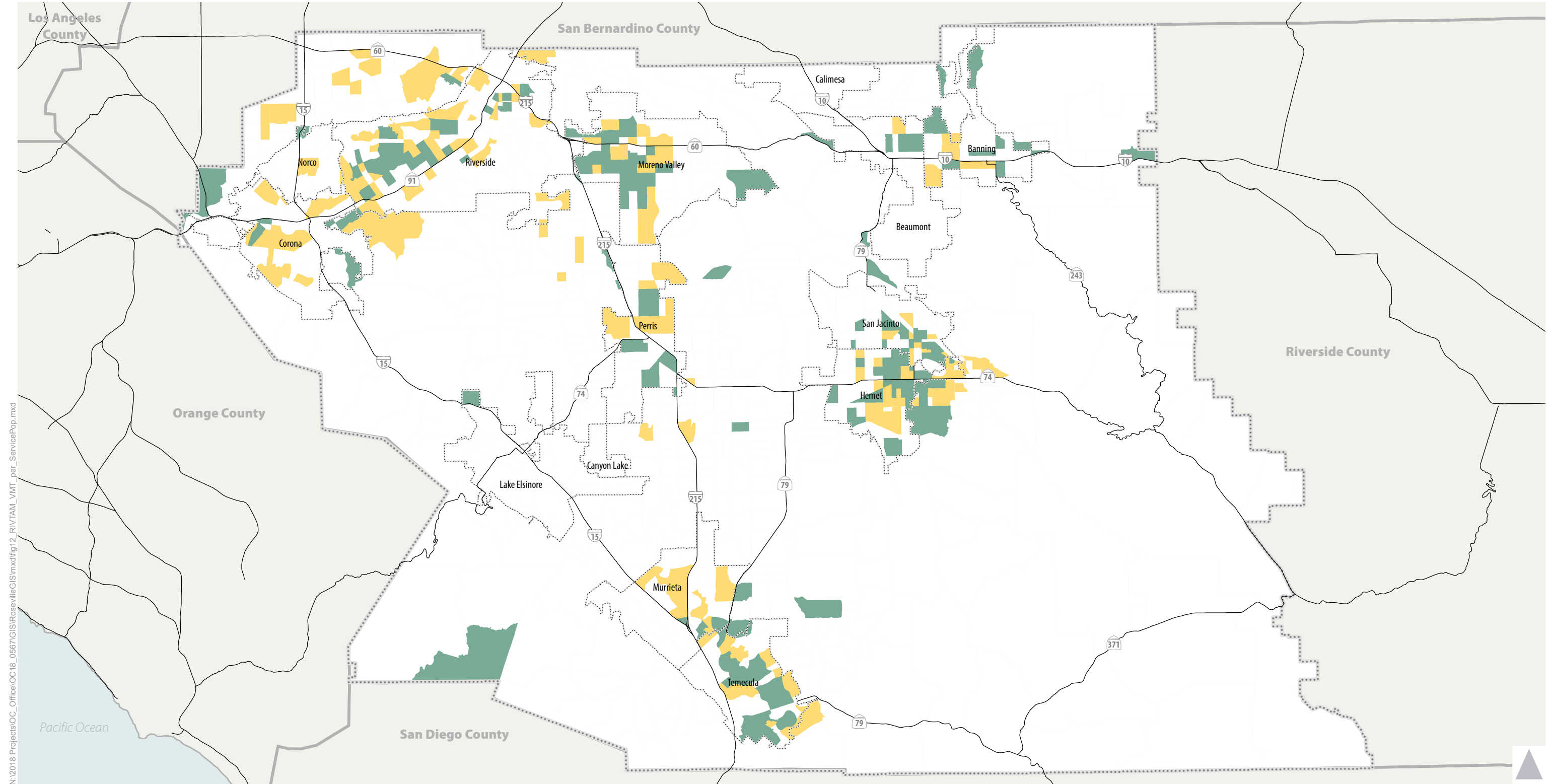
Figure 10



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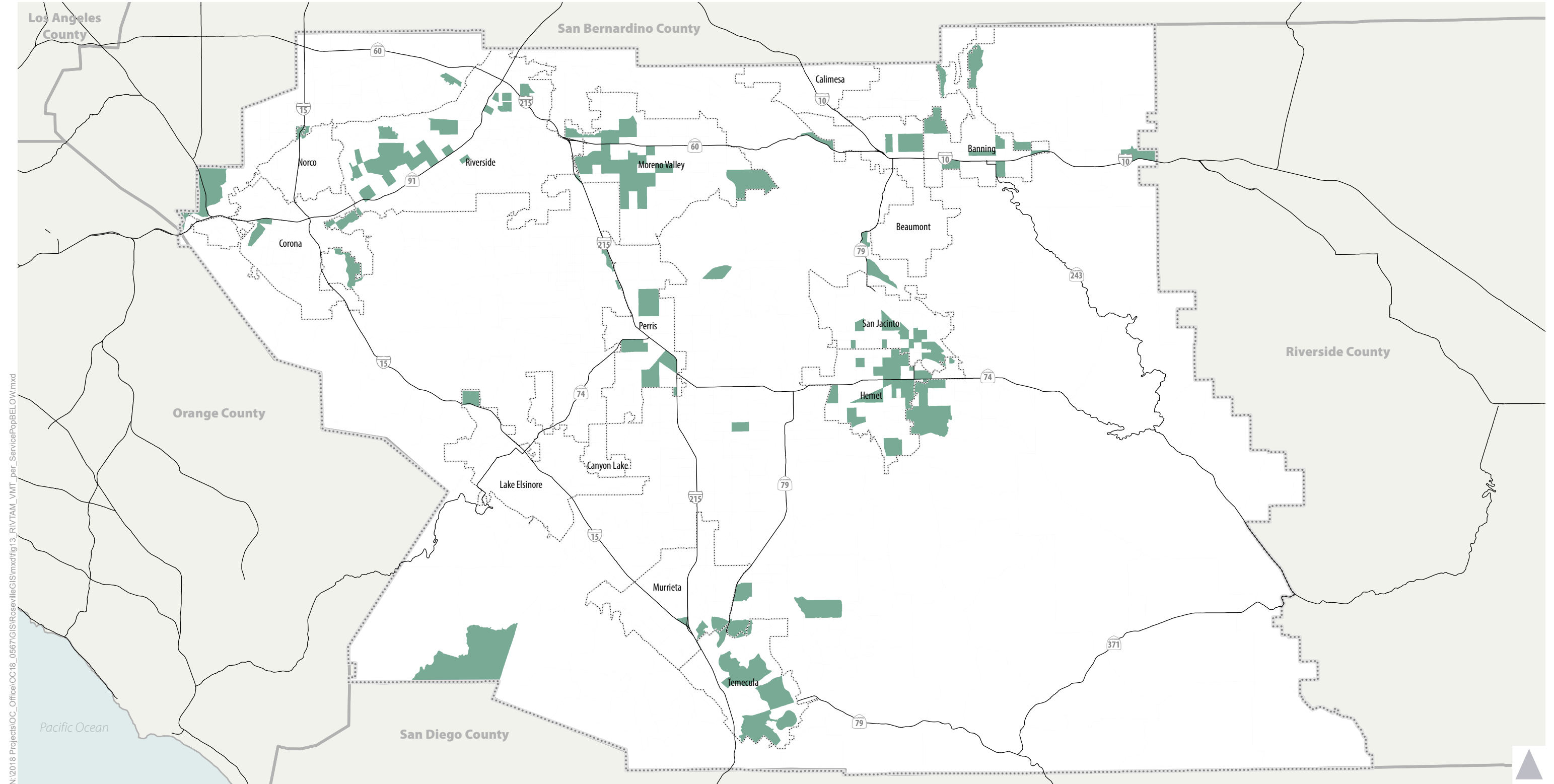
- < -15% below SCAG Regional Average *
- 0 to -15% below SCAG Regional Average
- Higher than SCAG Regional Average
- WRCOG Boundary
- County Boundary
- City Limits

* SCAG Regional Average calculated using RIVTAM Model.

Figure 12



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

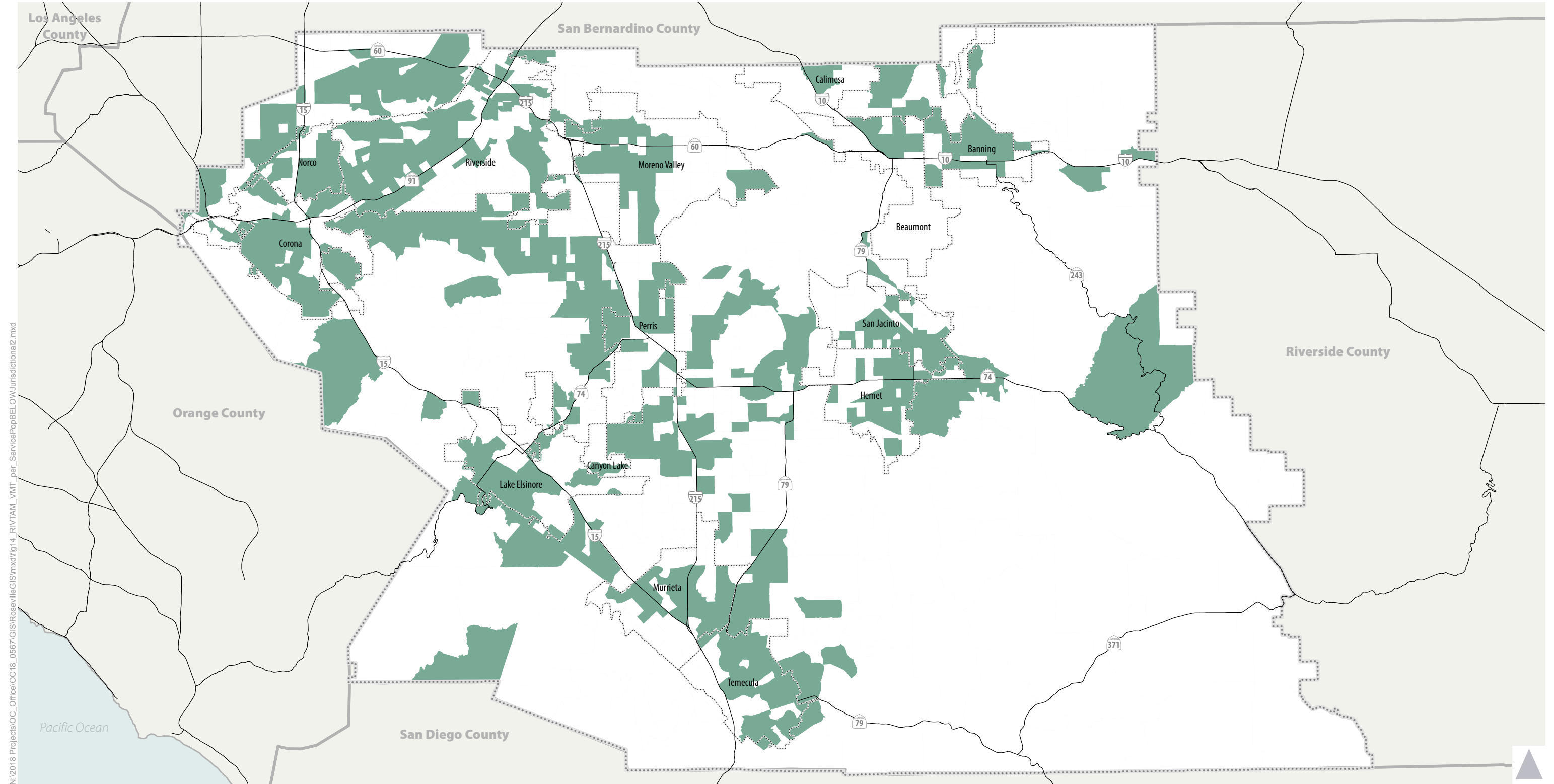


- < -15% below SCAG Regional Average *
- WRCOG Boundary
- Higher than SCAG Regional Average
- County Boundary
- City Limits
- * SCAG Regional Average calculated using RIVTAM Model.

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



- At or below Jurisdictional Average *
- Higher than Jurisdictional Average

- WRCOG Boundary
- County Boundary
- City Limits

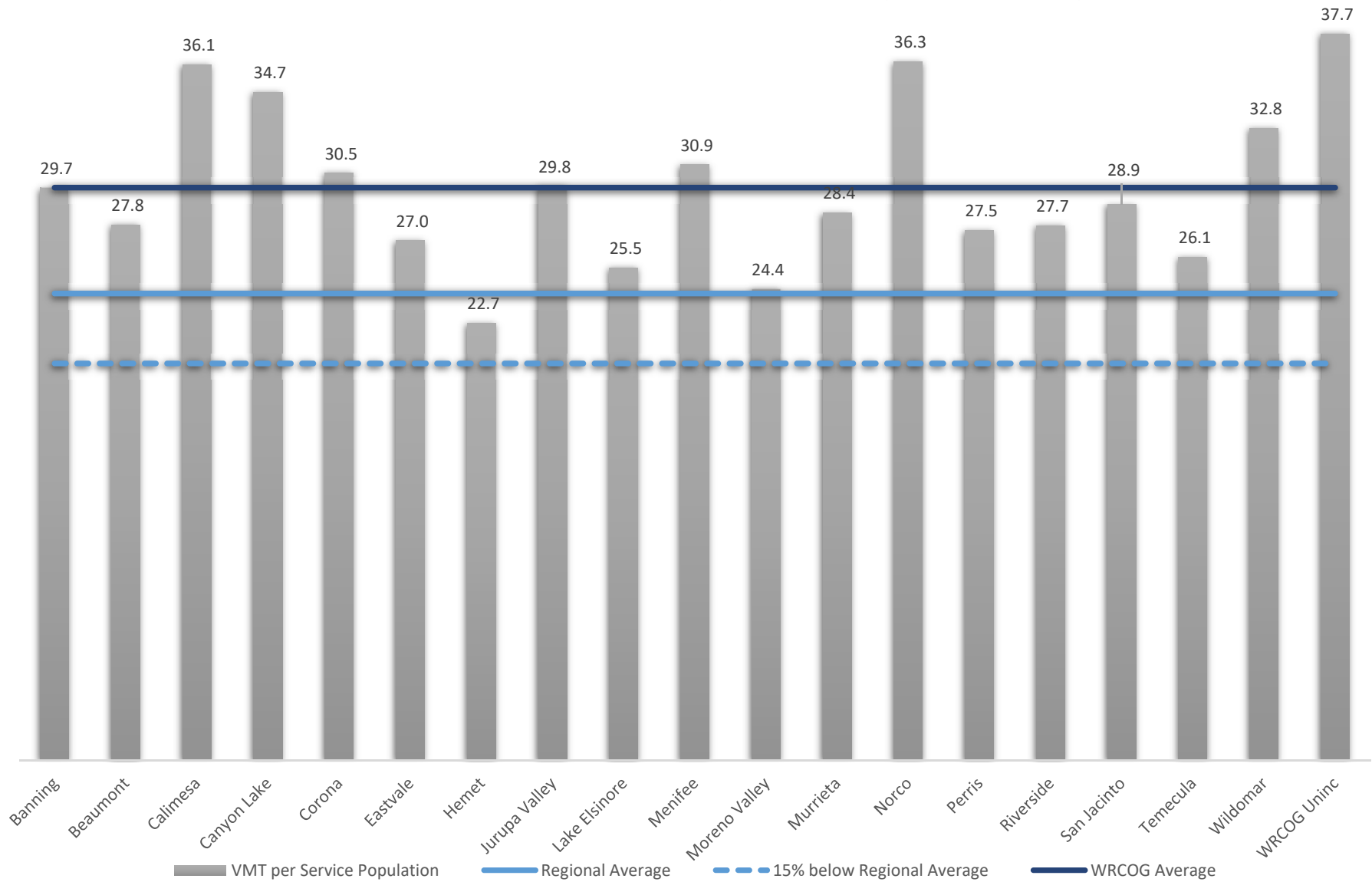
* Jurisdictional Average calculated using RIVTAM Model.

Figure 14

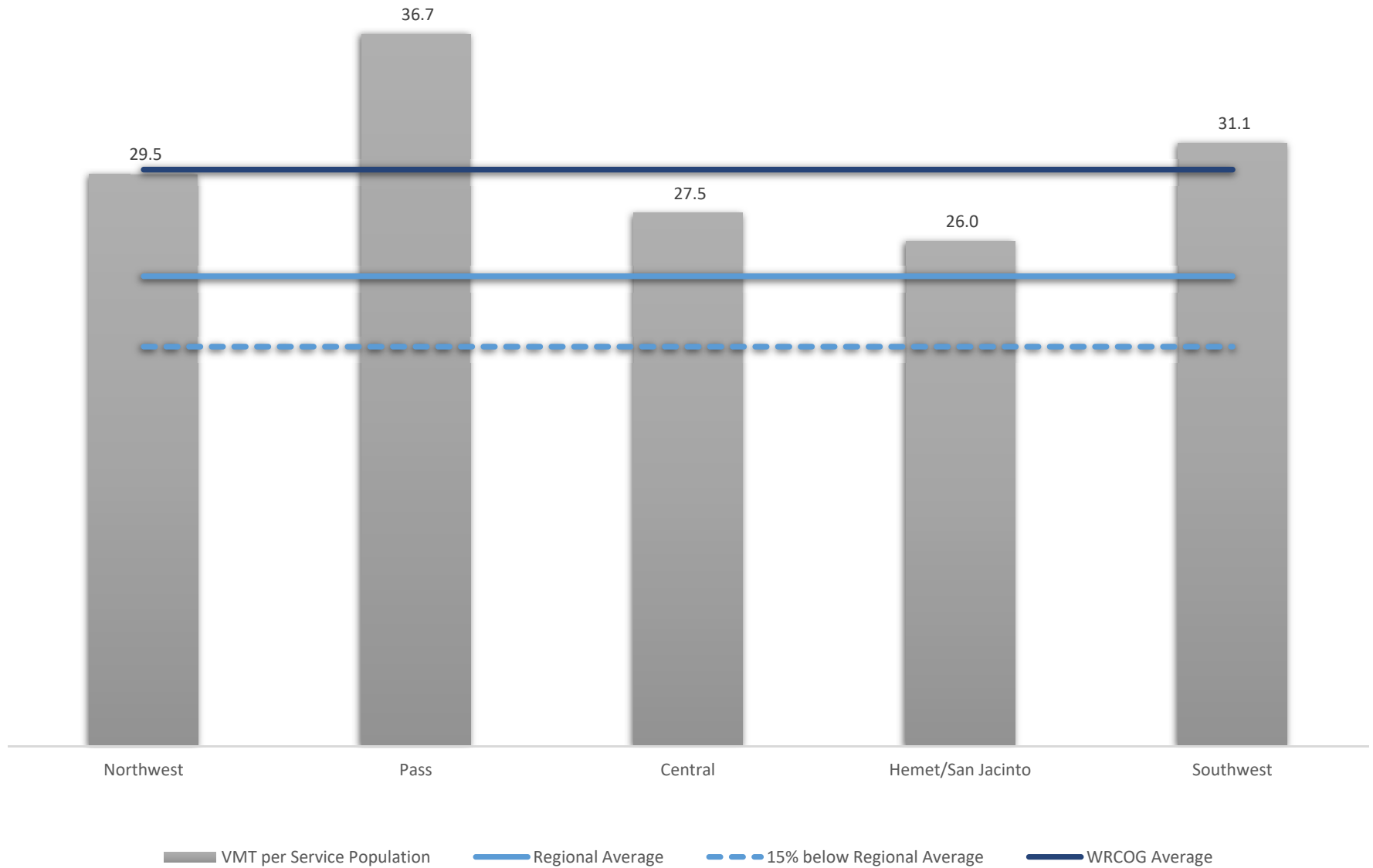


RIVTAM Model (2012)
TAZs Performing at or below 2012 Jurisdictional Average of
Daily VMT Per Service Population in only the RIVTAM Model

RIVTAM Model (2012) Daily Total VMT per Service Population



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



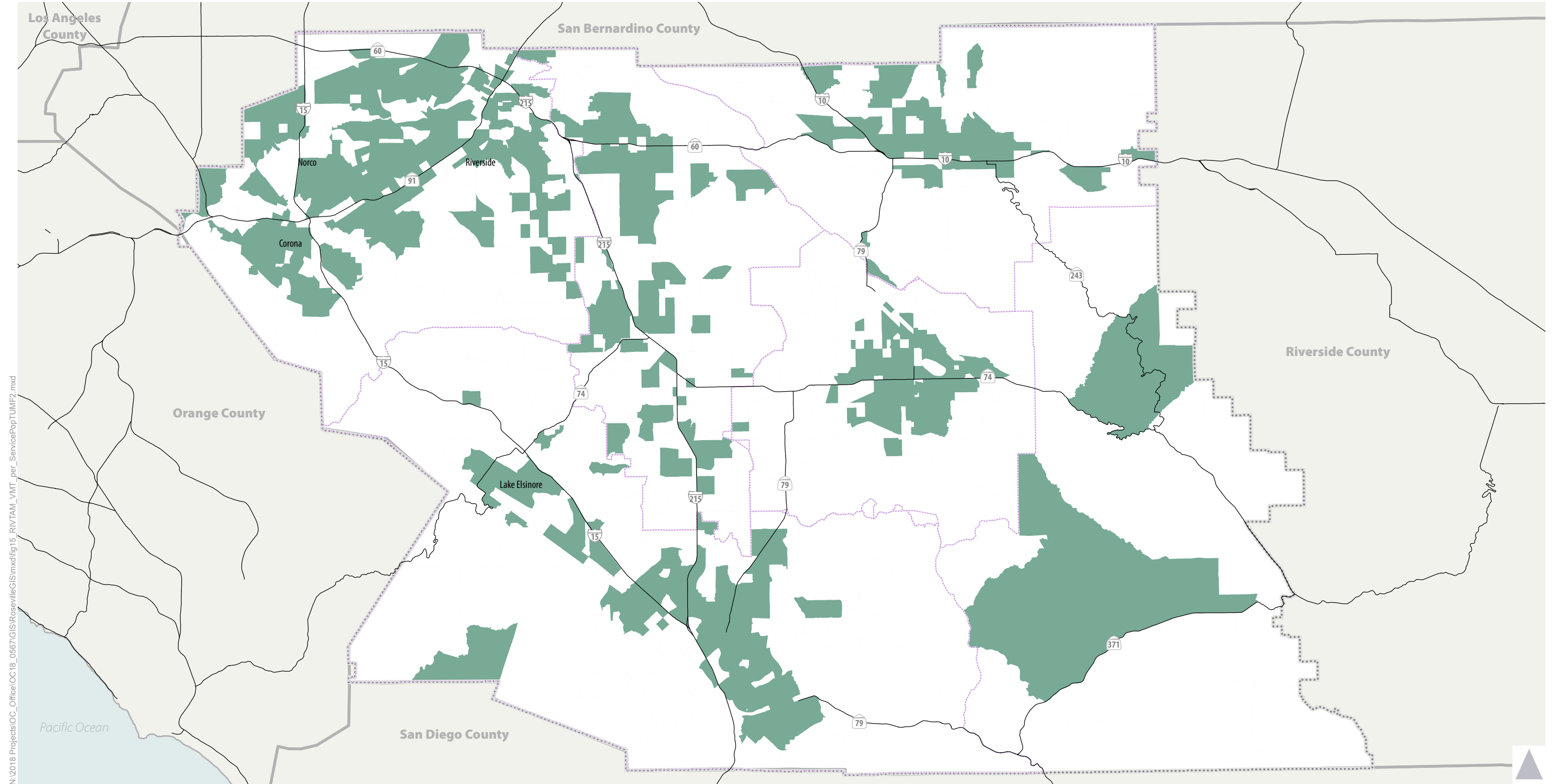
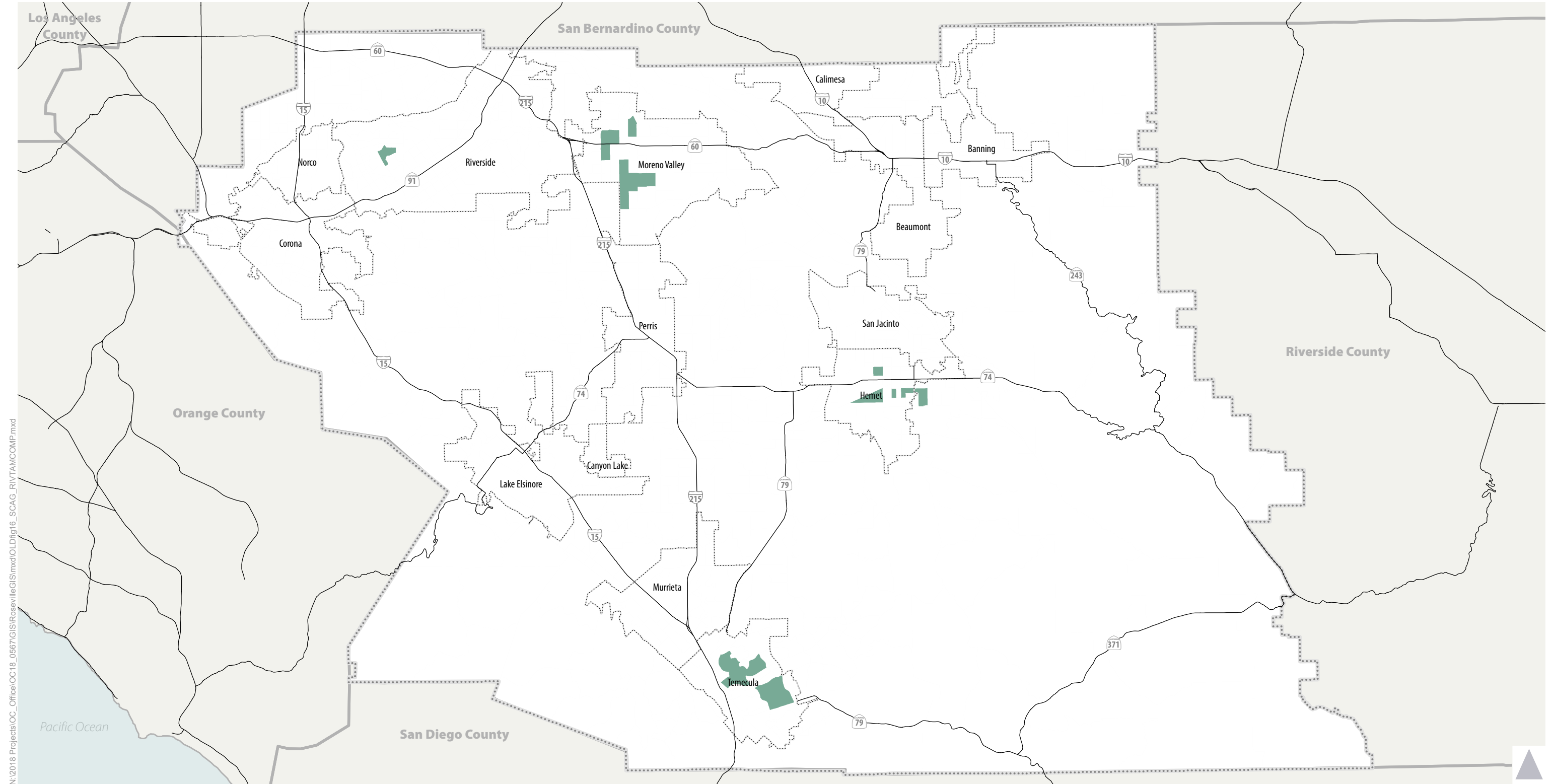


Figure 15

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



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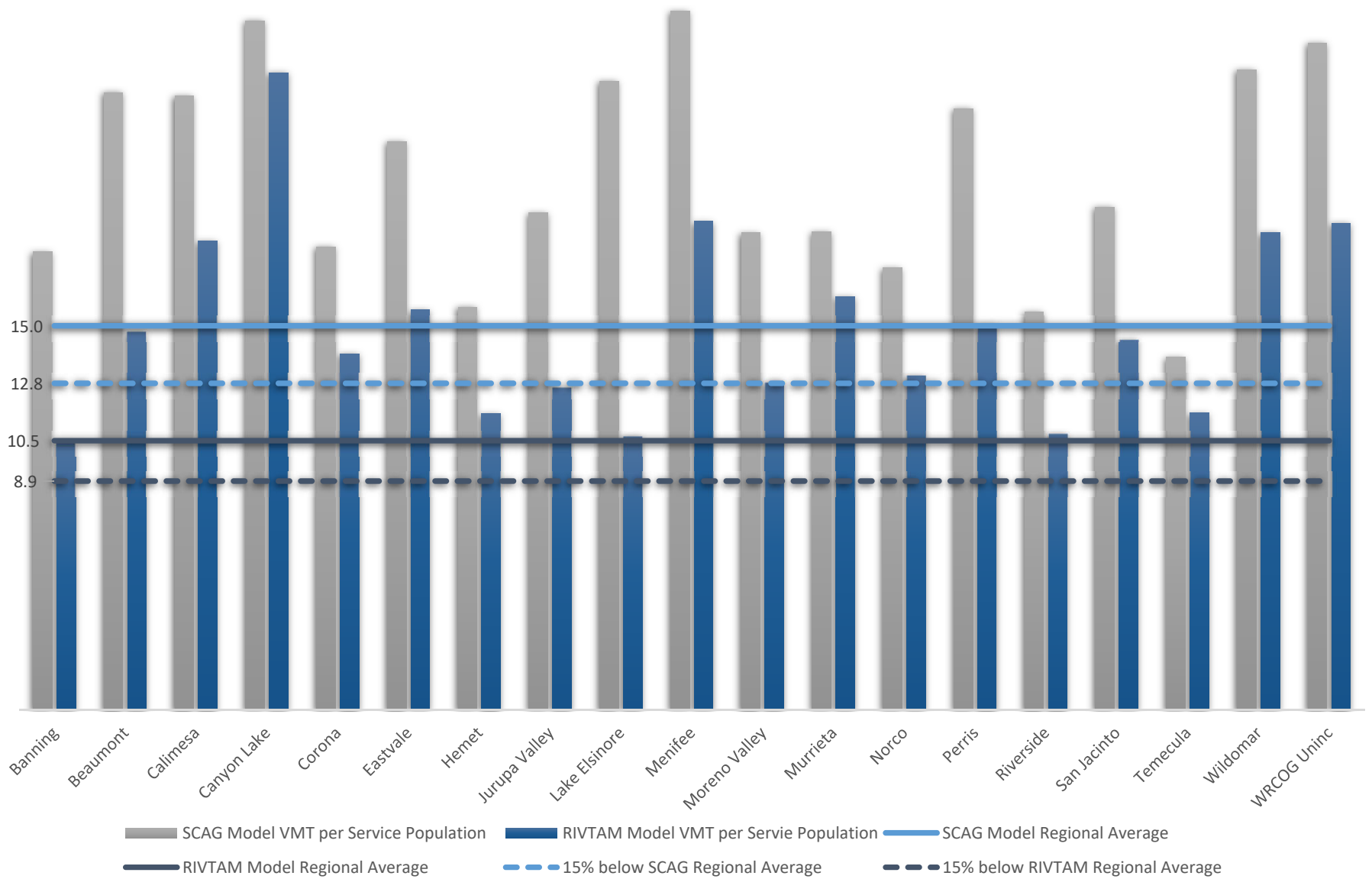
- < -15% below SCAG Regional Average in both the SCAG and RIVTAM Models
 - WRCOG Boundary
 - County Boundary
 - Higher than SCAG Regional Average
 - City Limits
- * SCAG Regional Average calculated using SCAG Model.

Figure 16

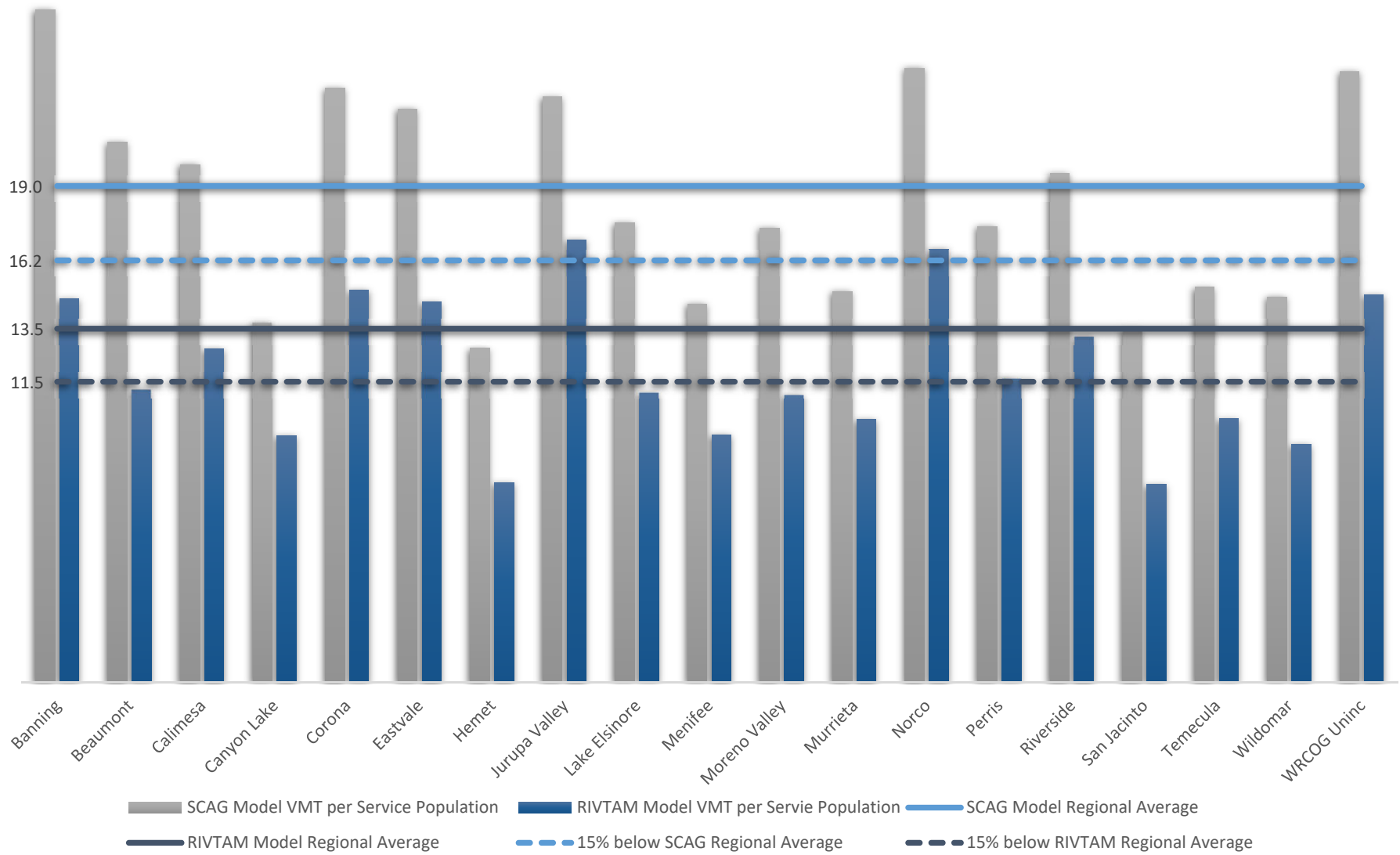


SCAG Model (2012)
TAZs Performing Better than 15% below SCAG Regional Average of Daily VMT per Service Population in both the SCAG and RIVTAM Models

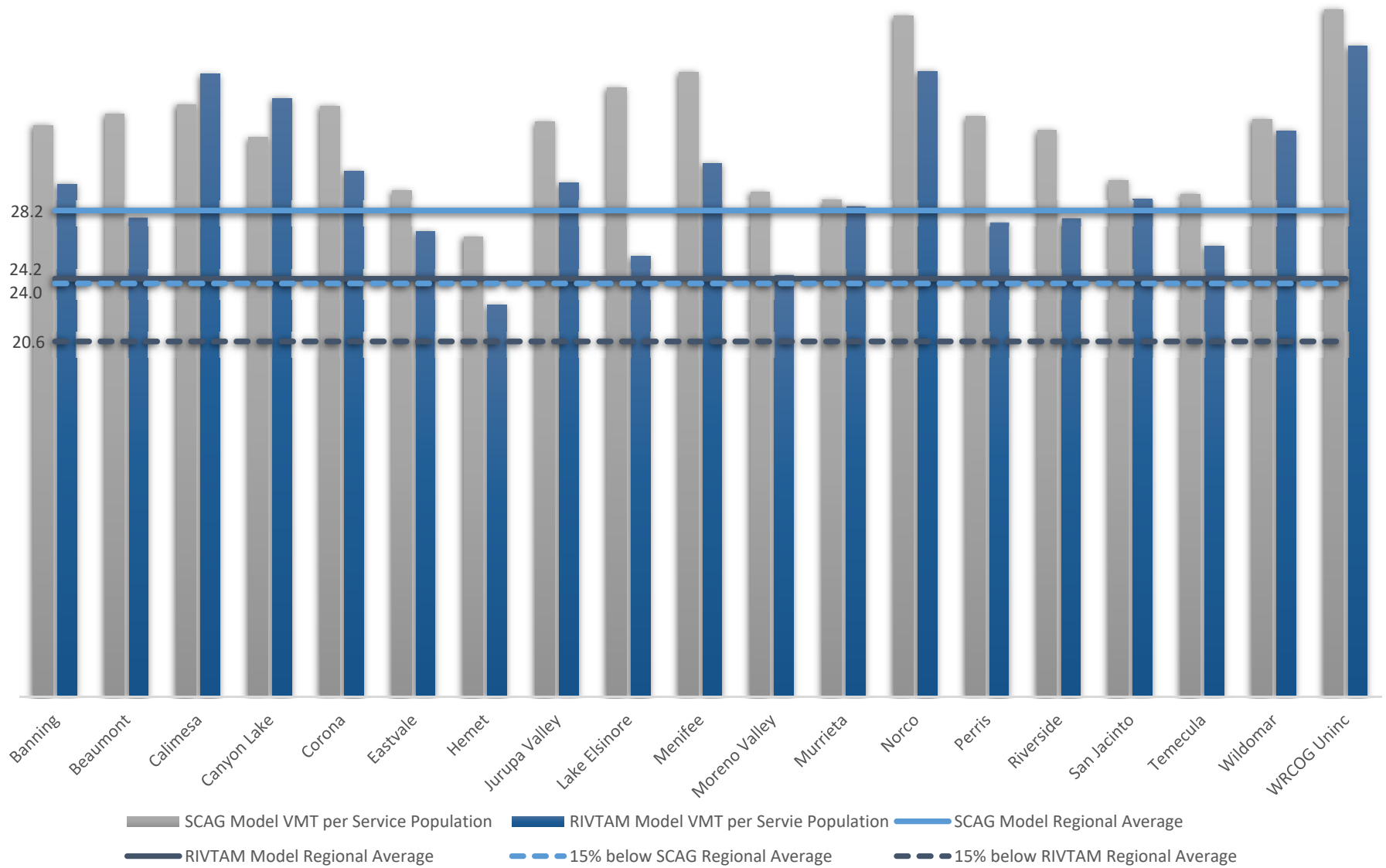
2012 Daily Residential Home Based VMT per Capita Model Comparison



2012 Daily Home Based Work VMT per Worker Model Comparison

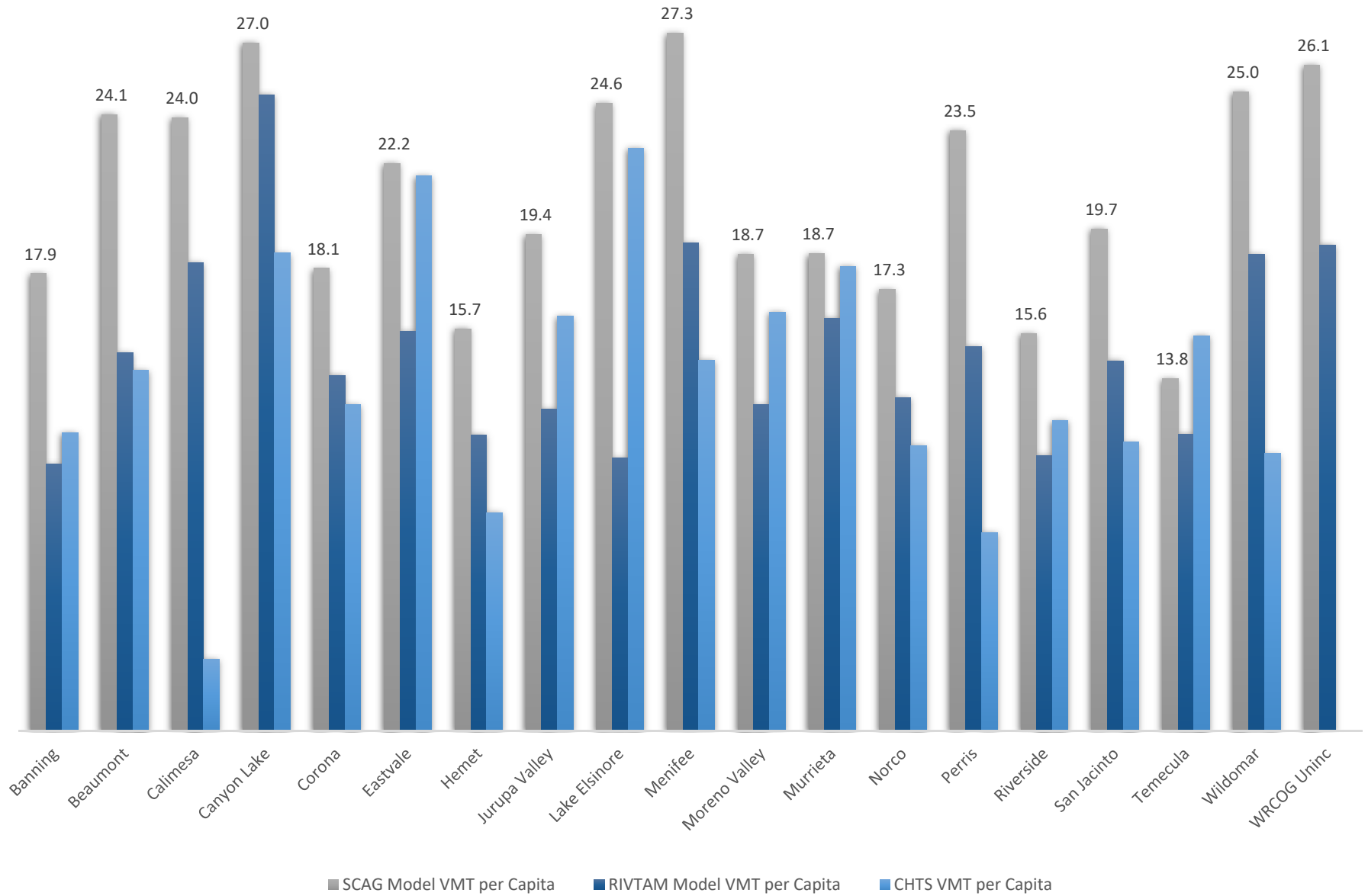


2012 Daily Total VMT per Service Population Model Comparison



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

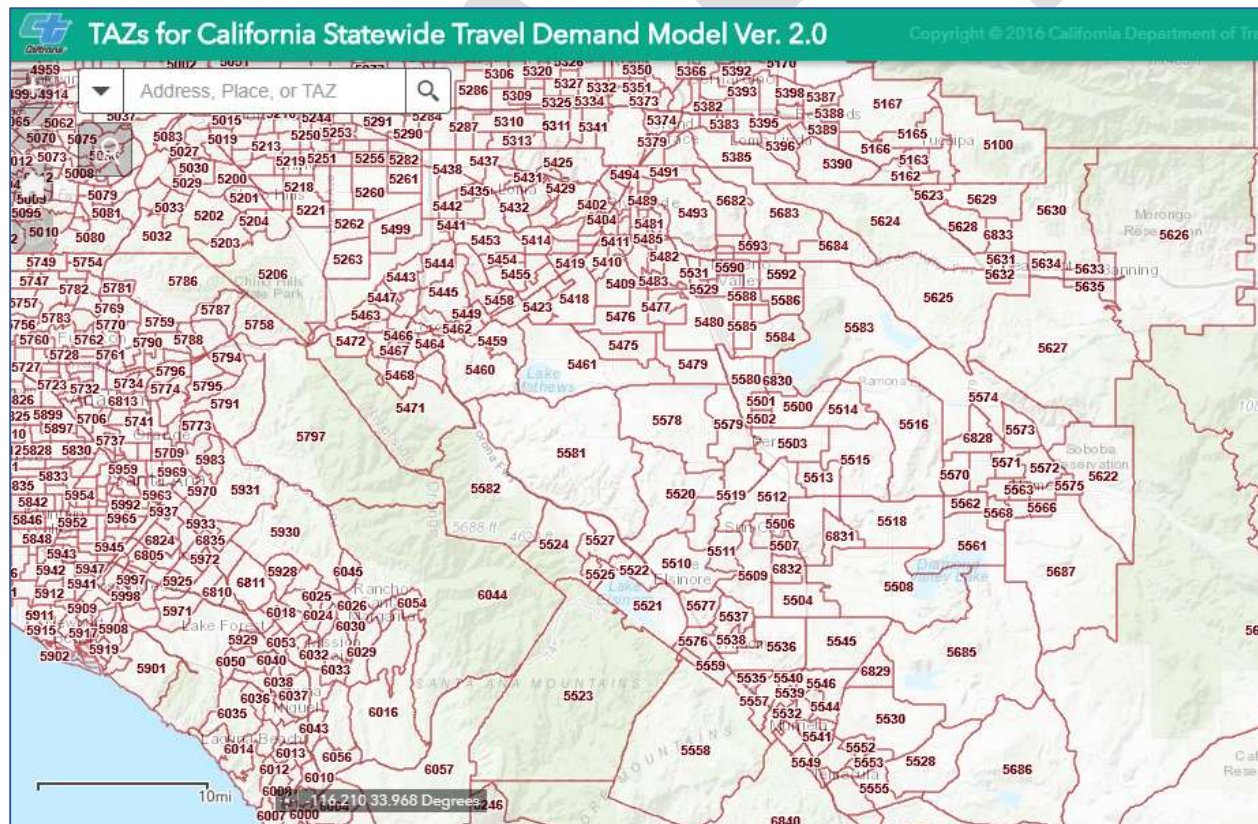
Three travel forecasting models are available for VMT forecasting in the WRCOG region including the California Statewide Travel Demand Model (CSTDm), the SCAG travel forecasting model, and the RIVAM travel forecasting model. The CSTDm was developed by Caltrans and produces passenger travel demand forecasts.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

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

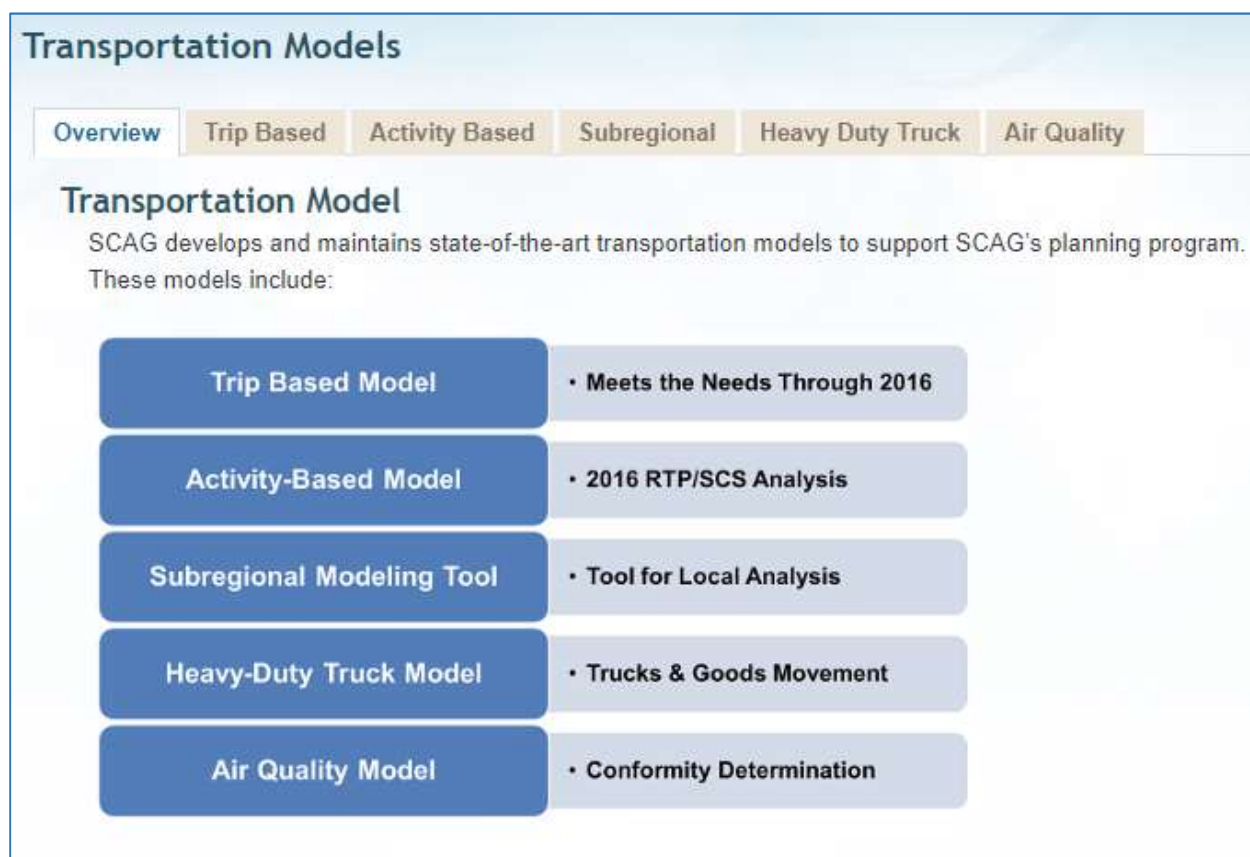
In addition, Caltrans has produced VMT output data by traffic analysis zone (TAZ) for purposes of SB 743 implementation and that data can be accessed at the following website.

- <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.



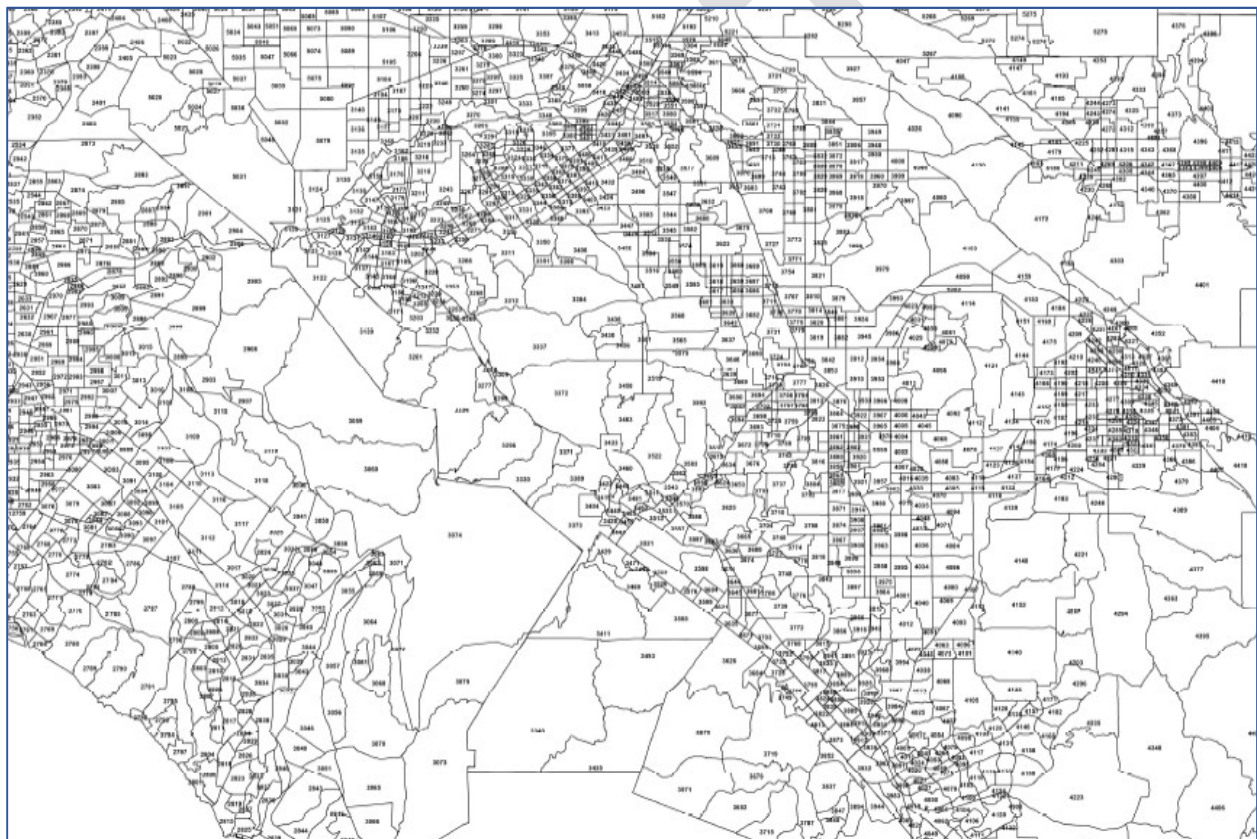
Transportation Models					
Overview	Trip Based	Activity Based	Subregional	Heavy Duty Truck	Air Quality
Transportation Model					
SCAG develops and maintains state-of-the-art transportation models to support SCAG's planning program. These models include:					
Trip Based Model		• Meets the Needs Through 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

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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.

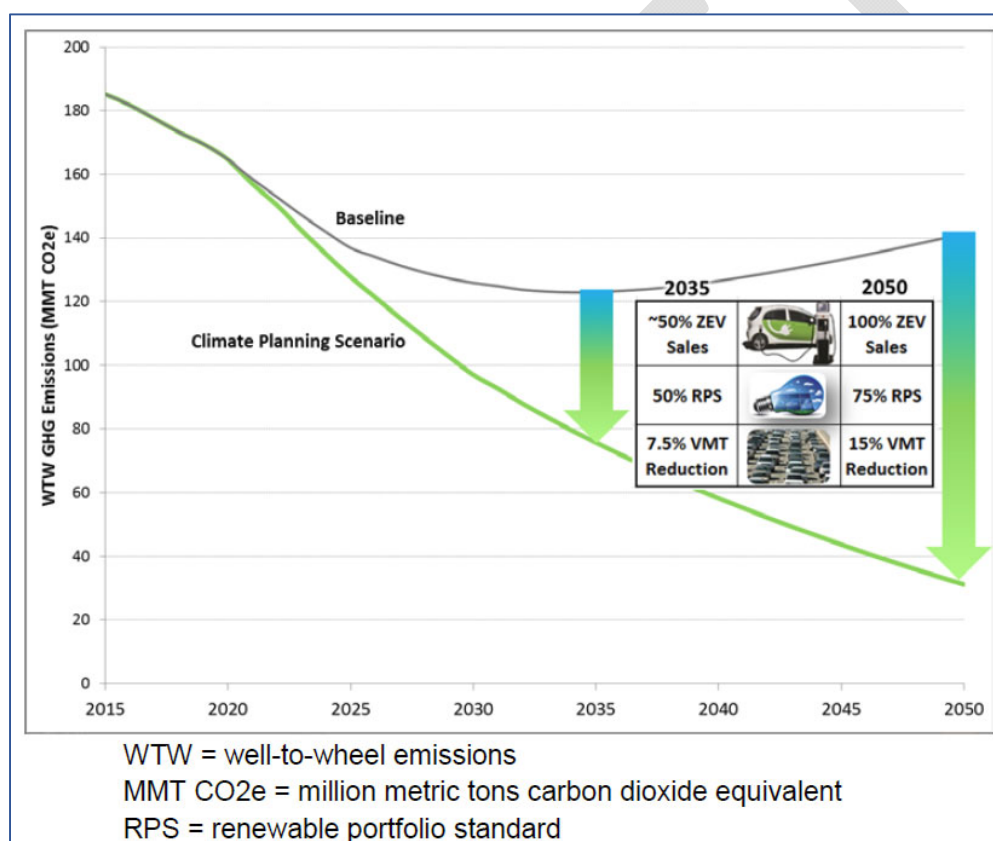
A potential limitation of the OPR recommendations is that the substantial evidence used to justify the thresholds is largely based on the state's air quality and GHG goals. Since air quality and GHG impact analysis in environmental documents should already address the influence of VMT, the thresholds 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



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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 mulitmoldal 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

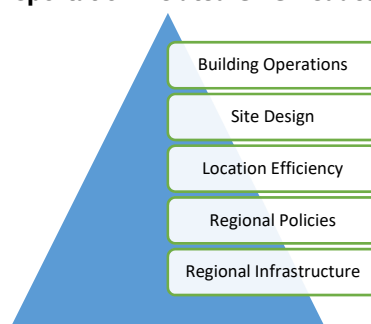
Subject: SB 743 Implementation TDM Strategy Assessment

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.

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	3.1.3	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

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	3.1.6	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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CAPCOA Category	CAPCOA #	CAPCOA Strategy	CAPCOA Reduction	Strength of Substantial Evidence for CEQA Impact Analysis?	New Information Since CAPCOA Was Published in 2010		
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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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					New information	Change in VMT reduction compared to CAPCOA	Literature or Evidence Cited
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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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
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

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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.

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Western Riverside Council of Governments

Public Works Committee

Staff Report

Subject: Fee Comparison Analysis – Final Report

Contact: Christopher Tzeng, Program Manager, ctzeng@wrcog.us, (951) 405-6711

Date: March 14, 2019

The purpose of this item is to provide a final report of the Fee Comparison Analysis. In 2016, WRCOG conducted an analysis of the fees required of development projects, the effect of other development costs, and the economic benefits of transportation investment. WRCOG commenced an update to the analysis utilizing 2018 fee schedules.

Requested Action:

1. Receive and file.

In 2016, WRCOG conducted a study to analyze fees / exactions required and collected by jurisdictions / agencies in and immediately adjacent to the WRCOG subregion. The study was received by the WRCOG Committees and subsequent presentations were completed to various City Councils in the subregion. Based on the feedback provided and the requests made for data and presentations, WRCOG indicated the study would be updated on a consistent basis to enable jurisdictions to understand the impact of fees on development and the regional economy. WRCOG and its project team have been updating the analysis since September 2018 and it is now finalized.

Background on 2018 Update

Generally, the analysis methodologies, assumptions, and jurisdictions analyzed are consistent with the original study. The fee comparison update process primarily involved contacting jurisdictions and special districts to understand if and how its development impact fees had changed since 2016. In some cases, jurisdictions indicated the need for adjustments to the 2016 assumptions / methodologies, particularly concerning the calculation of water and sewer fees. As a result, the changes between 2016 and 2018 represent a combination of changes driven by fee schedule changes (actual changes in fee levels), as well as those driven by suggested refinements in other underlying assumptions.

Findings of Development Impact Fee Breakdown

TUMF represents a modest proportion of total residential development impact fees in Western Riverside County and a more variable proportion of nonresidential development impact fees.

- On average, TUMF on residential development represents about 20% of total development impact fees for both single-family (SF) and multifamily (MF) development.
 - Water and sewer fees together represent 36% SF and 32.4% MF
 - Other City fees represent 21.2% SF and 24.3% MF
 - TUMF represent 18.7% SF and 20.6% MF
 - School fees represent 18.5% SF and 17.5% MF

- Other subregional / area fees represent 5.7% SF and 5.1% MF
- Average TUMF fees as a proportion of total fees show more variation for nonresidential land uses, ranging from 31.7% for retail development to 15.6% for Class A/B office development.
 - Retail development impact fees – water and sewer are 41.6%, TUMF is 31.7%
 - Office development impact fees – water and sewer are 52.2%, TUMF is 15.6%
 - Industrial development impact fees – other city fees are 31.8%, TUMF is 28%, and water and sewer are 20.1%
- Average development impact fees in WRCOG member jurisdictions are within the Inland Empire range.
- Average residential development impact fees for WRCOG jurisdictions are lower than the average of selected San Bernardino County cities and higher than the average of selected Coachella Valley cities.
 - When compared with the average of selected San Bernardino County cities (Fontana, Yucaipa, San Bernardino, Ontario, Chino, and Rialto), the WRCOG average is modestly lower for both SF and multi-family development. The average for selected Coachella Valley cities (Indio, Palm Desert, and Palm Springs) is substantially lower for SF and multi-family development.
- Average retail development impact fees are substantially higher than the relatively similar average fee levels for San Bernardino County and Coachella Valley.
 - At \$23.63 per square foot of retail space, the WRCOG average total fee is substantially higher than the equivalent fees in the other areas of study that ranged from \$13.62 to \$15.47 per square foot. This remains true despite the reduction in the TUMF fee on retail development.
- For office development, the WRCOG average is slightly below the average of the San Bernardino County cities evaluated, but substantially higher than the average for the Coachella Valley cities evaluated.
 - The WRCOG average for industrial development is somewhat lower than the San Bernardino County average of \$5.91 per square foot and somewhat higher than the average for Coachella Valley cities of \$4.44 per square foot.
- Average development impact fees among WRCOG member jurisdictions represent between 3.8% and 8.9% of total development costs / returns, with TUMF as a lower fraction of these proportions.
- Total development impact fees represent between 3.8% and 8.9% of total development costs / returns for the prototype feasible projects.
 - 8.5% for SF development
 - 8.9% for MF development
 - 3.8% for industrial development
 - 4.3% for office development
 - 6.9% for retail development
- TUMF represents between 0.7% and 2.2% of total development costs / returns for the prototype feasible projects. While changes in the TUMF can add or subtract from total development costs, it would take a substantial change to increase / decrease overall development costs / returns by more than 1%.
 - TUMF represents between 16.1% and 31.7% of total development impact fees with the highest ratios for retail and industrial development and lowest for office development.
 - 1.6% for SF development
 - 1.8% for MF development
 - 1.1% for industrial development

- 0.7% for office development
- 2.2% for retail development
- Average total development impact fees as a proportion of estimated overall development costs have fallen for all land uses since 2016. Similarly, the TUMF proportion of total development costs has decreased for land uses with the largest change in retail, where the TUMF has fallen from 3.5% to 2.2% of overall development costs since 2016.

Findings of Development Impact Fee Analysis

Below are highlights based on Figures 2-5 in the attachment to this report (Updated Analysis of Development Impact Fees in Western Riverside County – Draft Final Report).

- Figure 2 shows that WRCOG TUMF residential fees, on average, represent about 20% of total development impact fees for both SF and MF development.
- On average, WRCOG nonresidential TUMF show more variation in level and in proportion of overall development impact fees (between 10% and 56%) than for the residential fee categories.
- As shown on Figure 3, water and sewer fees together represent the greatest proportion of residential development impact fees followed by similar proportions from other city fees, TUMF, and school fees.
- As shown on Figure 4, nonresidential development impact fees show more variation in terms of the distribution between fee categories.
- Figure 5 shows that unincorporated jurisdictions have slightly lower total fees as compared to the average for all WRCOG study jurisdictions.

Findings of Fee Comparison with Non-WRCOG Jurisdictions

Below are highlights based on Figures 6-10 in the attachment to this report (Updated Analysis of Development Impact Fees in Western Riverside County – Draft Final Report).

- Figures 6-10 compare average development impact fee costs and proportions in the WRCOG subregion to those in neighboring jurisdictions.
- Average development impact fees for WRCOG jurisdictions are modestly lower than the average of selected San Bernardino County cities, except for retail development impact fees.
- The average development impact fees for selected Coachella Valley cities is below that of the WRCOG average for all land uses.

Development Costs – Key Factors in New Development

Developers (whether looking to do speculative development or to provide build-to-suit developments for larger users) will review a number of conditions before determining whether to move forward with site acquisition / optioning and pre-development activities. Factors will include: 1) the availability of appropriate sites, 2) the availability of / proximity to / quality of infrastructure / facilities (e.g., proximity to transportation corridors, schools, and other amenities), 3) local market strength (achievable sales prices / lease rates) in the context of competitive supply, 4) expected development costs (including land acquisition costs, construction materials and labor costs, the availability and costs of financing, and development impact fees, among others), and, 5) where sites are unentitled, the entitlement risk.

An illustrative static pro forma structure was developed to provide overall insights on general economic relationships (Figures 11 and 12). It is important to note that these pro formas do not draw conclusions concerning the feasibility of individual projects. The pro forma incorporated different categories of development costs (see below). It also considered potential land values / acquisition costs based on a residual land value approach that considered potential development values, subtracted direct and indirect development costs and developer return requirements, and indicated a potential residual land value. The development values were refined based on available market data ranges and the need to generate a land value of an appropriate level to support land acquisition and new development. Available information on land transactions was also reviewed.

Development Costs Analysis Results

As shown in Figures 11 and 12 in the Draft Final Report, direct construction costs represent the largest proportion of total development costs / returns, typically followed by other land costs, other soft costs (collectively), developer returns, and development impact fees.

- Total development impact fees represent between 3.8% and 8.9% of total development costs / returns for the prototype feasible projects.
- TUMF represent between 0.7% and 2.2% of total development costs / returns for the prototype feasible projects.

Prior Actions:

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

February 14, 2019: The Planning Directors Committee received and filed.

Fiscal Impact:

Transportation Department activities are included in the Agency's adopted Fiscal Year 2018/2019 Budget under the Transportation Department.

Attachment:

1. Updated Analysis of Development Impact Fees in Western Riverside County – Draft Final Report

Item 7.E

Fee Comparison Analysis – Final Report

Attachment 1

Updated Analysis of Development Impact Fees in Western Riverside County – Draft Final Report

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The Economics of Land Use



Draft Final Report

Updated Analysis of Development Impact Fees in Western Riverside County

Prepared for:

Western Riverside Council of Governments (WRCOG)

Prepared by:

Economic & Planning Systems, Inc. (EPS)

March 1, 2019

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1. INTRODUCTION AND FINDINGS

The Western Riverside Council of Governments (WRCOG) commissioned this Report to provide increased regional understanding of development impact fees on new development in Western Riverside County. More specifically, the purpose of this Report is to: (1) indicate the types and relative scale of the development impact fees placed on different land uses and (2) indicate the scale of fees relative to overall development costs. The Report is also intended to provide helpful background information on the impact of the Transportation Uniform Mitigation Fee (TUMF) by placing TUMF in the context of the broader development impact fee structure, overall development costs, and other regional dynamics.

This Report represents the first update to the Original Study completed in December 2016.¹ This study provided similar information on development impact fees and development costs based on 2016 fee schedules and development cost estimates. This Report (the 2019 Updated Study) provides updated information based on 2018 fee schedules and estimates of development costs. A companion memorandum provides a summary of the changes in fee levels between 2016 and 2018.²

This Report recognizes that there are substantive and ongoing debates about the appropriate levels of development impact fees in regions throughout California and elsewhere in the United States. On the one hand, development impact fees provide revenue to support the construction of critical infrastructure and capital facilities (or in-kind capital facility development) that can generate development value, economic development, and quality of life benefits. On the other hand, development impact fees act as an additional development cost that can influence development feasibility and potentially the pace of new development. **In reality, each fee-adopting jurisdiction needs to weigh the costs and benefits of potential new/increased fee levels in the context of their goals, capital improvement needs, and economic and development dynamics.**

This Report considers development impact fees defined as one-time fees collected for the purposes of funding infrastructure and capital facilities.³ Because of the broad variation in land use and development projects in Western Riverside County, prototype development projects for single-family, multifamily, retail, Class A/B office and large industrial developments were all developed to support comparisons of fees in different jurisdictions.

A summary of key findings is provided below, followed by a description of the organization of this Report.

¹ See Report entitled “Analysis of Development Impact Fees in Western Riverside County”, December 2016.

² See Technical Memorandum entitled “Overview of Changes in WRCOG Jurisdiction Fees: 2016 to 2018”, March 2019.

³ As used in this report and discussed further below, the phrase “development impact fee” includes all fees adopted pursuant to the Mitigation Fee Act and other monetary exactions due at the time of development.

Summary of Findings

FINDING #1: New development in Western Riverside County pays a wide range of one-time infrastructure/capital facilities associated fees with a number of different public agencies.

New development in Western Riverside County is required to pay development impact fees to help fund:

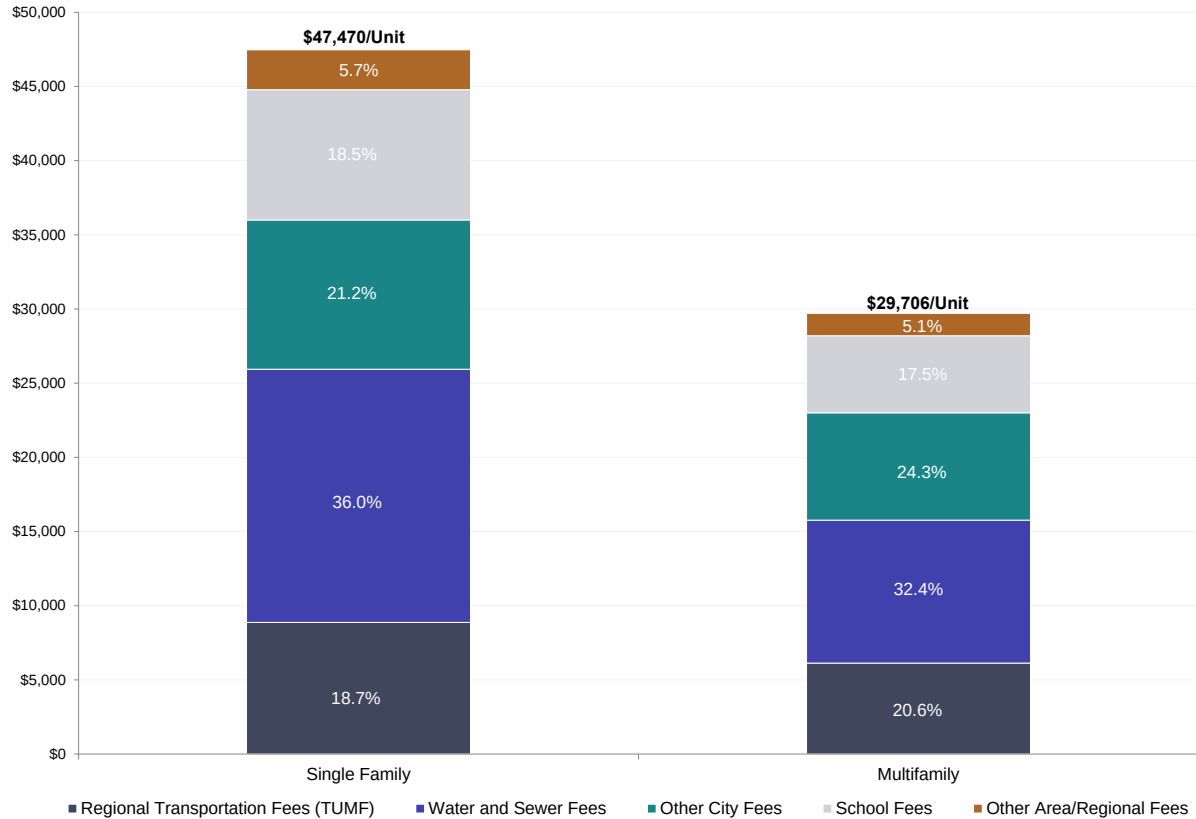
- Water and Sewer Facilities
- School Facilities
- Regional Transportation Infrastructure
- Additional Local Infrastructure/Capital Facilities (local transportation, parks and recreation, public facility, community/civic facilities, and storm drain infrastructure).
- Subregional/Area Fees (habitat mitigation fees, Road and Bridge Benefit Assessment Districts, and other area-specific infrastructure/capital facilities fees).

These fees are set/administered by a combination of water districts, school districts, individual cities, the County, the Western Riverside Council of Governments, the Western Riverside County Resource Conservation Authority, and other special districts.

FINDING #2: TUMF represents a modest proportion of total residential development impact fees in Western Riverside County and a more variable proportion of nonresidential development impact fees.

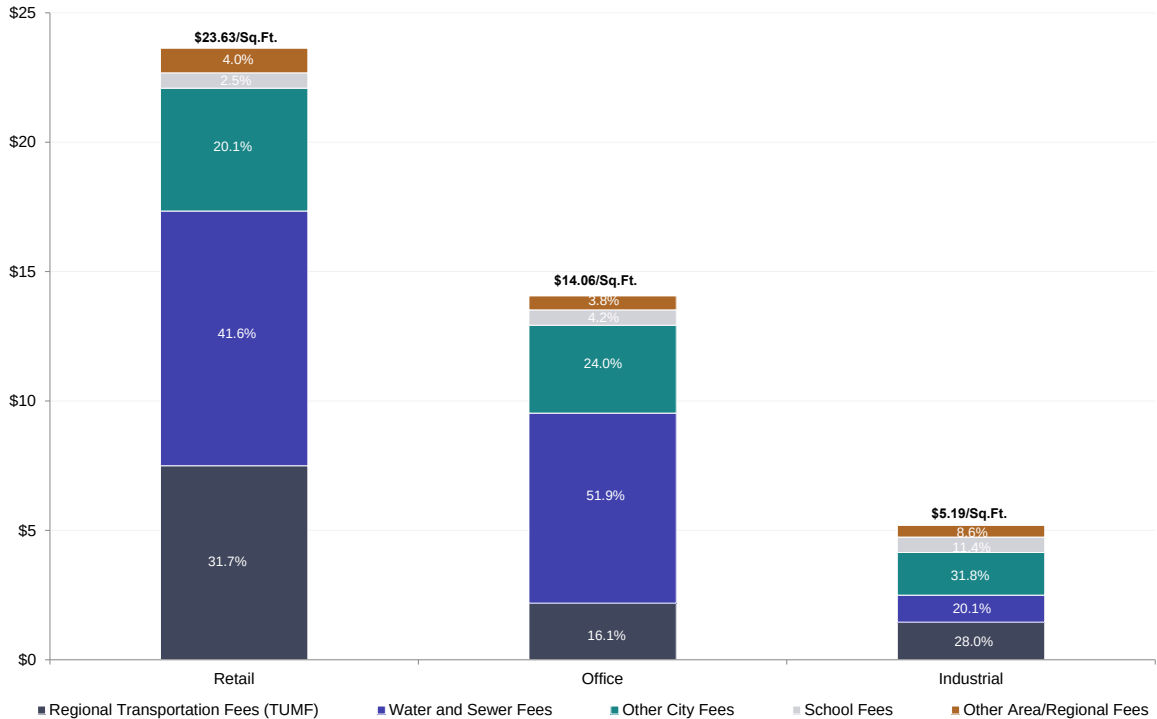
- **On average, TUMF on residential development represents about 20 percent of total development impact fees for both single-family and multifamily development.**
Water and sewer fees together represent the greatest proportion of residential development impact fees (36.0 percent/32.4 percent), followed by similar proportions from other City fees (21.2 percent/24.3 percent), TUMF (18.7 percent/20.6 percent), and school fees (18.5 percent/17.5 percent). A smaller proportion is associated with other subregional/area fees (5.7 percent/5.1 percent).

Average WRCOG Residential Development Impact Fees by Fee Category



- Average TUMF fees as a proportion of total fees show more variation for nonresidential land uses, ranging from 31.7 percent for retail development to 15.6 percent for Class A/B office development.** Retail development impact fees are dominated by water and sewer fees (41.6 percent) with an additional one-third (31.7 percent) associated with the TUMF. The substantial reduction in the TUMF fee on retail development reduced the TUMF proportion from 43.5 percent to the current 31.6 percent. Office development impact fees are also dominated by water and sewer fees (52.2 percent), with TUMF (15.6 percent) representing a lower proportion of total fees relative to all other land uses. Large industrial developments that do not have intensive water needs have a large proportion of water and sewer fees (20.1 percent). While lower in absolute terms, industrial development impact fees are dominated on a proportionate basis by other City fees (31.8 percent) and TUMF (28.0 percent).

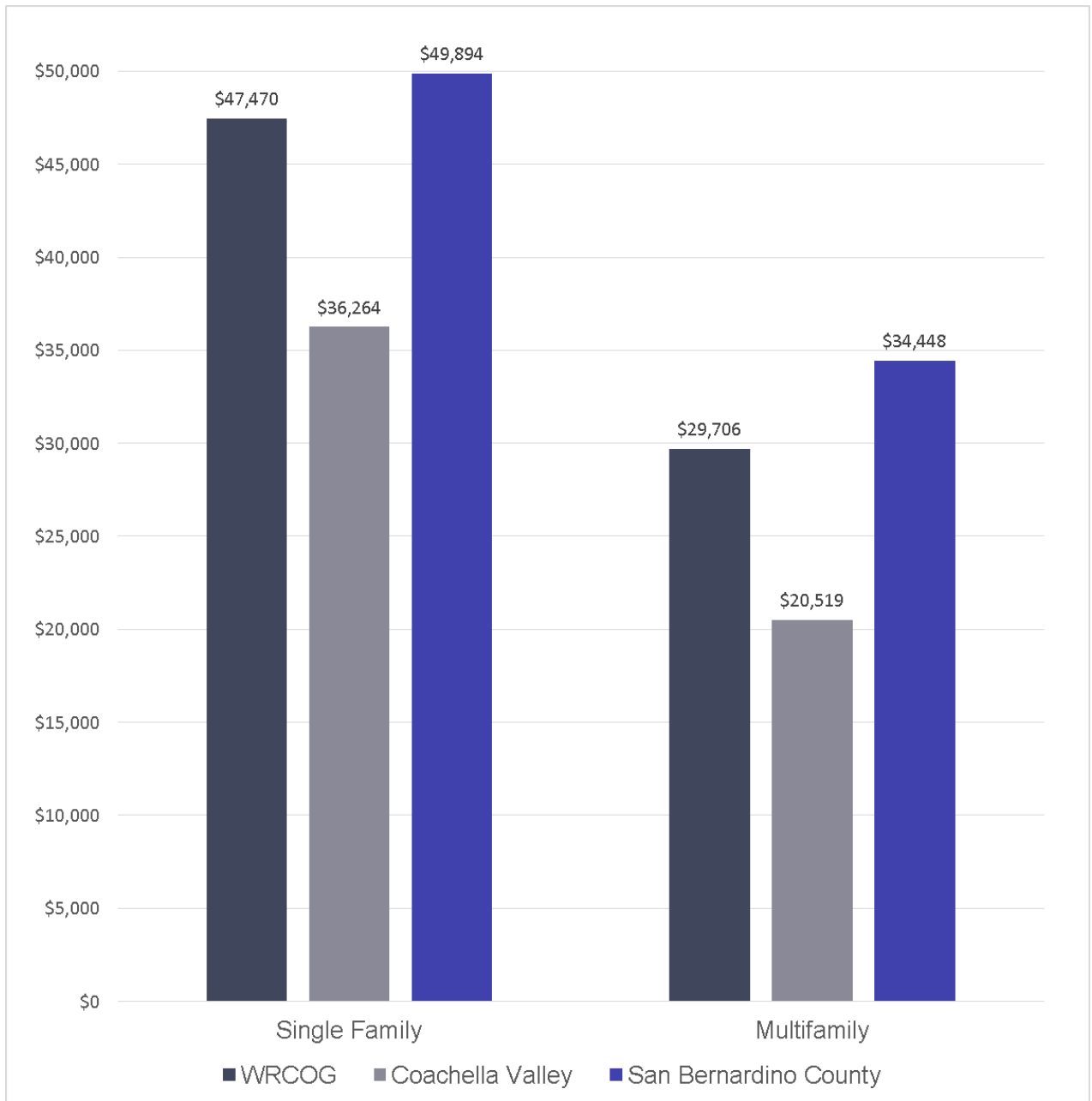
Average WRCOG Nonresidential Development Impact Fees



FINDING #3: Average development impact fees in WRCOG member jurisdictions are within the Inland Empire range.

- Average residential development impact fees for WRCOG jurisdictions are lower than the average of selected San Bernardino County cities and higher than the average of selected Coachella Valley cities.** When compared with the average of selected San Bernardino County cities (Fontana, Yucaipa, San Bernardino, Ontario, Chino, and Rialto), the WRCOG average is modestly lower for both single-family and multifamily development. The average for selected Coachella Valley cities (Indio, Palm Desert, and Palm Springs) is substantially lower for single-family and multifamily development.

Average Residential Development Impact Fees in Neighboring Jurisdictions

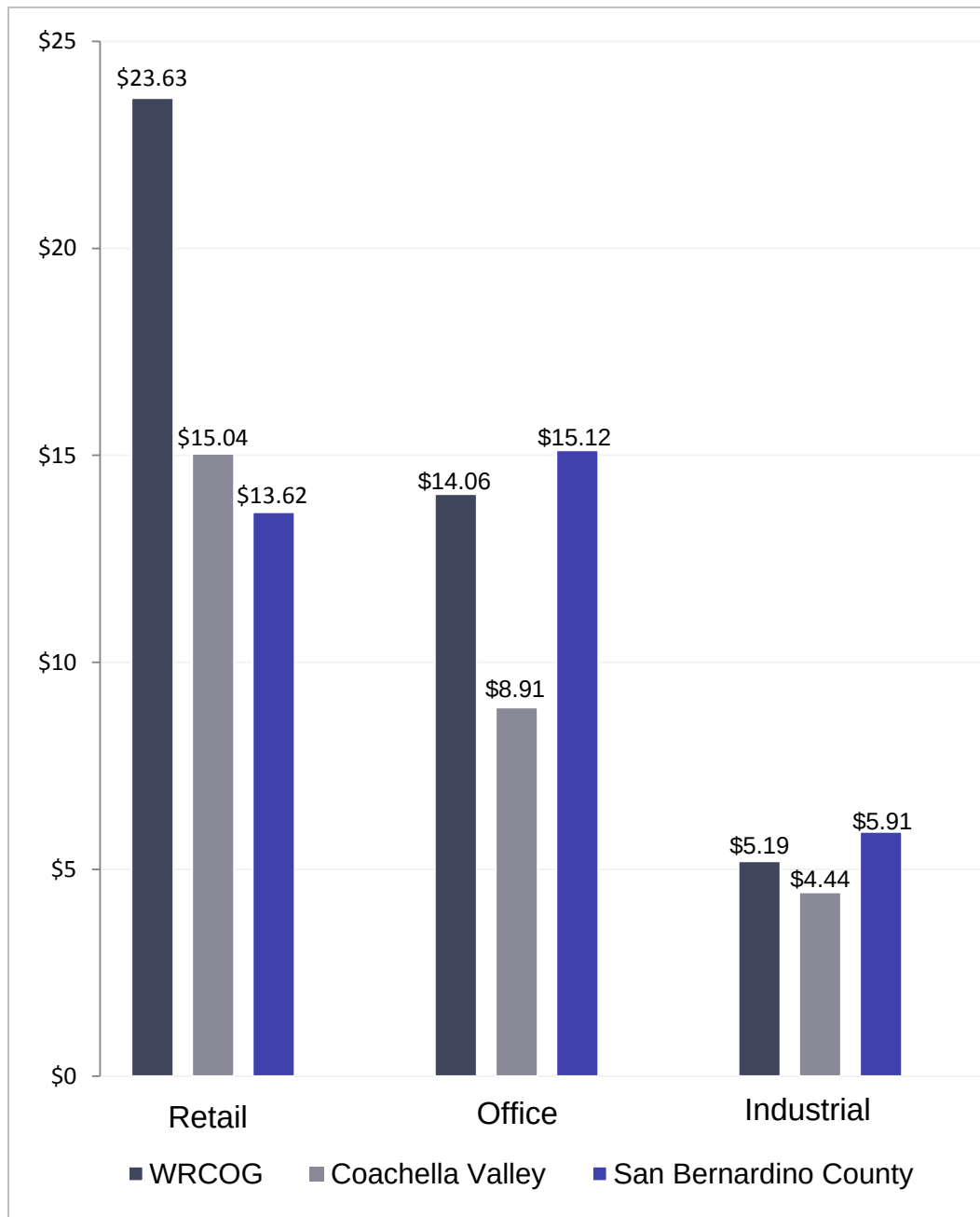


- **Average retail development impact fees are substantially higher than the relatively similar average fee levels for San Bernardino County and Coachella Valley.** At \$23.63 per square foot of retail space, the WRCOG average total fee is substantially higher than the equivalent fees in the other areas of study that ranged from \$13.62 to \$15.47 per

square foot. This remains true despite the reduction in the TUMF fee on retail development.⁴ For office development, the WRCOG average is slightly below the average of the San Bernardino County cities evaluated, but substantially higher than the average for the Coachella Valley cities evaluated. The WRCOG average for industrial development is somewhat lower than the San Bernardino County average of \$5.91 per square foot and somewhat higher than the average for Coachella Valley cities of \$4.44 per square foot.

⁴ Refinements in the calculation methodology of water/ sewer fees based on input from some jurisdictions resulted in an increase in estimated water/ sewer fees that partially balanced out the reduction associated with the TUMF retail fee.

Average Nonresidential Development Impact Fees in Neighboring Jurisdictions



FINDING #4: Average development impact fees among WRCOG member jurisdictions represent between 3.8 percent and 8.9 percent of total development costs/returns, with TUMF as a lower fraction of these proportions.

- **Total development impact fees represent between 3.8 percent and 8.9 percent of total development costs/returns for the prototype feasible projects.** Total development impact fees represent 8.5 percent and 8.9 percent of total development costs/returns respectively for the prototype single-family and multifamily developments evaluated. As is common, nonresidential development impact fees are lower as a percent of

total development cost/return at 3.8 percent for industrial development and 4.3 percent for office development. For retail development, the fee level percentage is 6.9 percent, is between the proportions for residential uses and other nonresidential uses.

- **TUMF represents between 0.7 percent and 2.2 percent of total development costs/returns for the prototype feasible projects. While changes in the TUMF can add or subtract from total development costs, it would take a substantial change to increase/decrease overall development costs/returns by more than 1 percent.**
TUMF represents between 16.1 percent and 31.7 percent of total development impact fees with the highest ratios for retail and industrial development and lowest for office development. As a proportion of overall development costs, TUMF represents 1.6 percent and 1.8 percent for single-family and multifamily respectively. For nonresidential uses, TUMF represents 0.7 percent of total development costs for office development, 1.1 percent for industrial development, and 2.2 percent for retail development. Average total development impact fees as a proportion of estimated overall development costs have fallen for all land uses since 2016. Similarly, the TUMF proportion of total development costs has decreased for land uses with the largest change in retail, where the TUMF has fallen from 3.5 percent to 2.2 percent of overall development costs since 2016.

Development Impact Fees as % of Total Developments Costs/Returns

Development Impact Fees	Single Family	Multifamily	Industrial	Retail	Office
TUMF	1.6%	1.8%	1.1%	2.2%	0.7%
Other Development Impact Fees	<u>6.9%</u>	<u>7.0%</u>	<u>2.7%</u>	<u>4.7%</u>	<u>3.6%</u>
Total Development Fees	8.5%	8.9%	3.8%	6.9%	4.3%

Organization of Report

After this initial chapter, this Report is divided into three other chapters and several appendices. **Chapter 2** describes the definitions, methodology, and results of the fee review and comparison for WRCOG and non-WRCOG jurisdictions. **Chapter 3** describes the overall development cost estimates for land uses/development prototypes evaluated and considers total development impact fees and the TUMF relative to all development costs. Finally, **Chapter 4** provides a brief conclusion on the purposes and goals of this and other development impact fee comparison studies.

The appendices provide a substantial amount of additional supporting detail and information, including:

- **APPENDIX A** provides detailed information on the Development Prototypes.
- **APPENDIX B** provides fee comparison summaries and detailed fee estimation information for each WRCOG jurisdiction/area and each land use category.

2. *DEVELOPMENT IMPACT FEE REVIEW AND COMPARISONS*

This chapter describes the detailed development impact fee research conducted for WRCOG jurisdictions as well as for selected neighboring jurisdictions in Coachella Valley and San Bernardino County. The purpose of this research is to explore the typical composition of development impact fees in WRCOG member jurisdictions, to understand the scale of TUMF relative to other development impact fees, and to consider the development impact fees among WRCOG member jurisdictions relative to neighboring jurisdictions.

While every effort was made to provide an accurate comparison through the use of defined development prototypes and the latest jurisdictional fee schedules, the frequent adjustments to fee programs and the complex, project-specific calculations required for some fees mean that the numbers presented are planning-level approximations. All the development impact fee estimates shown are based on available fee schedules at the time the research was conducted (July 2018) and as applied to the particular land uses/development prototypes developed. The actual fees due from any particular project will depend on the specifications of the individual project and the fee schedule at the pertinent time.

The first section below provides some key definitions. The subsequent section provides a detailed description of the fee research methodology. The final section provides findings concerning development impacts fees in WRCOG member jurisdictions and the other jurisdictions studied. In general, the definitions and approach in this Update Study are consistent with those in the Original Study to maintain consistency. In some situations, as noted below, refinements were necessary; for example, some water districts provided new information on the water meter assumptions to be used in fee calculations.

Study Definitions

Development impact fees have become an increasingly used mechanism among California jurisdictions to require new development to fund the demands it places on local and regional infrastructure and capital facilities. This Report defines development impact fees as one-time fees collected for the purposes of funding infrastructure and capital facilities.⁵ This includes fees for the funding of a broad range of capital improvements, including water, sewer, storm drain, transportation, parks and recreation, public safety, and numerous other types of civic/community facilities. The majority of these fees are adopted under or consistent with the Mitigation Fee Act, though the analysis also includes other one-time capital facilities fees, such as parkland in-lieu fees under the Quimby Act and one-time charges through Community Facilities Districts or Benefit Assessment Districts among others.

There are a number of smaller permitting, planning, and processing fees that are charged on new development, but that do not fund capital facilities/infrastructure. Due to the large number of more modest charges typically associated with such fees and their relative modesty compared

⁵ As used in this report and discussed further below, the phrase “development impact fee” includes all fees adopted pursuant to the Mitigation Fee Act and other monetary exactions due at the time of development. The term “fee,” as used in this report, means “development impact fee.”

to development impact fees (most studies find them to be in the 5 to 15 percent range of development impact fees, between 1 and 2 percent of total development costs), these smaller fees were not tracked as part of this study.

Methodology

In order to provide a fee comparison that was as close as possible to an “apples-to-apples” comparison, WRCOG staff and the Consulting Team identified the following parameters to guide the study:

- Jurisdictions to be studied.
- Land uses to be evaluated and associated development prototypes.
- Selection of service providers where there are multiple service providers in same jurisdiction.
- Organization of development impact fee data.

This section describes these study parameters as well as the process of review with the jurisdictions/relevant service providers.

Selection of Jurisdictions

Jurisdictions selected for this analysis include all eighteen (18) WRCOG member cities. WRCOG staff and the Consulting Team also identified three additional member areas to study, including the March JPA and two unincorporated areas in the County. The selected unincorporated areas included Temescal Valley and Winchester, two areas where substantial growth is occurring and/or planned. The only difference from the Original 2016 Study was the inclusion of the City of Beaumont as a WRCOG member city.

For the comparison of WRCOG jurisdictions to neighboring/peer areas, the jurisdictions selected included: (1) selected Coachella Valley communities in eastern Riverside County, and (2) selected San Bernardino County communities. These jurisdictions were selected by WRCOG staff and the Consulting Team and refined based on feedback from the WRCOG Planning Directors’ Committee and WRCOG Public Works Committee in 2016. The San Bernardino County communities selected were those likely to compete for development with neighboring WRCOG jurisdictions. All these jurisdictions remain the same as in the 2016 Study.

Figure 1 shows the cities/communities evaluated, including the twenty-one (21) WRCOG cities/communities and the nine (9) non-WRCOG comparison communities.

Figure 1 Jurisdictions included in Fee Study

WRCOG Jurisdictions		Coachella Valley	San Bernardino County
Banning	Murrieta	Indio	Fontana
Canyon Lake	Norco	Palm Desert	Yucaipa
Beaumont	Perris	Palm Springs	San Bernardino
Calimesa	Riverside		Ontario
Corona	San Jacinto		Chino
Eastvale	Temecula		Rialto
Hemet	Wildomar		
Jurupa Valley	Temescal Valley		
Lake Elsinore	Winchester		
Menifee	March JPA		
Moreno Valley			

Land Uses and Development Prototypes

Land Uses

The TUMF is levied on a variety of residential and Nonresidential land uses with variations for certain product types built into the fee program. TUMF includes fees on the following land uses:

- **Single-Family Residential Development** – Per unit basis.
- **Multifamily Residential Development** – Per unit basis.
- **Retail Development** – Per gross building square foot basis.
- **Industrial Development** – Per gross building square foot basis. The industrial fee includes a base fee on square footage up to 200,000 square feet and then, where the building meets the definition of a “high cube” building, an effective discount of 73 percent in the base fee for all additional development above 200,000 square feet.⁶ “High Cube” is defined as warehouses/distribution centers with a minimum gross floor area of 200,000 square feet, a minimum ceiling height of 24 feet and a minimum dock-high door loading ratio of 1 door per 10,000 square feet.
- **Service (including Office) Development** – Per gross building square foot basis. There is a per-building square foot fee for Service Development. Office development is a sub-category within Service Development. Class A and B office development is charged a discounted TUMF fee relative to other land uses in the service category.

For the purposes of this study, five (5) land use types were selected, including the single-family residential, multifamily residential, and retail development categories in addition to a large “high-cube” industrial building, and a Class A/B office building. The large industrial building land use

⁶ The square footage above 200,000 square feet is multiplied by 0.27 and then the base fee is applied resulting in an effective increment fee of about \$0.47 per square foot.

was selected based on industrial development trends in Western Riverside County, while the Class A/B office building was selected due to its reduced fee level.

Development Prototype Selection

Within each of the five (5) general land use types selected, it is necessary to select specific development prototypes. Because development impact fees vary based on a number of development characteristics, the definition of development prototype improves the extent to which the fee comparison will be “apples-to-apples”.

In order to identify appropriate development prototypes for the five land uses, in 2016, the Consulting Team reviewed data on the general characteristics of new single-family, multifamily, office, retail, and industrial development among Western Riverside County communities in recent years.

Information on multifamily, retail, office, and industrial developments developed between 2010 and 2016 were reviewed as was information on single-family developments between 2014 and 2016. A smaller time period was used for single-family developments as there were substantially more single-family developments. The characteristics of the median development for each of the land use types was identified and used as the selected development prototype. For single-family development, the median home and lot size characteristics were identified, while for multifamily residential, office, retail, and industrial buildings the average building sizes were identified.

Based on this analysis, the following development prototypes were developed for each of the selected land uses and reviewed, in 2016, with the WRCOG Planning Directors’ Committee, Public Works Committee, and Technical Advisory Committee (images represent examples of projects that matched the development prototypes). The same prototypes are used in this Study Update.

Single-Family Residential Development

50-unit residential subdivision; 2,700 square foot homes and 7,200 square foot lots



Example Prototype Single-Family Home, City of Riverside

Multifamily Residential Development

200-unit market-rate, 260,000 gross square foot apartment building



Example Prototype Multi-Family Development, City of Temecula

Retail Development

10,000-gross square foot retail building



Example Prototype Retail Development, City of Hemet

Office Development

20,000-gross square foot, Class A or Class B office building



Example Prototype Office Development, City of Hemet

Industrial Development

265,000 gross square foot “high cube” industrial building⁷



Example Prototype Industrial Development, City of Perris

In addition to development scale, there are a number of other development characteristics that can affect development impact fees. For example, many water facilities fees are tied to the number and size of meters associated with a new development. Other fees are tied to the gross site area or other characteristics that will vary for each development. The Consulting Team developed a set of additional development prototypes assumptions to use in the fee estimates (see **Appendix A**). These assumptions were based on a review of the equivalent assumptions

⁷ “High Cube” is defined as warehouses/distribution Centers with a minimum gross floor area of 200,000 square feet, a minimum ceiling height of 24 feet and a minimum dock-high door loading ratio of 1 door per 10,000 square feet.

used in other regional fee studies (e.g., in the San Joaquin Valley and the Sacramento Valley) and were refined based on feedback, when provided, from Western Riverside County service providers. In some cases, the formula for fee calculation required even more assumptions. In these cases, service providers typically conducted their own fee estimates and provided the results to WRCOG Staff/the Consulting Team. The assumptions used in this Update Study were maintained the same as in the Original Study except where individual jurisdictions recommended changes. Changes primarily occurred where Water Districts/ Cities provided updated information on their typical water meter assumptions.

Service Provider/Subarea Selection

In some cities, there were multiple service providers providing the same type of facilities in different parts of the city. For example, some cities were served by two or more distinct School Districts, while many cities were served by two or more Water Districts. For the purposes of the fee comparison one set of service providers was assumed based on the following approach:

- Suggestions from the City.
- Commonality of service provider between multiple cities; for example, Eastern Municipal Water District serves many cities.
- Scale/nature of service areas was also considered; for example, in some cases the majority of a City was served by one service provider and/or the majority of the growth areas were served by a particular service provider.
- In some cases, there was one service provider – e.g., the City – with different fees by City subarea (e.g., storm drain). In these cases, an effort was made to select the area expected to see the most growth based on discussions with City and WRCOG staff.
- In other cases, area-specific one-time fees/assessments/special taxes were in place to cover the costs of capital facilities in a new growth area. Where substantial in scale, these areas and the associated area fees were used in the fee comparison.

Organization of Fee Information/Categories

The primary focus of the fee research is to develop estimates of existing development impact fees charged on new development in the selected jurisdictions. While there is some conformance in fee categories (e.g., School District fees), there is also variation in the naming and facilities included in water and sewer facilities fees and substantial variation in the capital facilities fees that different cities charge. The fee review sought to obtain all the development impact fees charged from all the jurisdictions studied and then compiled them into normalized set of categories to allow for comparisons. The key fee categories are as follows:

- **Regional Transportation Fees.** This category includes the respective TUMFs in Western Riverside County and Coachella Valley. It also included regional transportation impact fees in other subregions/jurisdictions where they were clearly called out. The lines between regional transportation fees and local transportation fees are harder to discern in San Bernardino County where cities are required to contribute towards regional transportation funding, but do not necessarily separate out those fees from the other, local transportation fees.

- **Water/Sewer Connection and Capacity Fees.** All jurisdictions charged some form of water and sewer development impact fee and these were combined together into one aggregate water/sewer category. In several cases, the County, city, or water district provided their own calculations due to the complexity of the fee calculation. In some cases, Water District/ City staff adjusted the prior underlying water meter assumptions to better match their current practice. In these cases, the water fees changed in part due to the updated methodology.
- **City/County Capital Facilities Fees.** Beyond any water/sewer fees that in some cases might be charged by individual jurisdictions (cities/County), these jurisdictions frequently adopt a large number of additional citywide fees. Such fees often include local transportation fees, parks and recreation facilities fees, Quimby Act requirements in-lieu parkland fees, storm drain fees, public safety facilities fees, other civic/community facilities fees, and, on occasion, affordable housing fees. This category captures all of these local development impact fees.
- **School Development Impact Fees.** School facilities fees are governed by State law and therefor show more similarity between jurisdictions than most fees. Under State law, School Districts can charge specified Level 1 development impact fees. If School Districts go through the process of identifying and estimating required capital improvement costs, higher Level 2 fees can be charged to fund up to 50 percent of the School District's capital improvement costs. At present, about nine of the fifteen School Districts studied (that serve WRCOG member jurisdictions) appear to charge Level 2 fees.
- **Other Area/Regional Fees.** A final category was developed to capture other fees not included in the above categories, typically other sub-regional fees as well as area-specific fees. For example, this category includes the Western Riverside County MSHCP mitigation fee, relevant Road and Bridge Benefit Districts (RBBD) fees, as well as other one-time CFD charges/impact fees for infrastructure/capital facilities applied in particular growth areas.

Data Compilation and Review Process

For WRCOG member jurisdictions, the following data collection and review process was followed:

- Identify set of service providers and development impact fees charged in jurisdiction.
- Obtain development impact fee schedules from City, County, and other service provider online sources.
- Review available mitigation fee nexus studies, Ordinances, and Resolutions.
- Where sufficient data was not available, contact City, County, or other service provider to obtain appropriate fee schedules.
- Develop initial estimates of development impact fees for each jurisdiction for each development prototype.
- Share PowerPoint document noting development prototypes specifications and initial fee estimates with each jurisdiction and selected other service providers (e.g., Eastern Municipal Water District).

- Receive feedback, corrections, and refinements (and in some cases actual fee calculations).
- Refine fee estimates based on feedback.
- Share revised fee estimates with jurisdictions.

For other non-WRCOG jurisdictions, fee information was obtained either on-line or by contacting cities directly. Fee information was then compiled in a similar structure to the WRCOG jurisdictions.

Findings from WRCOG Member Jurisdiction Fee Review

General findings from fee research concerning WRCOG member jurisdictions are summarized below and in **Figures 2 to 4**. **Appendix B** provides more detailed comparison charts for the WRCOG jurisdictions studied.

On average, WRCOG TUMF residential fees represent about 20 percent of total development impact fees for both single-family and multifamily development. Single-family TUMF and multifamily TUMF both represent about 20 percent of the respective average total development impact fees of about \$47,470 per unit and \$29,706 per unit. Due to the variation in overall development impact fees – from \$33,993 per unit to \$60,763 per unit for single-family development and from \$19,267 per unit to \$47,196 per unit for multifamily development – and the fixed nature of the TUMF across jurisdictions, TUMF as a percent of total development impact fees ranges from 14.6 percent to 26.1 percent for single-family development and 13.0 percent to 31.8 percent for multifamily development (see **Figures 2 to 4**).

Figure 2 TUMF as a Proportion of Total Fees

Item	Average	Range	
		Low	High
Single Family			
Total Fees per Unit	\$47,470	\$33,993	\$60,763
TUMF as a % of Total Fees	18.7%	26.1%	14.6%
Multifamily			
Total Fees per Unit	\$29,706	\$19,267	\$47,196
TUMF as a % of Total Fees	20.6%	31.8%	13.0%
Retail			
Total Fees per Sq.Ft.	\$23.63	\$13.48	\$41.21
TUMF as a % of Total Fees	31.7%	55.6%	18.2%
Industrial			
Total Fees per Sq.Ft.	\$5.19	\$2.76	\$9.64
TUMF as a % of Total Fees	28.0%	52.6%	15.1%
Office			
Total Fees per Sq.Ft.	\$14.06	\$6.62	\$22.28
TUMF as a % of Total Fees	15.6%	33.1%	9.8%

* Average and ranges as shown encompass 21 jurisdictions, including 18 cities and the unincorporated areas of Temescal Valley, Winchester, and March JPA.

On average, WRCOG Nonresidential TUMF show more variation in level and in proportion of overall development impact fees (between 10 percent and 56 percent) than for the residential fee categories. Average retail development impact fees are about \$24 per square foot and TUMF represents 32 percent of the average total fees on new retail development. Due to the variation in the total development impact fees on retail development among jurisdictions from \$13.48 to \$41.21 per square foot, the TUMF as a percent of the total fees ranges from 18.2 percent to 55.6 percent. Average industrial development impact fees are substantially lower at \$5.19 per square foot with a range from \$2.76 per square foot to \$9.64 per square foot. TUMF represents about 28 percent of the average total industrial fees, with a range from 15.1 percent to 52.6 percent. Total development impact fees on office development fall in between the retail and industrial fees at an average of \$14.06 per square foot and a range from \$6.62 to \$22.28 per square foot. The TUMF fee represents a relatively low 15.6 percent of average overall fees on office development with a range from 9.8 percent to 33.1 percent (see **Figure 2** to **Figure 4**).

Water and sewer fees together represent the greatest proportion of residential development impact fees followed by similar proportions from other City fees, TUMF, and school fees. Single-family and multifamily development both show that about 34 percent of their development impact fees are associated with water and sewer fees, about 21 percent

with other City capital facilities fees, about 20 percent with regional transportation fees, about 18 percent with school facilities fees, and the remaining 5 percent associated with other regional fees or area-specific fees (see **Figure 3** and **Figure 4**).

Nonresidential development impact fees show more variation in terms of the distribution between fee categories. Retail development impact fees are dominated by water and sewer fees (41.6 percent) with an additional one-third associated with the regional transportation fee. While the overall fees are lower, industrial development impact fees are more dominated on a proportionate basis by other City fees (31.8 percent) and TUMF (28.0 percent), for non-intensive water using industrial buildings. Office development impact fees show a different pattern with substantial water and sewer fees at 52.2 percent followed by other city fees at 24.1 percent then regional transportation fees at 15.6 percent (see **Figure 3** and **Figure 4**).

Unincorporated jurisdictions have slightly lower total fees as compared to the average for all WRCOG study jurisdictions. For residential uses, total fees for the unincorporated study areas were approximately 80 percent of the WRCOG average total fee amount for residential uses. For nonresidential uses, total fees for unincorporated study areas were between 60 and 75 percent of the WRCOG average for nonresidential uses. Most of this difference can be attributed to the lack of substantial local fees for all land use types. See **Figure 5** for further detail.

Figure 3 Average Development Impact Fee Costs by Category in WRCOG Jurisdictions

Fee	Single Family (per Unit)	Multifamily (per Unit)	Industrial (per Sq.Ft.)	Retail (per Sq.Ft.)	Office (per Sq.Ft.)
Regional Transportation Fees (TUMF)	\$8,873	\$6,134	\$1.45	\$7.50	\$2.19
Water and Sewer Fees	\$17,070	\$9,636	\$1.04	\$9.84	\$7.34
Other City Fees	\$10,055	\$7,231	\$1.65	\$4.75	\$3.39
School Fees	\$8,785	\$5,191	\$0.59	\$0.59	\$0.59
Other Area/Regional Fees	<u>\$2,686</u>	<u>\$1,512</u>	<u>\$0.45</u>	<u>\$0.95</u>	<u>\$0.54</u>
Total Fees	\$47,470	\$29,706	\$5.19	\$23.63	\$14.06

Figure 4 Average Development Impact Fee Costs in WRCOG Jurisdictions

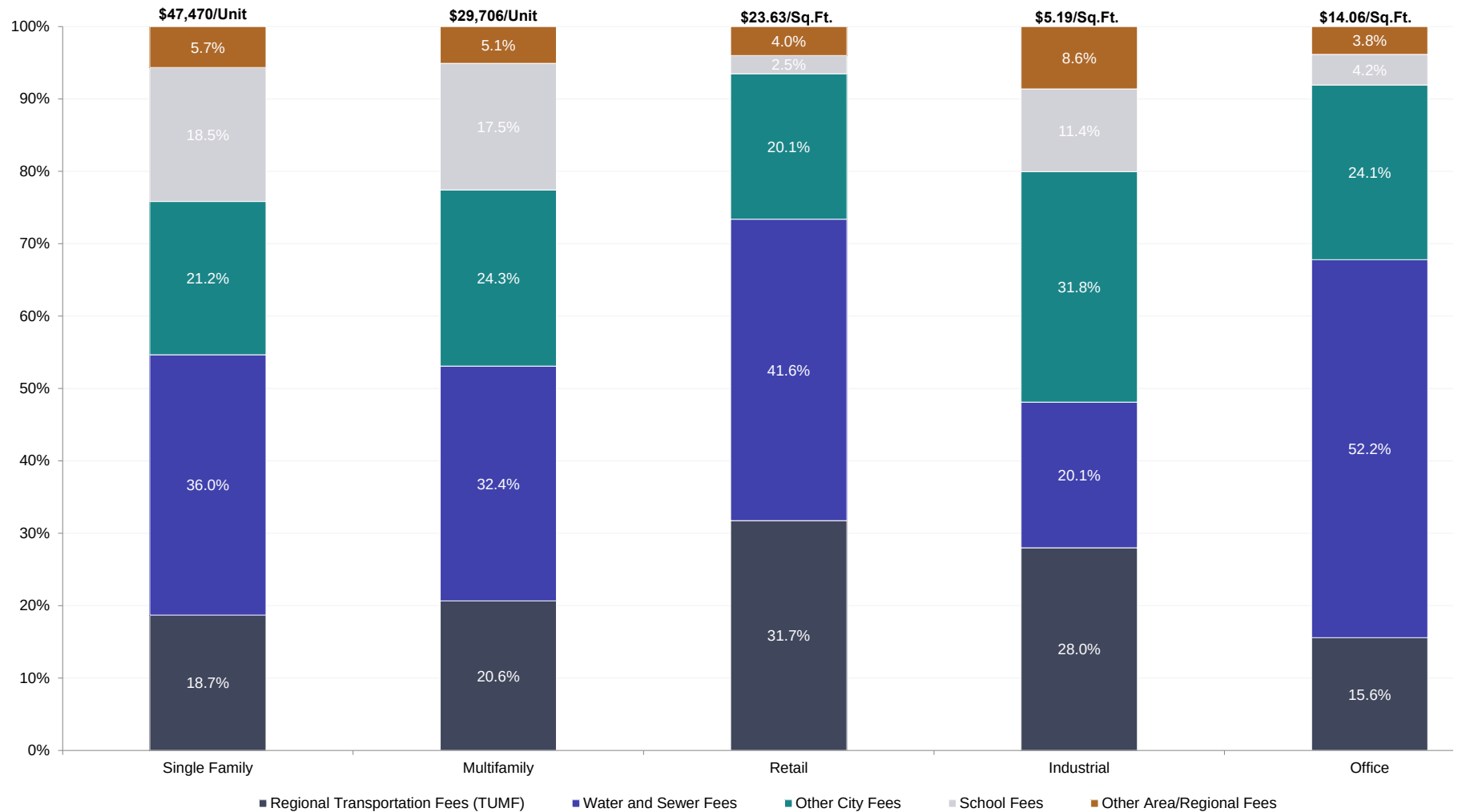


Figure 5 Unincorporated Jurisdictions/March JPA and Total Jurisdictions Comparison

Item	Single Family	Multifamily	Retail	Industrial	Office
Unincorporated Jurisdictions and March JPA	\$37,326	\$23,653	\$17.61	\$3.16	\$10.54
Total Jurisdictions	\$47,470	\$29,706	\$23.63	\$5.19	\$14.06
Unincorporated Jurisdictions and March JPA / Total Jurisdictions	79%	80%	75%	61%	75%

Findings from Fee Comparison with Non-WRCOG Jurisdictions

Figures 6 through 10 compare the average overall WRCOG development impact fees (and their proportionate distributions between the five major fee categories) with other cities/group of cities for all five land uses/development prototypes studied. The comparative cities/subregions include selected jurisdictions in the Coachella Valley and San Bernardino County.

Average development impact fees for WRCOG jurisdictions are modestly lower than the average of selected San Bernardino County cities, with the exception of retail development impact fees. When compared with the average of selected San Bernardino County cities (Fontana, Yucaipa, San Bernardino, Ontario, Chino, and Rialto), the WRCOG average is modestly lower for residential land uses, roughly equivalent for industrial and office land uses, with retail development the exception, where it is substantially higher. New development in San Bernardino County cities is required to make payments towards regional transportation infrastructure, though the distinction between the regional and local transportation fees is often unclear. Overall, the combination of regional transportation fees, other City fees, and area/other regional fees is higher in San Bernardino County than in Riverside County for single-Family and multifamily development.

The average development impact fees for selected Coachella Valley cities is below that of the WRCOG average for all land uses. The average for selected Coachella Valley cities (Indio, Palm Desert, and Palm Springs) is substantially lower for single-family, multifamily, office, and retail development, and modestly lower industrial development. For residential development, there are substantial differences in regional transportation fees, water and sewer fees, and other City fees. Regional transportation fees are set at an equal rate for both office and retail in Coachella Valley resulting in higher regional transportation fees for office development in Coachella Valley but lower fees for retail development.

Figure 6 Average Single-Family Development Impact Fee Costs and Proportions in Neighboring Jurisdictions

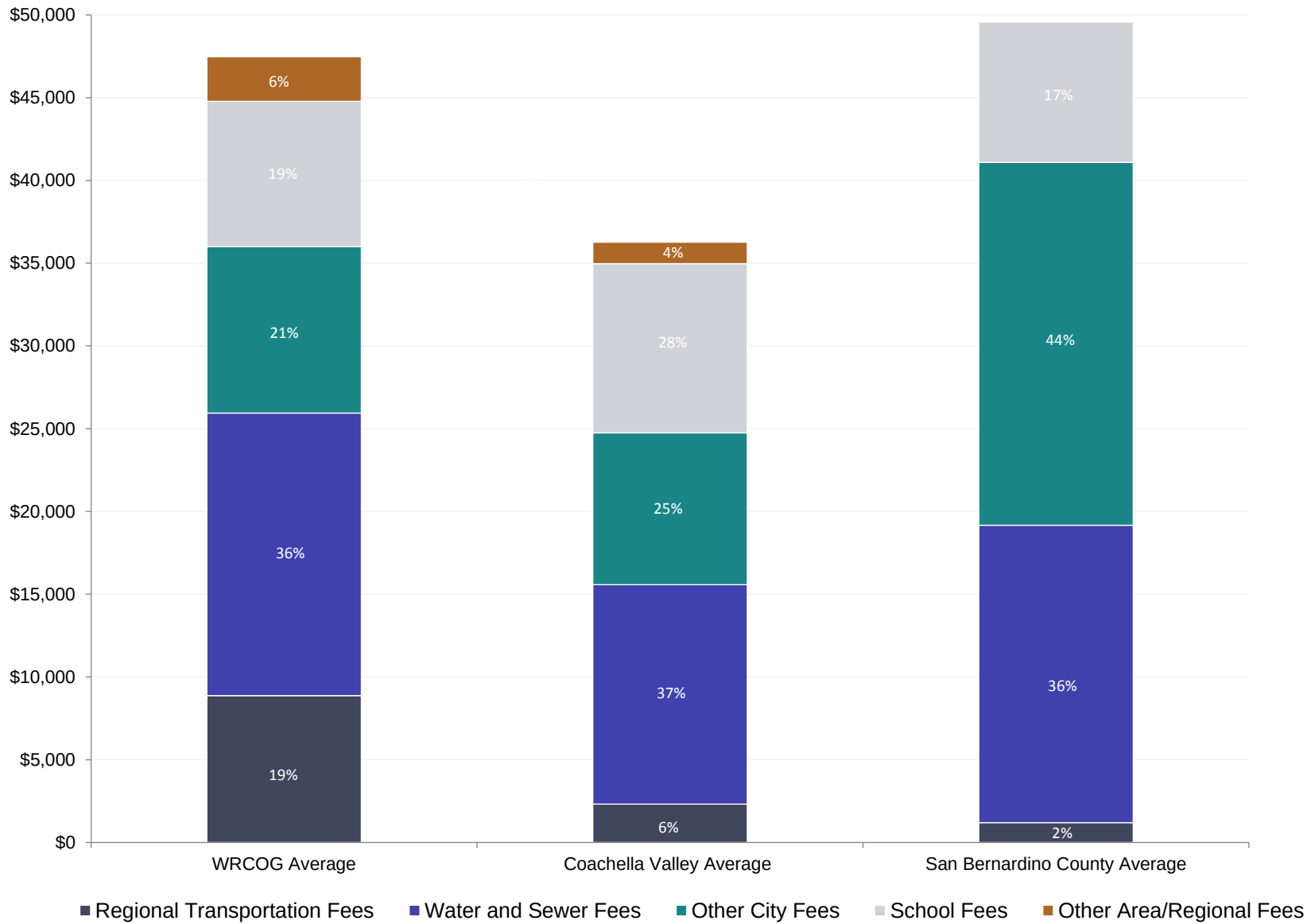


Figure 7 Average Multifamily Development Impact Fee Costs and Proportions in Neighboring Jurisdictions

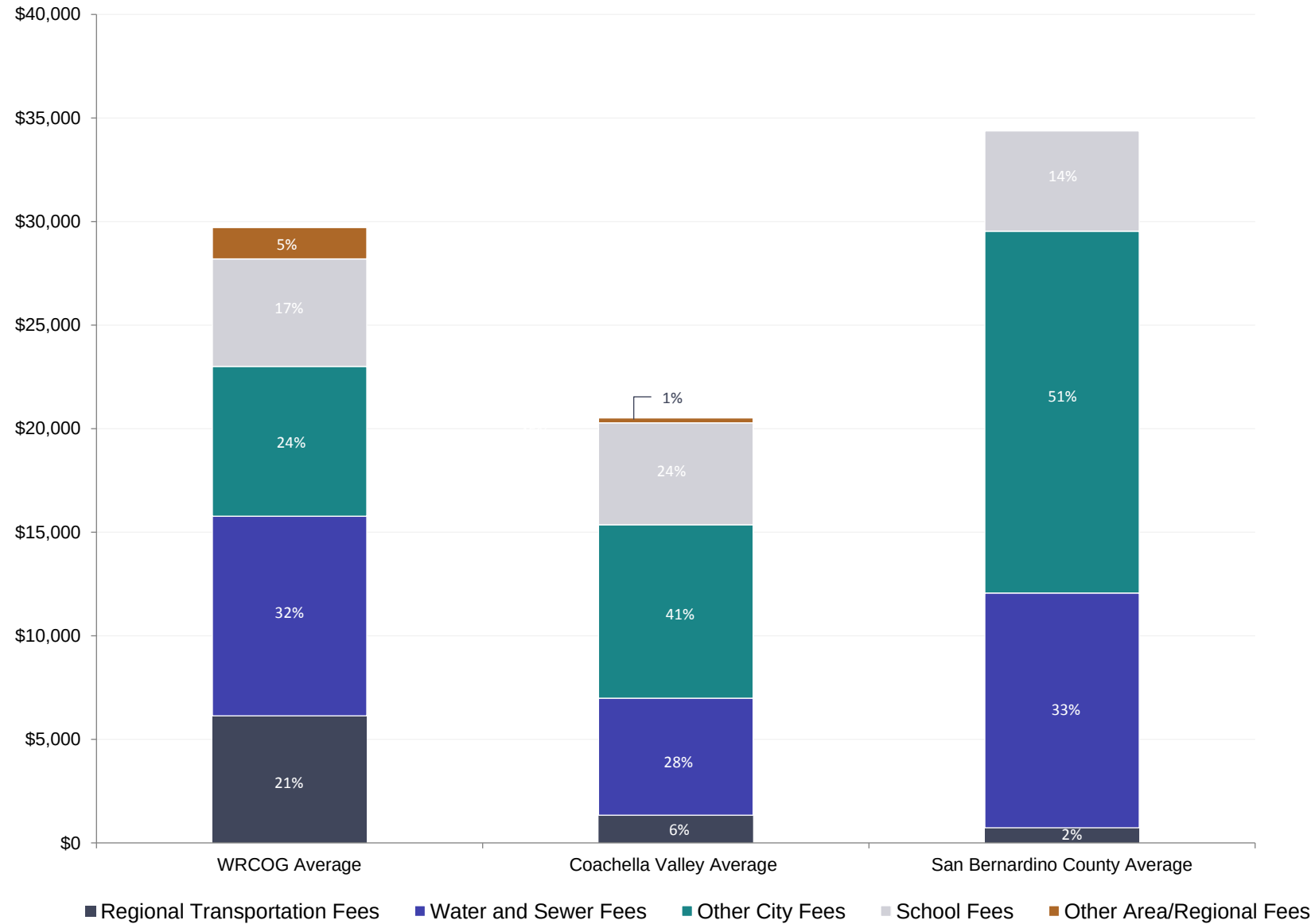


Figure 8 Average Retail Development Impact Fee Costs and Proportions in Neighboring Jurisdictions

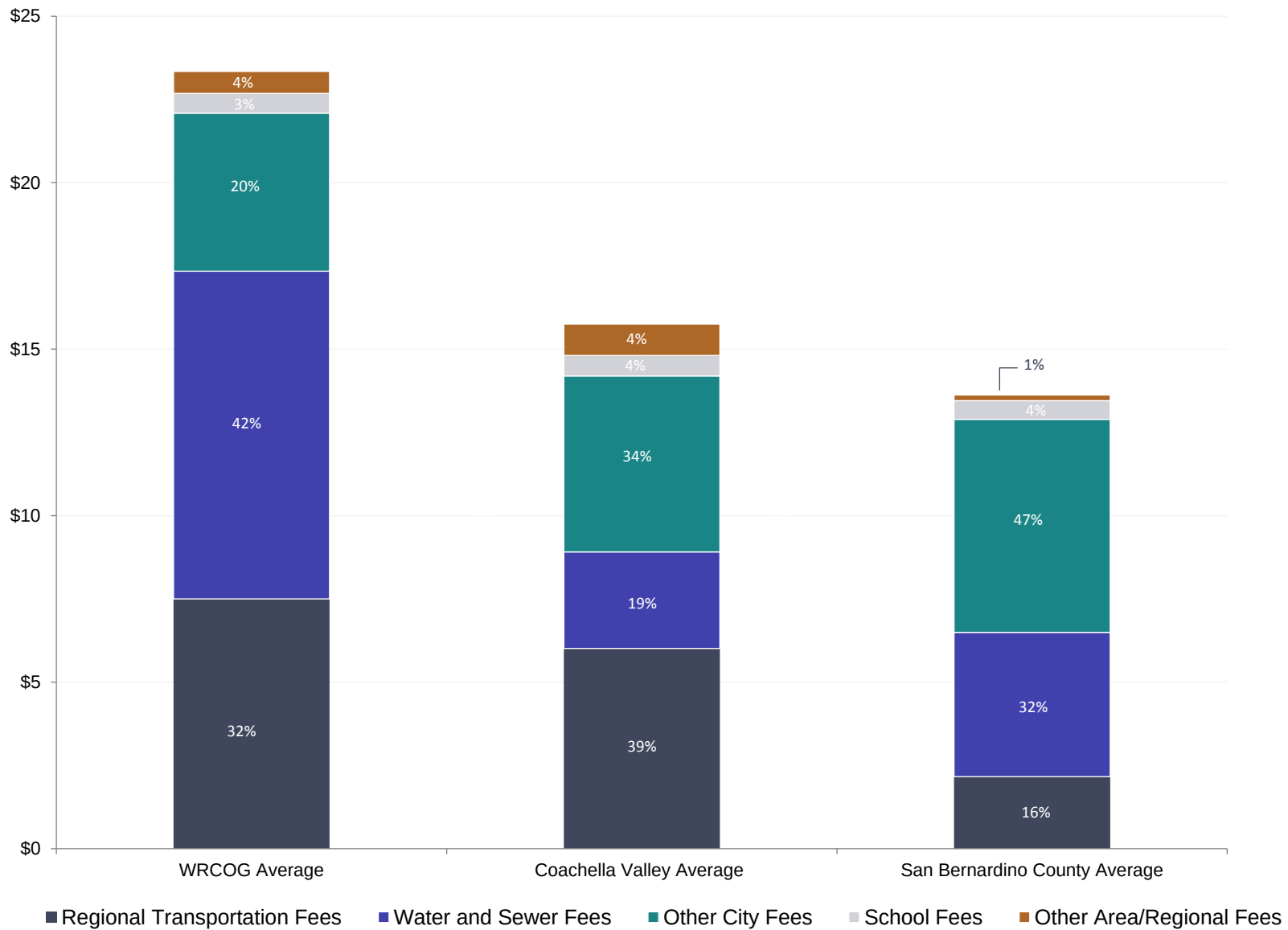


Figure 9 Average Industrial Development Impact Fee Costs and Proportions in Neighboring Jurisdictions

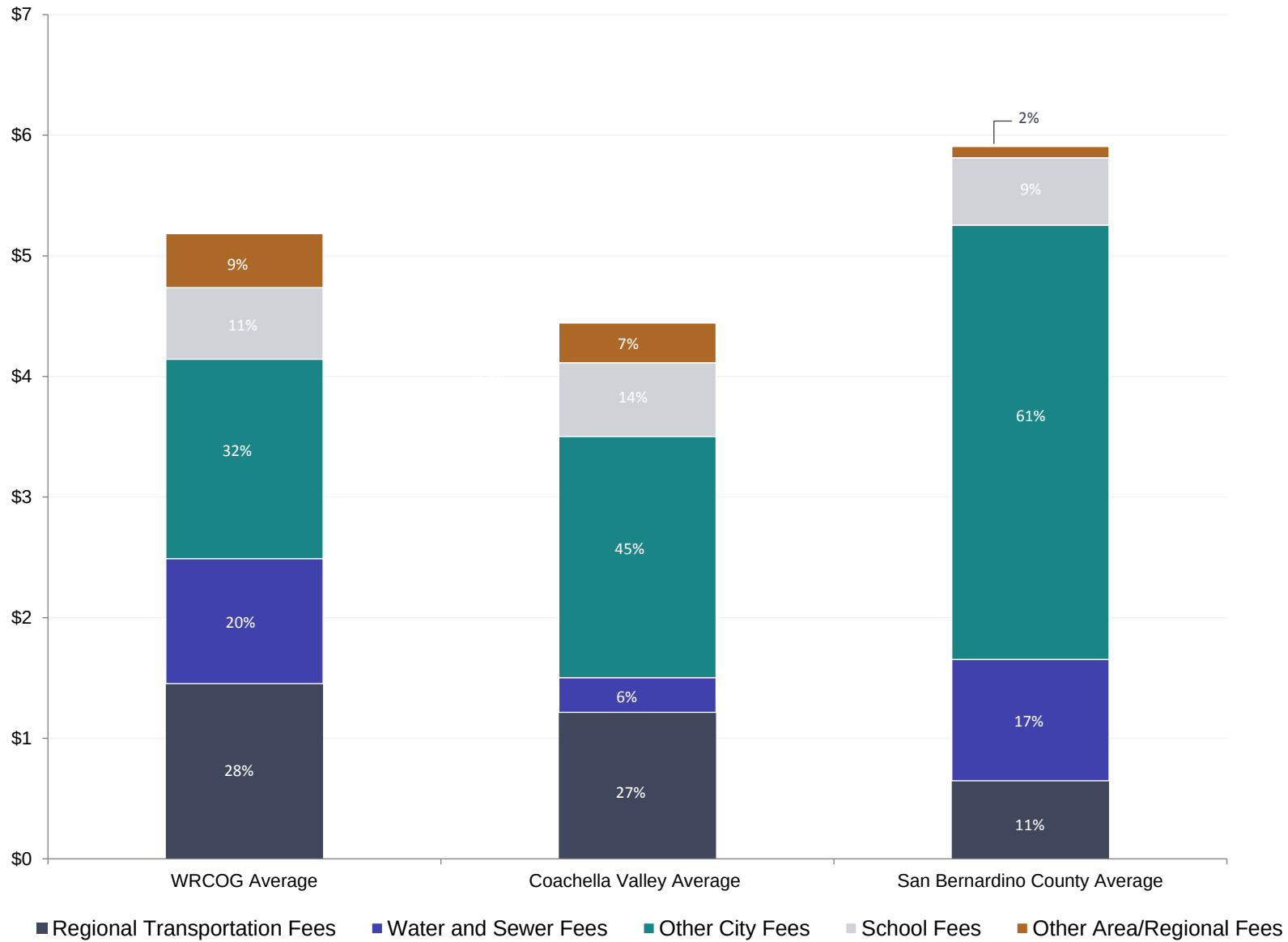
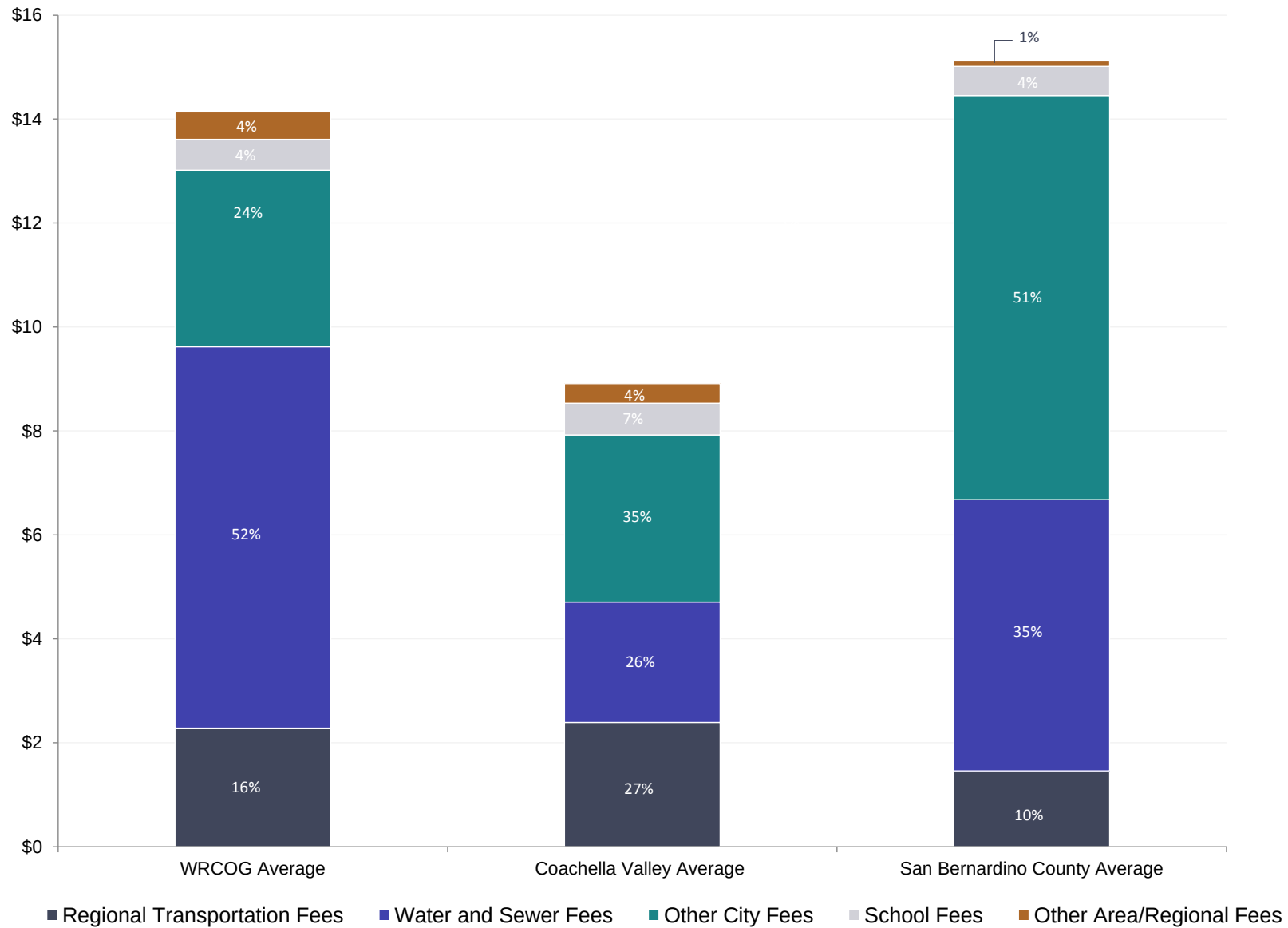


Figure 10 Average Office Development Impact Fee Costs and Proportions in Neighboring Jurisdictions



3. *DEVELOPMENT IMPACT FEES AND DEVELOPMENT COSTS*

This chapter evaluates development impact fees, including the TUMF, in Western Riverside County in the context of overall development costs. The first section below provides an overview of the complex factors that influence decisions to develop, one of which is development cost. The subsequent section describes the methodology used to estimate development costs for different land use types. The next section provides conclusions concerning the level of development impact fees and TUMF in the context of overall costs.

It is critical to note that this analysis uses generalized development prototypes and development cost and return estimates to draw overall conclusions about development impact fees relative to development costs. This analysis does not represent a project-specific analysis as the development program, development costs, and returns associated with any individual project can vary widely. No conclusions concerning the feasibility of any specific project should be drawn from this analysis.

Economics of Development

Key Factors in New Development

The drivers of growth and development are complex and multifaceted. Broader global, national, and regional economic conditions are key drivers. As witnessed by the recent Great Recession, there are no regional and local policy options available to fully counterbalance a strong economic downturn. Under more moderate or strong market conditions, the regional demand for housing and workspaces translate into the potential for cities and subregions to capture new residential and economic/workforce development.

Developers (whether looking to do speculative development or to provide build-to-suit developments for larger users) will review a number of conditions before determining whether to move forward with site acquisition/optioning and pre-development activities. Factors will include: (1) the availability of appropriate sites, (2) the availability of/proximity to/quality of infrastructure/facilities (e.g., proximity to transportation corridors, schools, and other amenities), (3) local market strength (achievable sales prices/lease rates) in the context of competitive supply, (4) expected development costs (including land acquisition costs, construction materials and labor costs, the availability and costs of financing, and development impact fees, among others), and, (5) where sites are unentitled, the entitlement risk.

For some subregions, cities, and/or areas, market conditions for particular uses may be too weak to have a realistic chance of attracting certain types of development. For example, to the extent the market-supported lease rates for new office development in a particular area of a City do not support Class A office development construction costs, the attraction of this type of space will not be realistic in the short term. Similarly, some users, like major retailers, will only be interested in sites along major transportation corridors. In other cases, there may be a nominal or potential demand, but the willingness of home-buyers/businesses to pay may still not be sufficient to cover the development costs. This willingness to pay will be constrained by competitive supply and prices, whether the price points/lease rates among existing homes/workspaces in the same community or by the price points/lease rates offered in

neighboring communities with different characteristics (proximity to jobs centers, local infrastructure/amenities, school district quality, among other factors).

In other cases, the strength of market demand for new residential and Nonresidential development will spur more detailed review and evaluation of sites by developers. Even in cases where market factors look strong, there is a complex balance between development revenues, development costs, land costs, and required developer returns that must be achieved to catalyze new development. Modest fluctuations in development revenues (i.e., market prices), development costs (materials, labor costs, etc.), and landowner expectations (perceived value of land) can all affect development decisions as can assessments of entitlement risk and complexity, where entitlements are still required. And many of these factors, such as the price of steel, the complexities of CEQA, the market for labor, and landowner's land value preferences, to name a few, are outside of the control of developers and local public agencies.

Methodology

Every development project is different and will have different development costs. For the purposes of this analysis, EPS considered the same set of land use prototypes as for the fee review and comparison and developed an illustrative estimate of the full set of development costs. The steps taken in developing the development cost estimates are described in the subsections below.

Land Uses Evaluated

The development cost evaluation considered the following land uses/development prototypes, consistent with those used in **Chapter 2**:

- Residential Single-family Development – Single-family Units in a 50-unit subdivision
- Residential Multifamily Development – Multifamily Units in a 200-unit apartment building.
- Industrial Development – Industrial Space in a 265,000 square foot “high cube” development.
- Office Development – Office Space in a 20,000 square foot office building.
- Retail Development- Retail Space in a 10,000 square foot retail building.

Development Cost Estimates

An illustrative static pro forma structure was developed. The pro forma incorporated different categories of development costs (see below). It also considered potential land values/acquisition costs based on a residual land value approach that considered potential development values, subtracted direct and indirect development costs and developer return requirements, and indicated a potential residual land value. The development values were refined based on available market data ranges and the need to generate a land value of an appropriate level to support land acquisition and new development. Available information on land transactions was also reviewed. As noted above, this analysis is designed to provide overall insights on general economic relationships and does not draw conclusions concerning the feasibility of individual projects.

It is also important to note that the pro formas developed were specifically configured to represent a potentially feasible set of relationships, in terms of revenues, costs, and returns. This allows for consideration of development impact fees in the context of illustrative projects that would make sense to undertake. To the extent, development costs/ returns are higher than those indicated – a reality which could certainly be true for many projects – development values would need to be higher or feasibility is not likely to be attained. To the extent, this is true, development impact fees as a proportion of development costs/ returns would be lower than those shown.

In 2016, the key development cost categories were estimated for all land uses as described below. In this Update, major cost categories were revised, including direct construction costs, land costs, and development impact fees.

- **Direct Construction Costs** – Site Work/Improvements and Vertical Construction Costs. Estimates were taken from RS Means (a construction cost data provider) estimates, available pro formas, and feedback from developers where provided.
- **Indirect Costs** – Architecture and Engineering Costs, Sales and Marketing, Financing, Development Impact Fee, and other soft costs. Estimates were taken from RS Means, the WRCOG Fee Comparison, available pro formas, and feedback from developers where provided.
- **Developer Return Requirements** – Developer return requirements were set to be equal to 10 percent of development value for all land uses. This represented between 10 and 20 percent of direct and indirect construction costs consistent with typical developer hurdle returns.
- **Land Costs** – Land costs were based on the estimated residual land values when costs and returns were subtracted from estimates of development value and/or information on actual land transactions. Development values in all cases were adjusted to ensure land values reached between 25 and 35 percent of development value, unless other information was available to justify a different percentage. This was used as a general metric of potential feasibility; i.e., if the residual land value fell below this level, developers would have a hard time finding willing sellers of land and so the project as a whole may not be feasible.⁸

It is also important to note that the following additional assumptions were used in this analysis:

- **Development Impact Fees.** The development cost estimates include the average development impact fees for WRCOG jurisdictions identified in **Chapter 2**. In reality, the fees, like other development costs factors, vary by jurisdiction.
- **Land Values.** Land values will vary by area and by development prospects as well as by the level of entitlement and improvement of the land. The land value estimates provided represent illustrative estimates for the purposes of this analysis.

⁸ A similar evaluation was not conducted for retail development as the location decisions of major retailers are typically more tied to location/site characteristics than to modest variations in development costs.

- **Direct Construction Costs.** The direct construction costs shown, whether provided by developers or through RS Means, assume non-union construction costs per square foot. The actual construction cost per square foot would be higher if union-labor is required. Depending on the specific union roles required, direct construction would be expected to increase by 10 percent or more.

Results

As context for the description of the results of this analysis, it is worth repeating that there will be considerable variation throughout Western Riverside County in terms of different development cost components and overall development costs. On an average/illustrative basis, overall development costs included in this analysis may be conservative as they do not include union labor costs and may be conservative with regard to entitlement costs. Given that the focus of this analysis is on the relationship between development impact fees and total development costs, an underestimate in total development costs would mean that the proportionate significance of development impact fees has been overestimated.

It is again important to note that the analysis shown here is not an evaluation of development feasibility. Such an analysis would require a more-location specific analysis and is highly dependent on site characteristics, local market conditions, and site land values, among other factors.

Figure 11 summarizes the estimated development costs/returns on a per residential unit and per Nonresidential building square foot basis. **Figure 12** converts the cost estimates into percent allocations out of the total development/return. It should be noted that the total cost/return (equivalent to the 100 percent) equals the sum of direct and indirect costs, estimated land costs, and required development return. This total cost/return is equivalent to the sales prices/capitalized building value a developer would need to command to cover all costs/return requirements. To the extent, actual costs are higher (e.g., higher land costs or construction costs), the achievable sales prices/capitalized lease rates would also need to be higher.

Figure 11 Proportionate Development Costs/Return for Development Prototypes

Development Costs, Land Values, and Return	Single Family Per Unit	Multifamily Per Unit	Industrial Per Bldg Sq.Ft.	Retail Per Bldg Sq.Ft.	Office Per Bldg Sq.Ft.
<u>DIRECT</u>					
Basic Site Work/ Lot Improvements	\$31,652	\$9,766	\$12.13	\$26.38	\$15.07
Direct Construction Cost	<u>\$227,898</u>	<u>\$196,540</u>	<u>\$37.98</u>	<u>\$138.75</u>	<u>\$148.31</u>
Hard Cost Total	\$259,550	\$206,307	\$50.12	\$165.13	\$163.38
<u>INDIRECT</u>					
TUMF	\$8,873	\$6,134	\$1.45	\$7.50	\$2.19
Other Development Impact Fees	\$38,597	\$23,572	\$3.74	\$16.13	\$11.87
Other Soft Costs	<u>\$56,893</u>	<u>\$47,674</u>	<u>\$20.05</u>	<u>\$31.26</u>	<u>\$33.02</u>
Soft Cost Total	\$104,363	\$77,380	\$25.24	\$54.89	\$47.08
Total Direct and Indirect Costs	\$363,913	\$283,686	\$75.35	\$220.01	\$210.46
Developer Return Requirement	\$56,160	\$33,492	\$13.68	\$34.02	\$32.52
Land Value	\$141,527	\$17,737	\$45.75	\$86.21	\$82.38
TOTAL COST/RETURN	\$561,600	\$334,915	\$136.19	\$340.25	\$325.36

* Assumes generally feasible market conditions (i.e. ability to generate developer return and positive land value).

Figure 12 Average Development Costs/Return for Development Prototypes

Development Impact Fees	Single Family	Multifamily	Industrial	Retail	Office
<u>DIRECT</u>					
Basic Site Work/ Lot Improvements	5.6%	2.9%	8.9%	7.8%	4.6%
Direct Construction Cost	<u>40.6%</u>	<u>58.7%</u>	<u>27.9%</u>	<u>40.8%</u>	<u>45.6%</u>
Hard Cost Total	46.2%	61.6%	36.8%	48.5%	50.2%
<u>INDIRECT</u>					
TUMF	1.6%	1.8%	1.1%	2.2%	0.7%
Other Development Impact Fees	6.9%	7.0%	2.7%	4.7%	3.6%
Other Soft Costs	<u>10.1%</u>	<u>14.2%</u>	<u>14.7%</u>	<u>9.2%</u>	<u>10.1%</u>
Soft Cost Total	18.6%	23.1%	18.5%	16.1%	14.5%
Total Direct and Indirect Costs	64.8%	84.7%	55.3%	64.7%	64.7%
Developer Return Requirement	10.0%	10.0%	10.0%	10.0%	10.0%
Land Value	25.2%	5.3%	33.6%	25.3%	25.3%
TOTAL COST/RETURN	100.0%	100.0%	100.0%	100.0%	100.0%

* Assumes generally feasible market conditions (i.e. ability to generate developer return and positive land value).

Key findings include:

- **Direct construction costs represent the largest proportion of total development costs/returns, typically followed by other land costs, other soft costs (collectively), developer returns, and development impact fees.** Unsurprisingly, direct construction costs are the largest cost, representing between 27.9 percent and 58.7 percent of total costs/returns for the prototypes evaluated. Land costs are likely to be most variable, depending on circumstance, range from 5.3 percent to 33.6 percent for the prototypes. Other soft costs collectively are the next highest component, though their individual components, such as sales and marketing, architecture and engineering, financing costs, are smaller. The expected hurdle developer return at 10 percent is the next highest factor. The range for total development impact fees is below all these other ranges, though when indirect costs are considered individually development impact fees represent the largest component.
- **Total development impact fees represent between 3.8 percent and 8.9 percent of total development costs/returns for the prototype feasible projects.** Total development impact fees represent 8.5 percent and 8.9 percent of total development costs/returns respectively for single-family and multifamily developments. As discussed in Chapter 2, these capital facilities fees included water and sewer fees, school district fees, other local jurisdiction fees, TUMF, and other agency/subarea fees. As is common, Nonresidential development impact fees are lower as a percent though show a significant range from 3.8 percent for industrial development, to 4.3 percent for office development, and 6.9 percent for retail development.
- **TUMF represent between 0.7 percent and 2.2 percent of total development costs/returns for the prototype feasible projects.** TUMF represent between 16.1 percent and 31.7 percent of total development impact fees, on average, as indicated in the Fee Comparison with the highest ratios for retail and industrial development and lowest for office development. As a proportion of overall development costs, TUMF represent 1.6 percent and 1.8 percent of total residential development costs for single-family and multifamily respectively. For nonresidential uses there is greater variation with TUMF representing 0.7 percent of total costs for office development, 1.1 percent of total costs for industrial development, and 2.2 percent of total costs for retail development.

4. CONCLUSIONS

The Western Riverside Council of Governments (WRCOG) commissioned the Original 2016 Study and this Study Update to provide increased regional understanding of development impact fees on new development in Western Riverside County. As noted in **Chapter 1**, the purpose of the Original and this Updated Report is to: (1) indicate the types and relative scale of the development impact fees placed on different land uses; and, (2) indicate the scale of fees relative to overall development costs. This Report is intended to provide helpful background information on development impacts fee in the region as they are introduced, updated, and debated. It is also intended to indicate the Transportation Uniform Mitigation Fee (TUMF) in the context of the broader development impact fee structure, overall development costs, and other regional dynamics.

At this point in time, it is common practice for new and updated Development Impact Fee Nexus Studies to be accompanied by some consideration of development impact fees in neighboring and peer communities and, less frequently, by consideration of development impact fees in the context of overall development costs and economics. This is true where individual jurisdictions are introducing/ updating a single development impact fee category (e.g. transportation or parks) as well as when jurisdictions undertake more comprehensive updates to a larger number of different fee categories.

Similarly, there have been a number of efforts to provide a regional/ subregional review of development impact fee practices and levels to inform regional conversations about the appropriate use and level of development impact fees. All of these regional studies require definitions of development impact fees included and land use and development prototypes utilized to ensure as close of an “apples-to-apples comparison” as possible. Examples of such studies include:

- **Residential Development Impact Fees in California Cities and Counties.** This August 2001 publication by the State of California Division of Housing was entitled: “Pay to Play: Residential Development Fees in California Cities and Counties, 1999” and was prepared by John Landis, Michael Larice, Deva Lawson, and Lan Deng at the Institute of Urban and Regional Development, University of California, Berkeley. This study considered 89 cities and counties spread throughout California.
- **Regional Development Fee Comparative Analysis for San Joaquin County.** This 2013 publication by San Joaquin Partnership represented a fourth publication prepared for the Partnership’s public and private sector investors. The regional development fee comparison compared a snapshot of development fees in 21 jurisdictions, including eight (8) in San Joaquin County and thirteen (13) in comparative/ neighboring California counties.
- **Ongoing Development Impact Fee Databases.** In addition to these regional efforts, there are a number of consulting companies that keep ongoing databases of development impact fees in regions, such as the Sacramento Valley, to inform their work for public and private sector clients. In these cases, development impact fee schedules are typically updated every year or two due to the dynamic nature of the development impact fees and the numerous different agencies that charge development fees.

In 2016, WRCOG recommended that this Report/ Study be updated periodically to ensure the regional understanding of development impact fees in Western Riverside County remains current in the context of: (1) frequent adjustments to fee levels by individual jurisdictions, (2) changing development cost and economic conditions, and, (3) less frequent, but highly significant changes in State law that affect the use and availability of other public financing tools. This development of this Update Study followed that recommendation and represents the first update to the Original Study, bringing the Original Study “up-to-date”.

- **APPENDIX A** provides detailed information on the Development Prototypes.
- **APPENDIX B** provides fee comparison summaries and detailed fee estimation information for each WRCOG jurisdiction/area and each land use category.

APPENDIX A:

Development Prototypes



Single Family Prototype

- Reflects median home size for Western Riverside County home sales since 2014

Product Type:	Single Family Detached Unit	
Development Type:	Residential Subdivision	
No. of Acres:	10	Acres
No. of Units:	50	Units
Building Sq.Ft.	2,700	Sq.Ft.
No. of Bedrooms:	4	
No. of Bathrooms:	3	
Garage Space (Sq.Ft):	500	Sq.Ft.
Habitable Space (Sq.Ft.):	2,200	Sq.Ft.
Lot Size:	7,200	Sq.Ft.
Density:	5	DU/AC
Lot Width:	60	Ft.
Lot Depth:	120	Ft.
Total Lot Dimensions (Sq.Ft.):	7,200	Sq.Ft.
Water Meter Size	One 1	Inch Meter



Example Prototype Home, City of Riverside

Multi-Family Prototype

- Reflects median building size for multi-family developments since 2010



Example Prototype Multi-Family Development, City of Temecula

Product Type:	Multi Family Apartment Unit
Development Type:	Multi Family Apartment Building
Number of Acres:	10 Acres
Apartment Building Square Feet:	260,000 Sq.Ft.
FAR:	0.60
Number of Stories:	3
Dwelling Units:	200
Density:	20.0 DU/AC
Average Unit Size:	1,100
Water Meter Sizes*:	Eight 2 inch Meters
Roof Area:	86,667 Sq.Ft.
Lot Width:	515.3 Ft.
Lot Depth:	717.2 Ft.

*Note: Assumption is for analytical simplicity. Different assumptions are used where recommended by individual jurisdictions.

Industrial Prototype

- Reflects median building size for industrial developments since 2010

Product Type:	Warehouse/ Distribution
Criteria:	Meets criteria for High-Cube
No. of Acres:	15.2 Acres
Rentable Square Feet:	265,000 Sq.Ft.
FAR:	0.4
Water Meter Sizes:	One 2 Inch Meter
Roof Area:	265,000 Sq.Ft.
Lot Width:	813.9 Ft.
Lot Depth:	813.9 Ft.



Example Prototype Industrial Development, City of Perris

Retail Prototype

- Reflects building size for retail developments since 2010



Example Prototype Retail Development, City of Hemet

Product Type:	Retail Building
No. of Acres:	1.15 Acres
Rentable Square Feet:	10,000 Sq.Ft.
FAR:	0.2
No. of Stories:	1
Water Meter Sizes:	One 2 Inch Meter
Roof Area:	10,000 Sq.Ft.
Lot Width:	223.6 Ft.
Lot Depth:	223.6 Ft.

Office Prototype

- Reflects median building size for office developments since 2010

Product Type:	Office Building
Number of Acres:	1.3 Acres
Rentable Square Feet:	20,000 Sq.Ft.
FAR:	0.35
No. of Stories:	2
Water Meter Sizes:	One 2 Inch Meter
Roof Area:	10,000 Sq.Ft.
Lot Width:	239.0 Ft.
Lot Depth:	239.0 Ft.



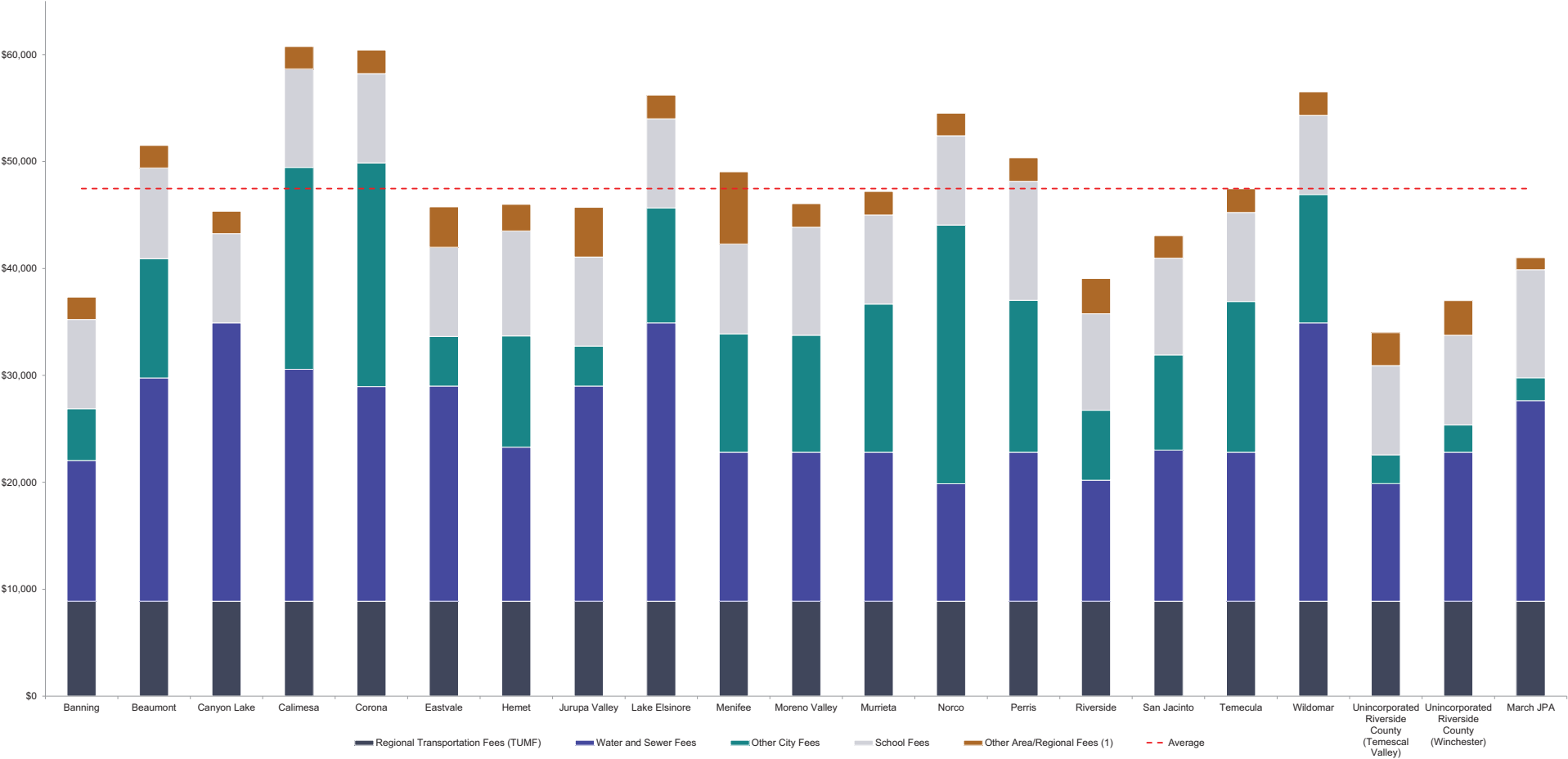
Example Prototype Office Development, City of Hemet



APPENDIX B:

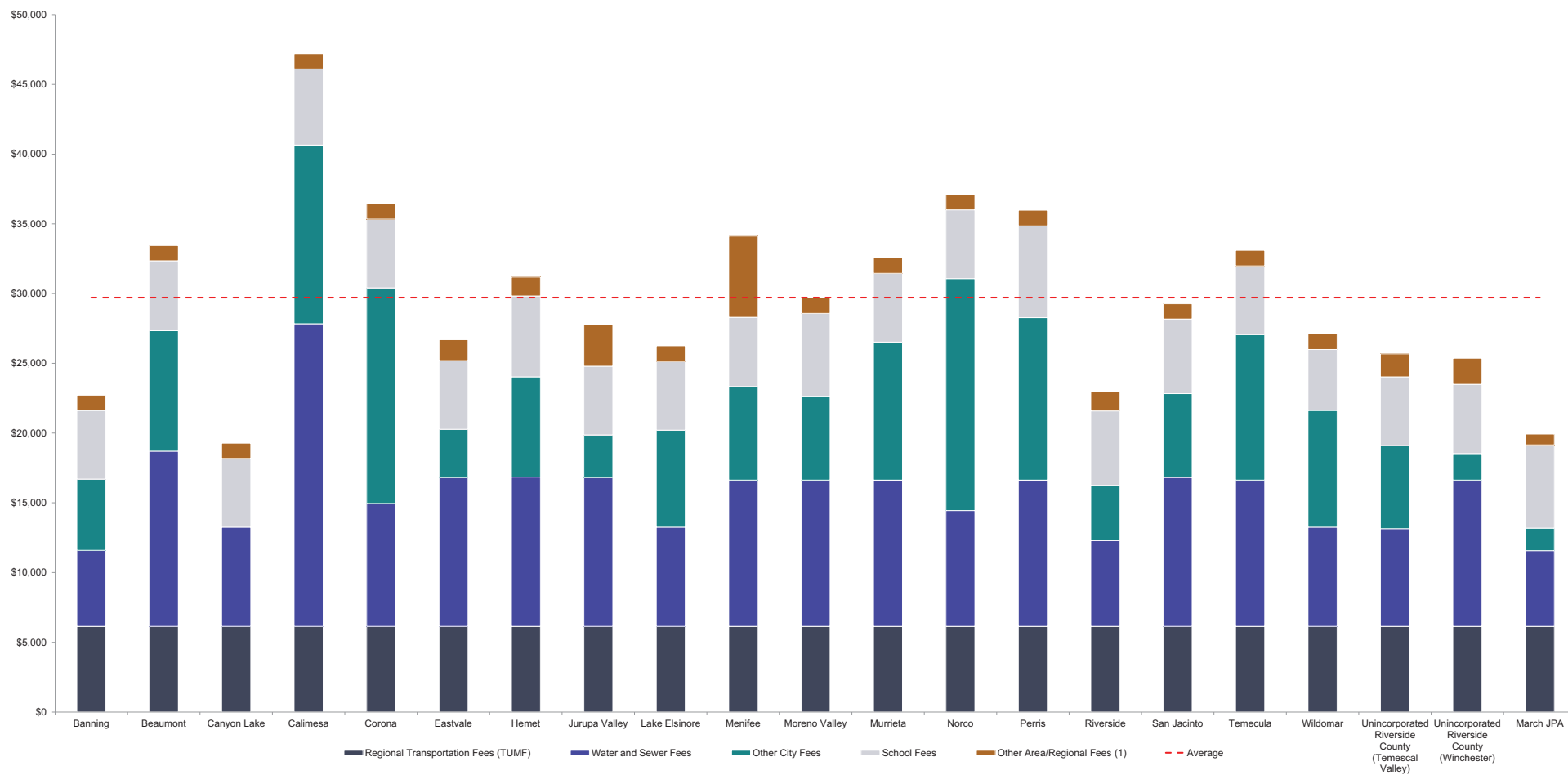
Fee Comparison Summaries and Estimations for WRCOG Jurisdictions

Single Family Detached Prototype
Capital Facilities / Infrastructure
Development Fees by Jurisdiction (Per Unit)



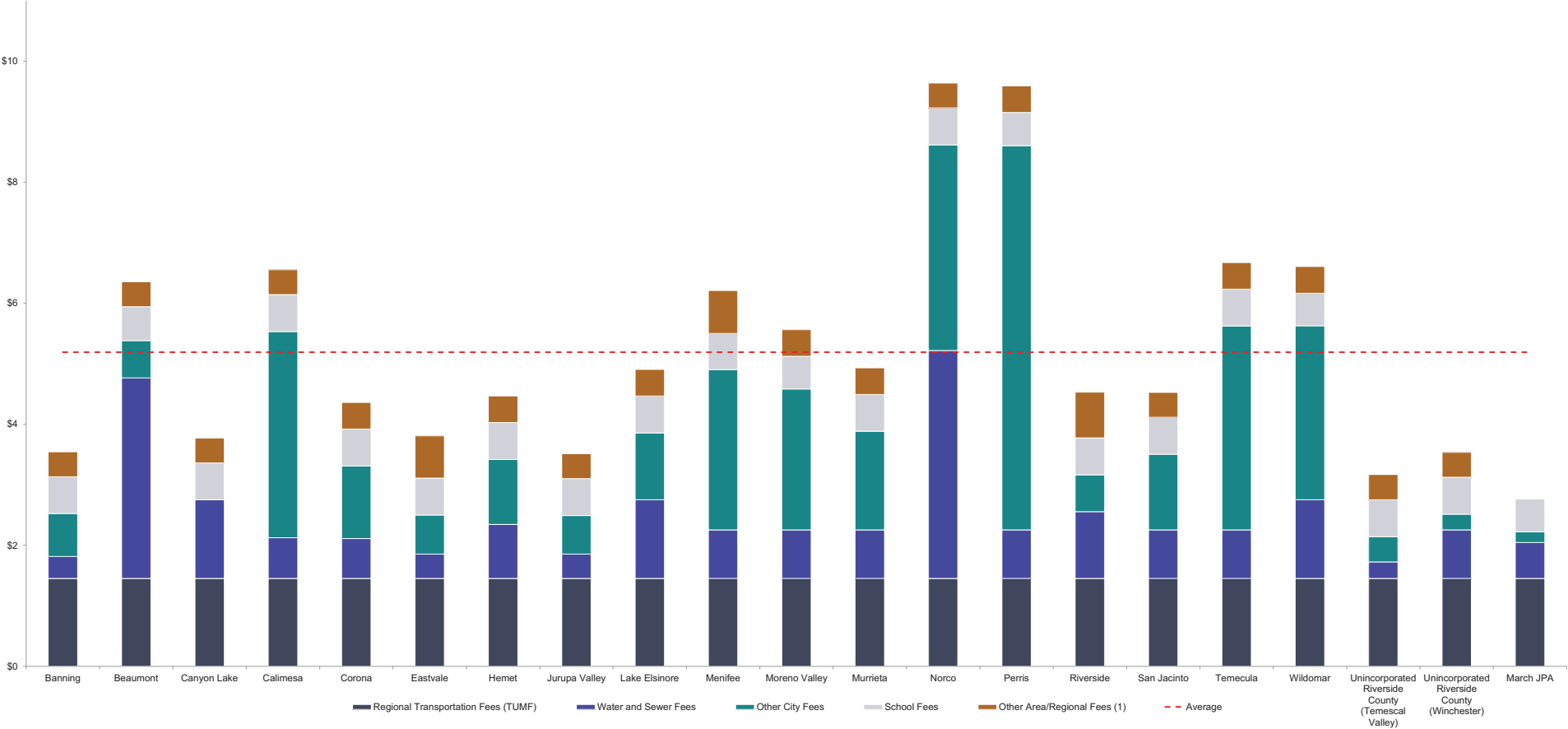
* Fee estimates for specified development prototypes as of July 2018. Actual fees will vary based on project specifics and any fee updates.
(1) "Other Area Fees/ Regional Fees" include, but are not limited to, regional parks, trails, multiservice center fees, area specific fees, and habitat mitigation fees.

**Multifamily Prototype
Capital Facilities / Infrastructure
Development Fees by Jurisdiction (Per Unit)**



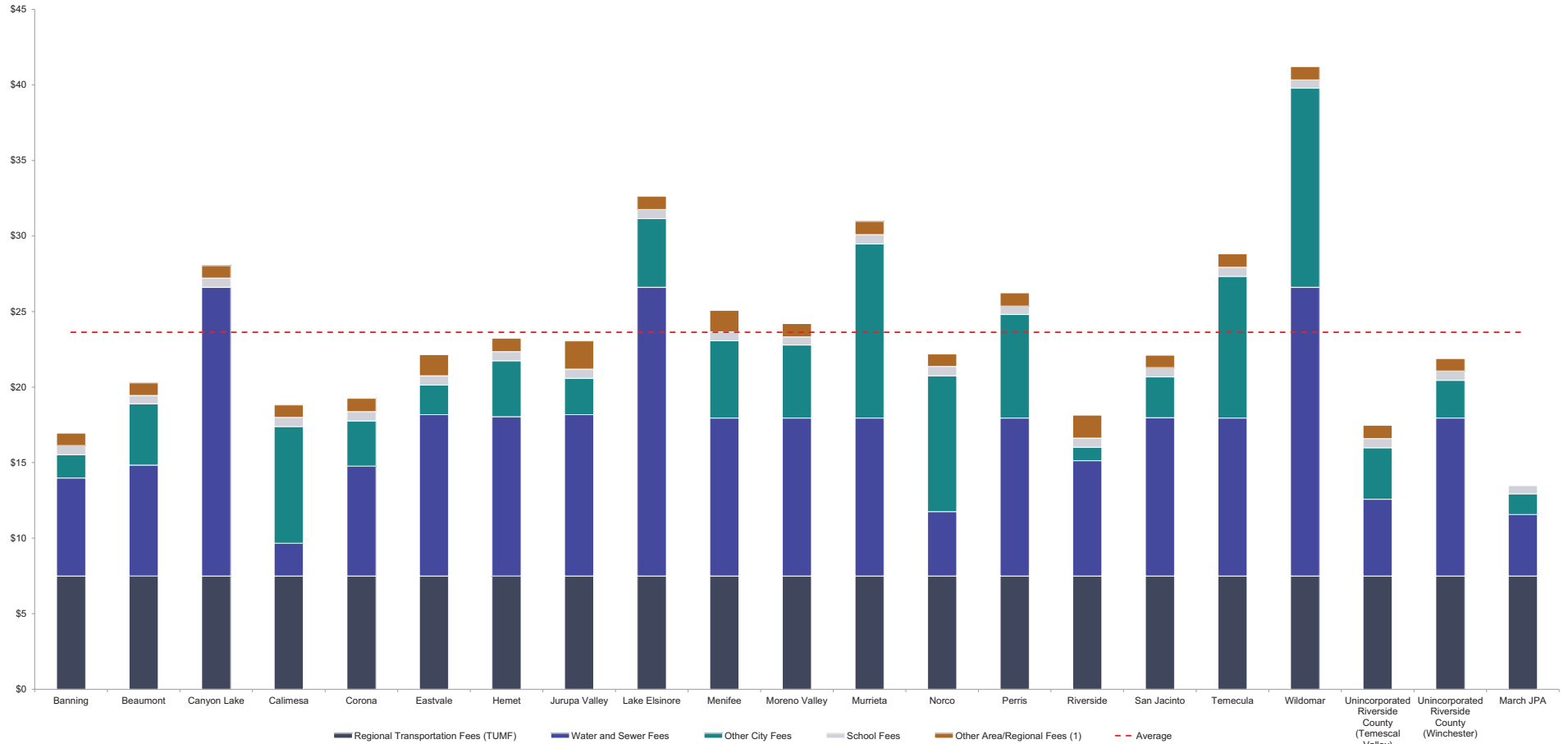
* Fee estimates for specified development prototypes as of July 2018. Actual fees will vary based on project specifics and any fee updates.
(1) *Other Area Fees/ Regional Fees* include, but are not limited to, regional parks, trails, multiservice center fees, area specific fees, and habitat mitigation fees.

Industrial Prototype
Capital Facilities / Infrastructure
Development Fees by Jurisdiction (Per Building Sq.Ft.)



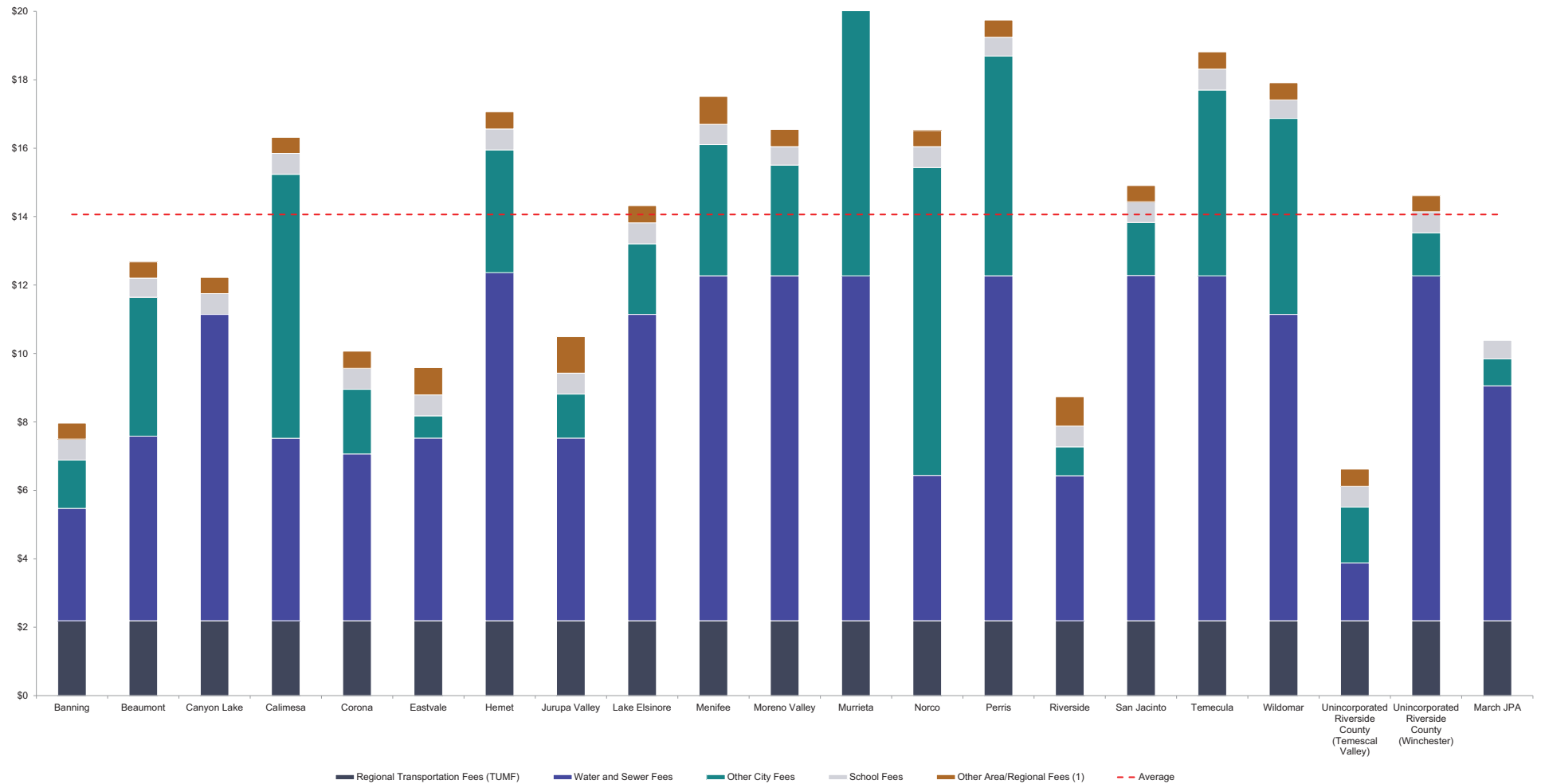
* Fee estimates for specified development prototypes as of July 2018. Actual fees will vary based on project specifics and any fee updates.
 (1) "Other Area Fees/ Regional Fees" include, but are not limited to, regional parks, trails, multiservice center fees, area specific fees, and habitat mitigation fees.

**Retail Prototype
Capital Facilities / Infrastructure
Development Fees by Jurisdiction (Per Building Sq.Ft.)**



* Fee estimates for specified development prototypes as of July 2018. Actual fees will vary based on project specifics and any fee updates.
(1) "Other Area Fees/ Regional Fees" include, but are not limited to, regional parks, trails, multiservice center fees, area specific fees, and habitat mitigation fees.

Office Prototype
Capital Facilities / Infrastructure
Development Fees by Jurisdiction (Per Building Sq.Ft.)



* Fee estimates for specified development prototypes as of July 2018. Actual fees will vary based on project specifics and any fee updates.
(1) "Other Area Fees/ Regional Fees" include, but are not limited to, regional parks, trails, multiservice center fees, area specific fees, and habitat mitigation fees.

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