



CVAG



Final Report

COACHELLA VALLEY REGIONAL VEHICLE MILES TRAVELED (VMT) STUDY

June 2026

Kimley»Horn
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COACHELLA VALLEY REGIONAL VEHICLE MILES TRAVELED (VMT) STUDY



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Acronym Guide

AB	Assembly Bill
ADT	Average Daily Traffic
ATP	Active Transportation Plan
BRT	Bus Rapid Transit
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
CVAG	Coachella Valley Association of Governments
EIR	Environmental Impact Report
FHWA	Federal Highway Administration
GHG	Greenhouse Gas
HCD	California Department of Housing and Community Development
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LCI	Governor's Office of Land Use and Climate Innovation
LOS	Level of Service
MPO	Metropolitan Planning Organization
RTP	Regional Transportation Plan
RTP/SCS	Regional Transportation Plan / Sustainable Communities Strategy
RCTC	Riverside County Transportation Commission
RIVCOM	Riverside County Travel Demand Model
RIVTAM	Riverside County Travel Analysis Model
SCAQMD	South Coast Air Quality Management District
SB	Senate Bill
SB 743	Senate Bill 743
SB 375	Senate Bill 375
SHS	State Highway System
TAF	Transportation Analysis Framework
TAC	Transportation Analysis under CEQA
TAZ	Traffic Analysis Zone
TDM	Transportation Demand Management
TPPS	Transportation Project Prioritization Study
TRPA	Tahoe Regional Planning Agency
TUMF	Transportation Uniform Mitigation Fee
VMT	Vehicle Miles Traveled
WRCOG	Western Riverside Council of Governments



Executive Summary

The Coachella Valley Association of Governments (CVAG) Regional Vehicle Miles Traveled (VMT) Study was designed to integrate VMT into major regional planning and funding programs as well as provide resources for local planning efforts. Regional planning efforts considered as part of this study include CEQA implementation, the Transportation Uniform Mitigation Fee (TUMF), and the Transportation Project Prioritization Study (TPPS).

The study addresses the following regional planning objectives:

- Provide California Environmental Quality Act (CEQA) VMT regulatory clarity for development and permitting
- Quantify VMT impacts to support grant applications and funding decisions
- Integrate equity considerations into transportation and land use decisions
- Addresses jobs-housing balance
- Alignment with climate action and Sustainable Communities Strategy (SCS) requirements
- Provide CEQA mitigation solutions
- Identify VMT reduction strategies that address both congestion and multimodal access

This study positions CVAG to move forward with meaningful integration of VMT in their regional planning procedures and provide planning and compliance resources to member agencies.

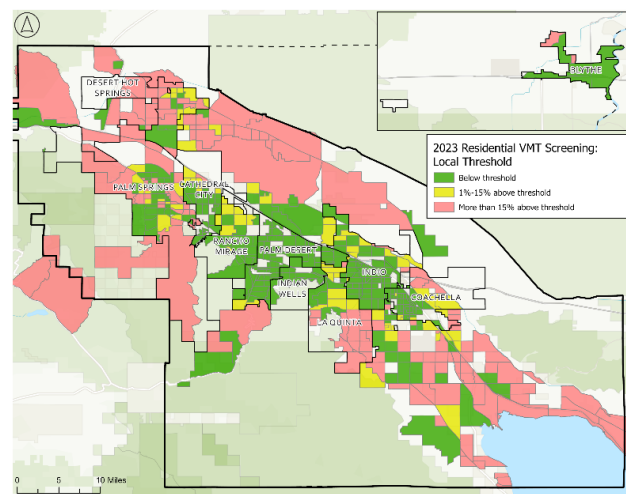
A Modernized Regional Travel Demand Model

At the core of this effort is a fully updated CVAG sub-area travel demand model (RIVCOM 4.0.1), advanced from a 2018 to a 2023 base year. This update is at the foundation of current and future planning efforts.

The updated model now reflects:

- Updated base year and consistency with 2023 American Community Survey and Census data
- Updated land use and socioeconomic conditions for the 2045 horizon year utilizing local and regional input
- Refined traffic analysis zones that reflect conservation zone boundaries
- Updated population synthesis to reflect the new base year conditions

Exhibit 1 - VMT Threshold Results from Updated Model



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The complimentary off-model tools developed for this project allow CVAG to estimate VMT benefits of active transportation and transit projects.

For the TPPS program, this establishes a current and technically robust analytical platform that allows CVAG to:

- Evaluate roadway, transit, and multimodal projects consistently
- Measure VMT impacts of capacity-enhancing projects
- Compare investments using updated growth forecasts
- Support potential TUMF restructuring
- Inform a VMT-neutral regional project strategy

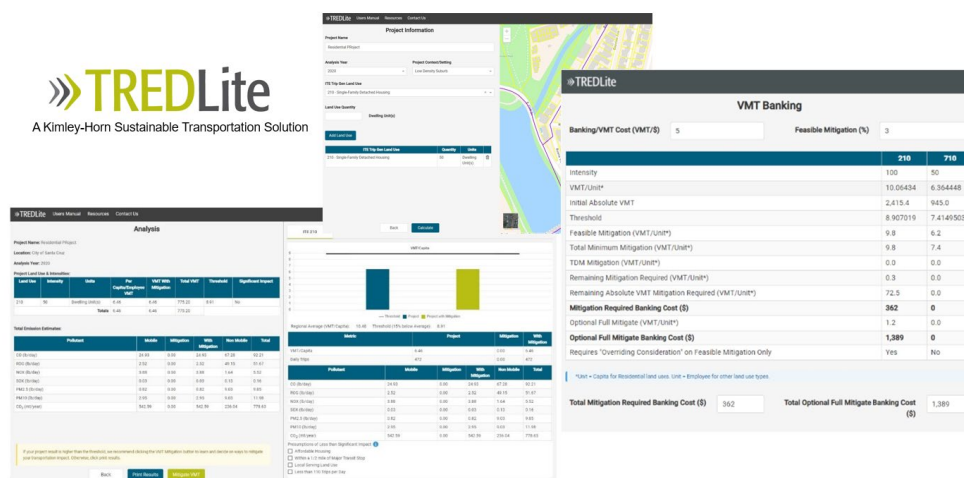
Previous TPPS discussions about incorporating VMT were constrained by model limitations. That constraint has now been substantially reduced. CVAG has the technical capacity to meaningfully integrate VMT into project scoring and regional programming.

CEQA Implementation Tools

The study developed several tools to support CEQA implementation and regional planning.

TREDLite is a parcel-level VMT screening and mitigation tool that improves predictability for both agencies and applicants. TREDLite is easy to use and configured to be CEQA compliant using recognized best practices for quantification of VMT reductions.

Exhibit 2 – TREDLite Dashboard



This project resulted in agency specific environmental documentation in the form of **model Supplemental Environmental Impact Report Templates** which allows jurisdictions to adopt VMT



thresholds through General Plan amendments and tier future development projects reducing cost, time, and litigation risk.

An online **TDM Toolbox and Calculator** resource was developed with over 75 strategies, linking:

- VMT reduction potential
- Equity considerations
- Funding sources
- Cost implications
- Quantification methodologies

This toolbox supports climate action planning, General Plan updates, grant competitiveness, and CEQA mitigation.

Exhibit 3 - Online CVAG TDM Toolbox



Integrating VMT into Regional Funding

The study evaluated how VMT can be incorporated into CVAG's core funding and programming tools. Three scalable approaches were analyzed:

Option 1: Add VMT as a TPPS Scoring Metric (Incremental Integration)

VMT can be incorporated into the TPPS ranking framework as an additional performance measure.

Finding:

With the updated model and newly developed off-model quantification tools, CVAG now has the analytical foundation to score projects based on their VMT impacts. This approach strengthens alignment with SB 743 and climate goals while preserving the existing TPPS structure.

Option 2: Replace Trip-Based TUMF with a VMT-Based Fee (Structural Adjustment)

The study recalculated the TUMF using both:

- Trip-based methodology (current structure)
- VMT-based methodology (distance-based approach)

Finding:

Shifting to a VMT-based fee changes how costs are distributed across land uses:

- Office and industrial uses (longer average trip lengths) see higher fees
- Retail (shorter trips and pass-by behavior) sees lower fees
- Residential uses see moderately higher fees, but lower than office and industrial increases.

A VMT-based approach is recommended as it strengthens the nexus between development impacts and system performance and better aligns fees with actual travel behavior.

Option 3: Develop a Net VMT-Neutral TPPS Project Portfolio (Comprehensive Shift)

Under this approach, the overall TPPS project list would be evaluated to balance capacity-enhancing projects with multimodal and demand-reducing investments.

Finding:

This approach represents a broader policy shift and would require extremely large packages of multimodal investments to offset capacity increasing projects for a net neutral plan. A more practical and incremental approach is to move towards a reduction of induced demand with transit and other multimodal investments, creating a pathway toward long-term regional VMT stabilization while maintaining mobility.

Regional VMT Mitigation Program

The study evaluated the feasibility of a Regional VMT Mitigation Program designed to provide standardized CEQA mitigation options across the Valley.



Several key lessons emerged:

1. **Market Timing Matters.**

Current development patterns do not yet produce a steady pipeline of projects that would sustain a fully regionalized mitigation bank. However, significant specific plan areas, particularly east of I-10 and in northern portions of the Valley, are positioned for future buildout. As those areas develop, demand for predictable, programmatic mitigation will increase.

2. **Induced Travel from Major Roadway Projects Is a Near-Term Consideration.**

Even in the absence of high development volume, corridor and capacity improvements may generate induced demand and related increases in VMT. A regional framework provides a mechanism to address those impacts proactively.

3. **Program Structure Must Be Flexible.**

Multiple models were evaluated (mitigation bank, exchange system, hybrid approaches). The most viable path forward may be phased; establish administrative and analytical frameworks now and tie future activation to market conditions.

4. **Predictability Benefits Economic Development.**

Even before full implementation, establishing a regional framework signals certainty to the development community and reduces project-by-project negotiation risk.

The study concludes that while immediate activation may not be necessary, preparing the framework now positions CVAG to respond strategically as growth accelerates.

Equity as a Core Principle

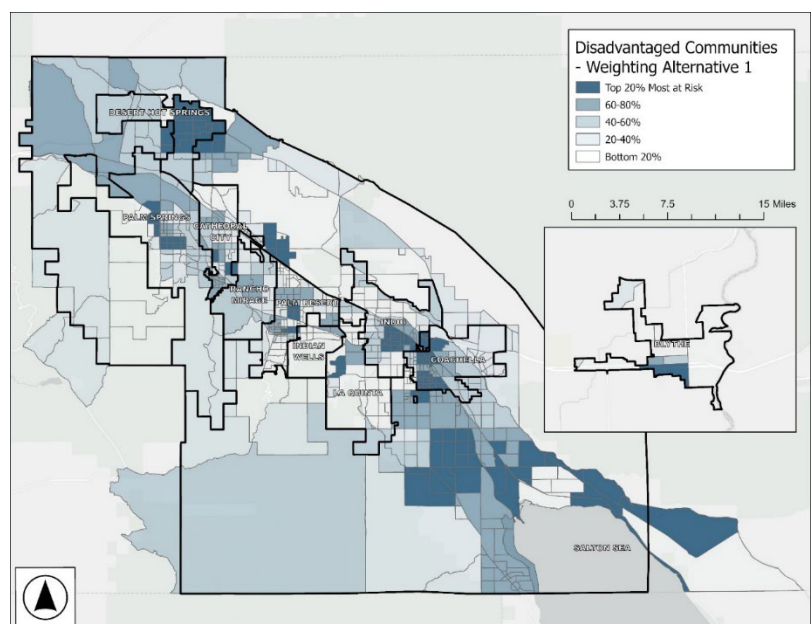
The study developed a locally tailored Disadvantaged Communities (DAC) methodology that integrates region-specific indicators using local and Census based datasets.

This ensures that:

- Transportation investments support communities with the highest need
- VMT reduction strategies improve access to opportunity
- Regional funding decisions advance equity goals

Equity is embedded in the prioritization framework, not treated as an afterthought.

Exhibit 4 - CVAG Disadvantaged Communities





Public Outreach and Community Insights

Public engagement was extensive and included:

- Local Advisory Committee coordination
- Stakeholder interviews and workshops
- Community pop-up events
- A statistically valid regional survey

The survey provided important insight into what types of investments are most likely to shift travel behavior in the Coachella Valley. Key findings included:

Safety is the top priority. Lighting, shading, and improved pedestrian environments were the strongest factors influencing willingness to shift modes.

Walking is the most appealing non–drive-alone mode. Investments in safe, comfortable pedestrian infrastructure are likely to generate measurable mode shift.

Subsidized microtransit and shuttle services are attractive. Flexible, lower-cost transit options resonated more strongly than traditional fixed-route expansions.

These findings informed the VMT reduction toolbox, project list development, and prioritization framework.

What This Study Means for CVAG

This study provides:

- An updated regional travel demand model
- Defensible VMT thresholds
- Practical CEQA streamlining tools
- Quantified multimodal investment strategies
- A framework to evolve TUMF to VMT based fees
- A pathway to integrate VMT into TPPS
- A foundation for a future Regional VMT Mitigation Program

The study provides the analytical foundation and policy options needed to align transportation investment with economic development, climate action, equity, and regional mobility goals while also supporting a move towards performance-based decision-making alongside ongoing CEQA compliance obligations.

Exhibit 5 - Pop-up Event Activities

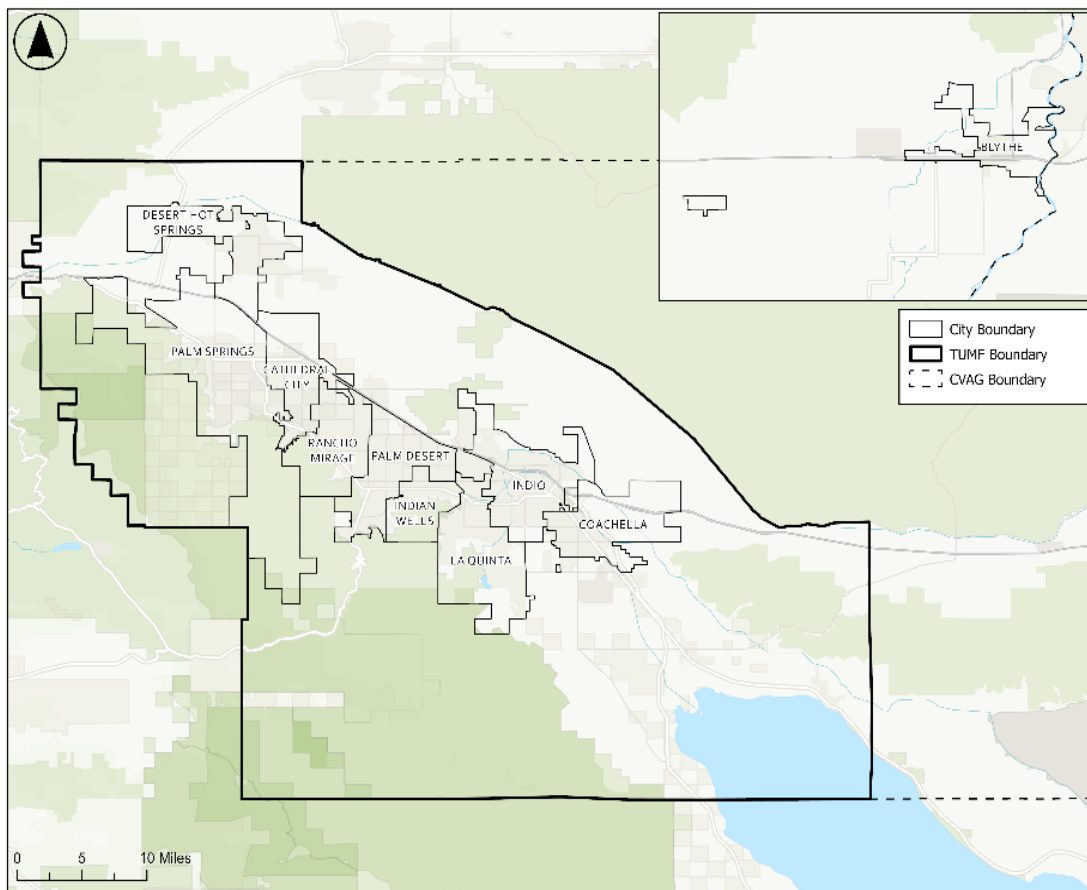




Introduction

In the Coachella Valley, the Coachella Valley Association of Governments (CVAG) plays a central role as the regional planning agency, with programs relating to transportation, environmental sustainability, and infrastructure development, among other regional needs. CVAG administers the Coachella Valley Transportation Uniform Mitigation Fee (TUMF) program, which funds critical roadway and infrastructure improvements guided by the Transportation Project Priority Study (TPPS), and manages key regional initiatives such as the CV Link, a multi-modal pathway designed for pedestrians, cyclists, and low-speed electric vehicles, and CV Sync, a Valley-wide intelligent transportation system. Transportation and air quality planning across the broader Riverside County region are managed in coordination with a range of partner agencies, including the Riverside County Transportation Commission (RCTC), the Southern California Association of Governments (SCAG), and the South Coast Air Quality Management District (SCAQMD), each of which plays a role in shaping the transportation context within which CVAG operates.

Exhibit 6 - Project Study Area





The implementation of Senate Bill (SB) 743 has fundamentally changed the context in which CVAG and its member agencies plan for transportation. By shifting the measure of transportation impact from vehicle delay and Level of Service (LOS) to Vehicle Miles Traveled (VMT), SB 743 requires a different way of thinking about where development happens, how people travel, and what investments are needed to maintain a functional and equitable transportation system. Coachella Valley's distinct character, including its desert climate, dispersed communities, and ongoing investment in transit and active transportation infrastructure, shapes both the challenges and the opportunities that come with this transition. Navigating it effectively requires both technical rigor and a clear understanding of local conditions.

In 2024, CVAG received Regional Early Action Planning Grant (REAP) 2.0 funding to support the Coachella Valley Regional Vehicle Miles Traveled Study. The study was designed to analyze how best to integrate VMT into CVAG's major regional planning and funding programs while providing practical resources for local planning and California Environmental Quality Act (CEQA) compliance. Its objectives include providing consistent VMT accounting across jurisdictions, identifying the most suitable Transportation Demand Management strategies for the valley, identifying pathways for integrating VMT metrics into CVAG's regional arterial and fee programs, and ensuring that transportation investments reflect the needs and priorities of all communities in the region, including those that have historically been underserved.

Equity is a central principle of this study, not a supplementary consideration. The Coachella Valley's geography, demographics, and land use patterns mean that the communities most reliant on alternatives to driving are often the same communities that have the least amount of access to transit, active transportation, and pedestrian infrastructure. Addressing that imbalance required both a locally tailored methodology for identifying disadvantaged communities and a robust public engagement program designed to reach residents who are rarely represented in conventional planning processes. Both efforts are described in detail in this report and are reflected throughout the analysis.

This report provides the analytical foundation and implementation resources that CVAG and its member agencies need to move forward with VMT mitigation in a coordinated and regionally responsive way. It documents existing conditions and policy context, examines programmatic approaches to VMT mitigation from across California, evaluates legal and economic considerations, and applies all of these concepts to the specific conditions of the Coachella Valley. The findings and tools presented here are intended to support a wide range of planning, regulatory, and funding decisions, from project-level CEQA compliance to long-term updates to the TUMF and TPPS.

This report is organized into multiple parts. The first chapter establishes the policy and analytical context for VMT in the Coachella Valley, including statewide guidance, regional conditions, and the drivers of VMT from both land use and transportation investments. The following chapter introduces the regional and local agencies that play a part in implementing policies to reduce VMT. A dedicated chapter on equity and community engagement describes the locally tailored disadvantaged communities methodology and the public outreach program conducted as part of this study. The report then examines programmatic approaches to VMT mitigation, including fee-based programs and examples from across California, including an evaluation of legal and policy considerations that shape implementation. Building on this foundation, the report applies these concepts to the Coachella Valley, assessing opportunities to

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incorporate VMT into regional planning, funding mechanisms, and project prioritization frameworks. The report concludes with recommendations and a summary of the study's findings and deliverables.

Several technical memoranda and supporting studies were prepared as part of this effort and are referenced throughout this report. These materials are included as separate appendices to provide additional documentation, methodology, and supporting analysis.



Background on VMT

SB 743 fundamentally changed how transportation impacts are assessed for proposed projects, including both land use developments, such as housing, and transportation projects, such as roadway expansions. The bill shifts the focus from vehicle delay and LOS to evaluating the VMT generated by a project, emphasizing regional impacts and greenhouse gas emission reduction goals over localized congestion.

Before SB 743, transportation impacts were primarily measured using LOS, a standard introduced in the first Highway Capacity Manual (HCM) in 1950. LOS focuses on vehicle travel speed and throughput, assessing how easily cars can move through intersections or along roadways. However, this approach prioritizes personal vehicle use over other modes of travel, such as biking, walking, and public transit. Since LOS centers on the driver's experience and the value of their time, common solutions to improve LOS include:

- **Increasing Roadway Capacity:** Adding lanes or building new roads to reduce congestion.
- **Building in Less Populated Areas:** Developing projects in rural or undeveloped areas to avoid congestion, leading to urban sprawl and increased greenfield development.

Over seven editions of the HCM, LOS became deeply ingrained in transportation decision-making. Yet, this focus on vehicle throughput has been linked to negative outcomes, including:

- **Induced Demand:** As roads are widened and lane supply is therefore increased, the demand also increases causing congestion to return.
- **Urban Sprawl:** Encouraging development far from city centers.
- **Adverse Effects on Active Transportation:** Discouraging biking, walking, and public transit.
- **Roadway Safety and Public Health Issues:** Prioritizing vehicles can lead to more dangerous conditions for non-motorized users and increased air pollution.

SB 743 seeks to reverse these trends by adopting VMT as the primary measure of transportation impact. VMT evaluates the total distance traveled by vehicles, offering a more comprehensive understanding of how a project affects the transportation system and the environment. Key objectives of the VMT-based approach include:

- **Promoting Urban Infill Development:** Projects in urban areas generally result in lower VMT due to proximity to jobs, services, and other key destinations.
- **Reducing Greenhouse Gas Emissions:** By focusing on VMT reduction, SB 743 aligns with California's broader climate goals.
- **Encouraging Sustainable Transportation:** VMT analysis promotes the use of public transit, biking, and walking, leading to healthier and more sustainable communities.

As this shift from LOS to VMT occurred, it highlighted the lack of practical, cost-effective mitigation options for suburban and rural projects. Many previously utilized LOS mitigations do not align with VMT

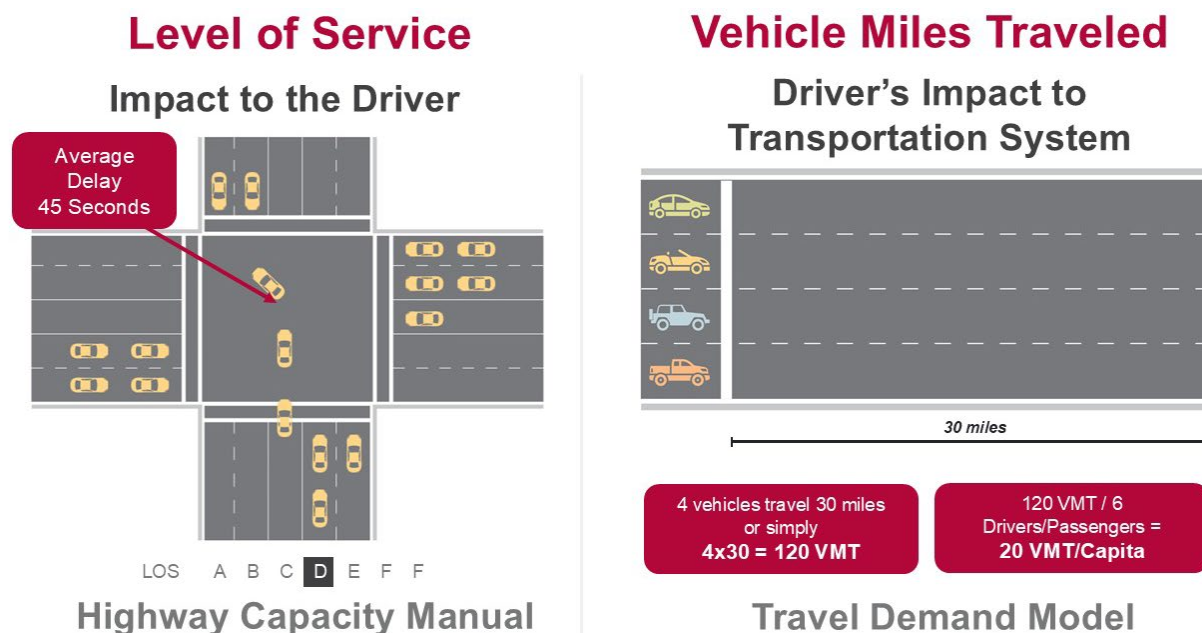


reduction goals. This change has led to very different outcomes for transportation analyses under CEQA and necessitated novel mitigation approaches.

How VMT is Measured

Exhibit 7 summarizes the key differences between LOS and VMT, highlighting how SB 743 reshapes transportation planning in California. VMT is calculated exactly as the term sounds: the sum of the number of miles traveled by each vehicle in a system.

Exhibit 7 – Level of Service vs. Vehicle Miles Traveled



When evaluating whether a project causes a significant transportation impact under CEQA, the project must be compared to a threshold of significance established by the governing jurisdiction. There are two main types of thresholds:

- **Efficiency Thresholds:** These measure VMT relative to a specific factor, such as VMT per capita (for residential projects) or VMT per employee (for office projects). This allows projects of varying sizes to be consistently evaluated against a single standard.
- **Net Change Thresholds:** These assess whether a project results in a net increase or decrease in regional VMT. This approach is often used for retail or customer-serving developments, which may not generate new trips but can influence trip lengths. In such cases, it's more appropriate to evaluate how the project's location affects regional VMT.



Example: Evaluating a Residential Project Using VMT

Exhibit 8 illustrates how a residential project is assessed using a VMT efficiency threshold. Here's how the process works:

1. Calculate Total VMT: Each trip made by the household is measured, including both outbound and return trips.
 - Trip to child's school: 7 miles round trip
 - Trip to work: 8 miles round trip
 - Trip to the store: 15 miles round trip

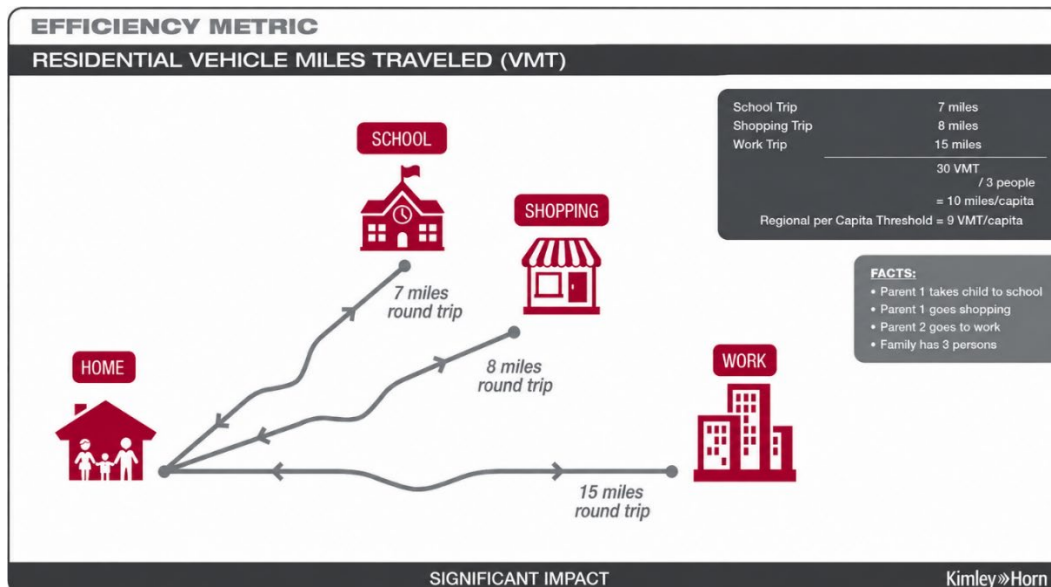
Total daily VMT: $7 + 8 + 15 = 30$ miles

2. Determine VMT per Capita:
The household has 3 people, so VMT per capita is calculated by dividing the total VMT by the household size:

VMT per capita = $(30 \text{ miles} / 3 \text{ people}) = 10$ VMT per capita

3. Compare to the Threshold:
If the jurisdiction's threshold for residential projects is set at 9 VMT per capita, this project would trigger a CEQA transportation impact, since its VMT per capita (10) is less efficient than the threshold.

Exhibit 8 – Vehicle Miles Traveled Residential Project Example





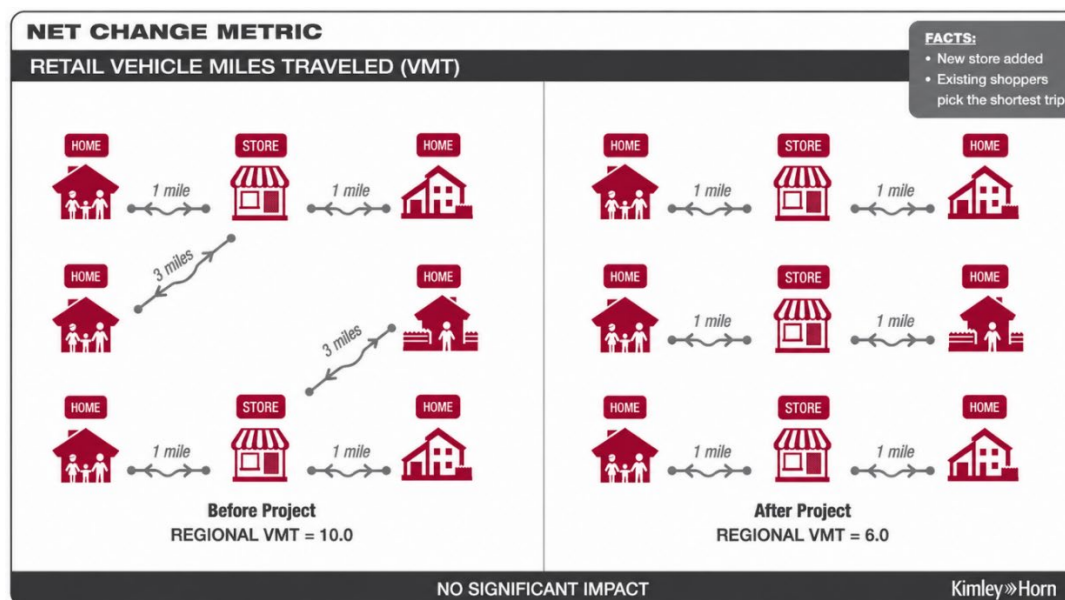
When evaluating VMT for retail projects, it's important to distinguish between regional retail (e.g., Lowe's, Target) and local-serving retail (e.g., coffee shops, restaurants, gas stations).

Local-serving retail primarily meets preexisting demand and typically does not generate new trips. Instead, it is assumed to reduce trip lengths because customers are likely to visit the new, closer store instead of traveling to a similar store farther away. For example, if a new coffee shop opens near a residential area, residents who previously drove several miles to another coffee shop may now make a shorter trip. This results in shorter trips on the roadway network.

In contrast, regional retail stores are designed to attract customers from a broader geographic area. These stores may offer benefits such as cost savings, a wider selection of products, or the ability to consolidate multiple types of shopping in one trip. Because of these factors, regional retail is not presumed to reduce trip lengths. Instead, it may draw new trips from across the region, potentially increasing overall VMT.

Exhibit 9 visually explains this concept. It shows how a new local-serving retail store redistributes existing customer trips, leading to shorter average trip distances and a reduction in VMT. For example, if a new store opens closer to a residential neighborhood, the average trip length might decrease from 3 miles to 1 mile, as customers opt for the more conveniently located option.

Exhibit 9 – Effect of Local-Serving Retail on Regional Vehicle Miles Traveled



Measuring VMT in the Coachella Valley

In support of this study, the Riverside County travel demand model (RIVCOM 4.0.1) was updated to develop a subarea model for the CVAG planning area. RIVCOM is the regional forecasting tool used throughout Riverside County for transportation planning, impact analysis, and programs such as the TUMF. The model base year was advanced from 2018 to 2023 to reflect post-pandemic travel behavior and updated land use conditions. Updates included revised household, employment, and school



enrollment data using American Community Survey data, local permit records, and agency input, as well as refinements to traffic analysis zones to better reflect conservation areas and current development patterns. The horizon year land use assumptions were also updated based on member agency input, housing element opportunity sites, and adopted specific plans. Following the updates, the model underwent validation using observed traffic volumes from Caltrans PeMS and StreetLight data and was found to perform consistently with the previously validated regional model. The updated model provides the analytical foundation for the VMT thresholds, mitigation estimates, and project evaluations presented throughout this study. More information on the work to update RIVCOM is provided in the “VMT Mitigation Strategies and Regional Program Integration” chapter below and Appendix E.

State Guidance

The State of California office of Land Use and Climate Innovation (LCI) published guidelines for the implementation of VMT thresholds to comply with SB 743. The [Technical Advisory on Evaluating Transportation Impacts in CEQA](#) provides recommendations for setting VMT thresholds of significance, methods for screening projects, and other technical considerations. Many local jurisdictions, including some within the Coachella Valley, have used this Technical Advisory as the basis for setting thresholds and reviewing projects for transportation impacts under CEQA. While the Technical Advisory provides detailed guidance for land use projects and overarching guidance for transportation projects, Caltrans was tasked with preparing more specific guidance for transportation projects, specifically those on the State Highway System (SHS).

Prior to the implementation of SB 743, Caltrans evaluated projects based on the potential increase in traffic in the immediate area. However, SB 743 prompted a change in the way the state measures the impacts of new development and transportation projects. Projects are now evaluated using VMT to analyze both the number of car trips generated and total length of those trips, giving a more regional analysis of a project’s impact rather than a localized analysis. Caltrans provides several resources for developers, local governments, and others seeking information on how to analyze projects in compliance with SB 743.

Land Use Generated VMT

The amount of VMT a development produces is largely dependent on the location and the surrounding land uses. A development built in a denser urban area will naturally generate short trip distances for discretionary trips, such as shopping or recreational purposes. Land use is a primary driver of VMT, so the most effective mitigations for VMT are rooted in land use strategies.

When determining if a new development results in a transportation impact under CEQA, the project must be compared to a threshold of significance, which is determined by the jurisdiction or lead agency. Two types of thresholds are used: efficiency thresholds and net change thresholds. Efficiency thresholds are typically used for residential and employment-based land uses and are expressed as VMT per capita and VMT per employee. Net change thresholds are typically used for retail land uses or customer-based land uses. **Table 1** below presents the efficiency thresholds for each of CVAG’s member agencies. Many of the agencies within the Coachella Valley are using the same thresholds, which were originally prepared and adopted by the County of Riverside. However, some agencies are following the methodology that was recommended by LCI in their Guidelines.



Table 1 – VMT Efficiency Thresholds²

	VMT per Capita	VMT per Employee
Blythe	21.96	30.57
Cathedral City	21.96	30.57
Coachella	21.96	30.57
Desert Hot Springs	21.96	30.57
Indian Wells	18.67	25.98
Indio	21.96	30.57
La Quinta	15.98	25.98
Palm Desert	21.96	30.57
Palm Springs ¹	39.14	39.14
Rancho Mirage	18.67	25.98
Riverside County	21.96	30.57

¹Palm Springs Local Methodology based on origin-destination VMT per service population

²See Table 7 – Current Threshold Methodologies which describes the methodologies.

VMT Mitigation Need from Land Use

The adopted VMT guidelines for each CVAG jurisdiction were used to evaluate the amount of modeled VMT that exceeds adopted thresholds under existing and horizon year conditions in the updated sub-regional model. This analysis is intended to illustrate the potential scale and geographic distribution of VMT exceedance across the region rather than quantify actual project-level mitigation obligations under CEQA. In practice, many development projects screen out of detailed VMT analysis or are determined to have a less-than-significant transportation impact through existing screening criteria, including the County of Riverside's small project greenhouse gas threshold and county-average threshold methodology.

This analysis was completed using Traffic Analysis Zones (TAZs), which are geographies within the regional travel demand model that are used to evaluate travel behavior and are similar in size to Census Blocks.¹ The TAZs within each jurisdiction that demonstrated VMT above the applicable threshold were identified, and the difference between the modeled VMT and the applicable threshold was multiplied by the associated population or employment to estimate the magnitude of VMT exceedance within that TAZ. The results were then totaled for each jurisdiction to provide a regional-scale understanding of where modeled VMT exceedance is concentrated.

In the base year (2023), the model identifies a total of 803,247 home-based-residential VMT and 1,035,164 home-based-work VMT above the applicable significance thresholds. The model forecasts 891,911 home-based-residential VMT and 865,707 home-based-work VMT above the thresholds for the horizon year (2050).² **Table 2** and **Table 3** show the amount of VMT over the threshold by CVAG

¹ For more information on the regional travel demand model and updates made as part of this project see "Travel Demand Model Update Technical Documentation" prepared for the Coachella Valley Regional Vehicle Miles Traveled (VMT) Study, January 2026.

² There were two horizon year scenarios developed for this project: a 2045 unconstrained scenario that was based on General Plans and Specific Plans and a 2050 constrained scenario that capped growth based on the SCAG

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member agency for the base year and horizon year, respectively. This analysis is useful because it provides a regional-scale understanding of where modeled travel patterns are associated with longer trip distances and higher VMT, helping identify the geographic areas and land use patterns where future VMT-reduction strategies, multimodal investments, or mitigation programs may be most effective. This topic is further addressed in the *VMT Mitigation Strategies and Regional Program Integration* chapter.

Table 2 – Base Year VMT Over Agency Thresholds

	Residential VMT	Employment VMT
Blythe	6,038	12,727
Cathedral City	36,728	67,964
Coachella	11,283	19,227
Desert Hot Springs	104,244	74,139
Indian Wells	163	13,094
Indio	23,767	71,194
La Quinta	119,704	46,512
Palm Desert	3,155	80,564
Palm Springs	64,489	392,864
Rancho Mirage	7,661	125,948
Unincorporated CVAG	426,016	130,930
CVAG Total	803,247	1,035,164

Table 3 – Horizon Year VMT Over Agency Thresholds

	Residential VMT	Employment VMT
Blythe	45,249	9,481
Cathedral City	5,251	45,692
Coachella	17,544	13,255
Desert Hot Springs	144,797	73,721
Indian Wells	0	4,298
Indio	24,224	18,604
La Quinta	133,834	15,547
Palm Desert	0	24,873
Palm Springs	46,014	415,729
Rancho Mirage	3	128,826
Unincorporated CVAG	474,994	115,680
CVAG Total	891,911	865,707

demographic forecasts. The figures cited here are from the constrained scenario. For more information refer to the "Travel Demand Model Update Technical Documentation" included as an Appendix to this report.



Transportation Project Generated VMT

In addition to development-driven VMT, transportation projects themselves can generate increases in vehicle travel that may require mitigation under CEQA. Capacity-enhancing investments, particularly on regional corridors and major arterials, can reduce travel time and cost, which may lead to additional trips, longer trip distances, or shifts in travel behavior over time. These changes, commonly described as induced demand, create a project-generated VMT impact that is distinct from the VMT associated with land development.

As the region advances updates to the TPPS and considers future transportation investments, it is important to evaluate whether certain projects could result in measurable increases in VMT and whether mitigation strategies may be warranted. This need is likely to vary depending on project type, scale, and location, as well as the level of congestion relief and accessibility changes introduced. In some cases, capacity projects may require programmatic mitigation approaches or offsetting investments—such as multimodal improvements, transportation demand management strategies, or land use coordination—to address induced travel. The following sections describe the policy context, analytical tools, and methodologies used to assess transportation project-generated VMT and to determine where mitigation may be appropriate.

Caltrans Guidance for Transportation Project Analysis

The Caltrans Transportation Analysis Framework (TAF) and Transportation Analysis Under CEQA (TAC) are tools that guide planning and environmental review in California for transportation facilities. The TAF provides methods and data to evaluate how transportation projects impact travel behavior, greenhouse gas (GHG) emissions, and VMT. The TAC focuses on meeting the requirements of CEQA, which mandates evaluating and minimizing environmental impacts from projects. Together, these tools ensure that transportation planning follows state laws, reduces emissions, and promotes sustainable development. **Exhibit 10** is reproduced from the current TAC Second Edition (September, 2025) and demonstrates the relationship between the two documents as they relate to analyzing transportation impacts.

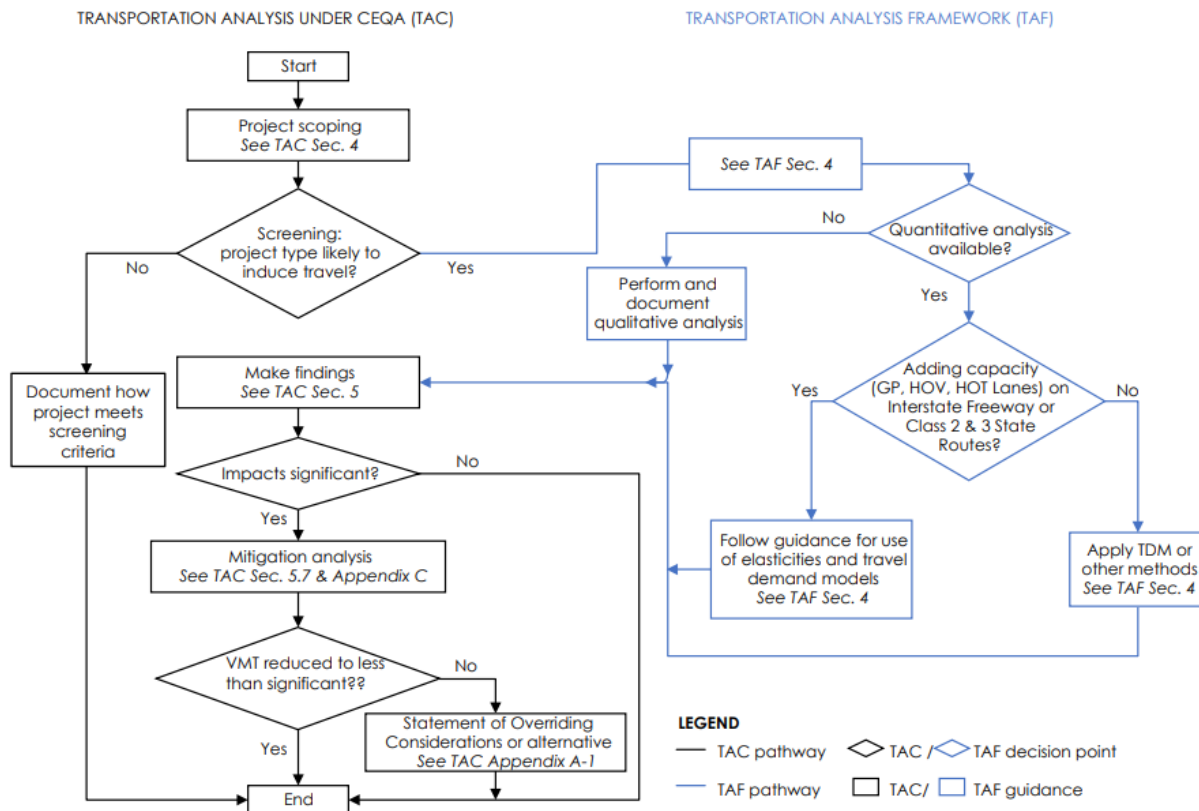
Governor Gavin Newsom signed Executive Order N-2-24 on July 31, 2024. The Executive Order directed Caltrans to actively identify and pursue opportunities to align transportation investments with the State's climate and housing goals. Specifically, Caltrans is tasked with leveraging transportation funding and project delivery to support infill housing, particularly affordable infill housing, as a recognized environmental mitigation strategy. To implement this, Caltrans must publish clear guidance on incorporating affordable infill housing as a mitigation measure within its TAC framework. This guidance should outline how such housing can reduce VMT and related GHG emissions, thereby helping projects achieve CEQA compliance through more sustainable land use patterns. Additionally, Caltrans is required to monitor, track, and report on the application of this strategy at the project level to ensure accountability, measure effectiveness, and promote consistent implementation across the state.

The updated draft TAC incorporated the directives from Executive Order N-2-24, which emphasizes the use of affordable infill housing as a strategy to mitigate environmental impacts. The TAC Second Edition acknowledges the importance of such strategies. Specifically, the guidelines note that "the most cost-effective [mitigation] measures... include transit-oriented development, transportation demand management, and VMT-efficient housing projects." Additional bills have since been enacted to establish



a statewide mitigation program that funds the development of affordable housing as a mitigation measure. Those bills and the impact on regional agencies such as CVAG are described further in the “Legal Considerations” section of this report.

Exhibit 10 - Relationship Between the TAF and TAC³



Induced Demand

A key aspect of VMT analysis is determining whether a transportation improvement could induce additional vehicle travel—commonly referred to as “induced demand.” Induced demand occurs when reduced travel times, most often resulting from capacity improvements, encourage additional vehicle trips, potentially increasing VMT, GHG emissions, and other pollutants. Given California’s legislative priority to reduce VMT and GHG emissions as part of its climate change mitigation strategy, induced demand has become a critical consideration in evaluating transportation projects, particularly those involving capacity enhancements.

³ California Department of Transportation. (2025). *Transportation analysis under CEQA* (2nd ed.): *Evaluating transportation impacts of State Highway System projects*. State of California.

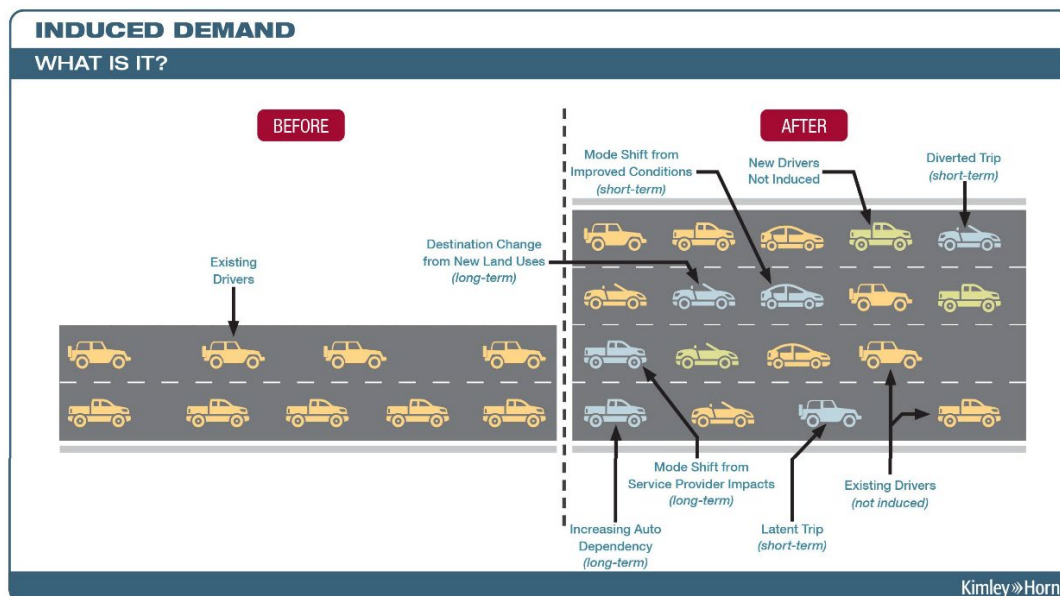


Additional vehicle trips are induced in the short term, one to three years after the improvement is constructed, or long term, more than three years after the improvement is constructed. The types of trips that are induced by each type of induced demand include:

- Short-term (1 – 3 years)
 - Mode shift from improved conditions (additional capacity provides a quicker route compared to alternate modes such as transit)
 - Trips diverted from adjacent roadways (additional capacity provides a quicker route than adjacent roadways even if trips are longer by distance)
 - Latent trips (quicker trips means a latent demand can be satisfied that was previously suppressed by the prior travel time)
- Long-term (3+ years)
 - Increasing auto dependency (investment in auto infrastructure encourages its reliance as compared to other travel options)
 - Mode shift due to service provider impacts (investment in auto infrastructure leads to less investment in other modes)
 - Destination changes from new land uses (the increased capacity leads to additional land use being located along a roadway leading to changes in destinations)

Exhibit 11 shows the various ways travel demand may be induced by capacity increases.

Exhibit 11 - What is Induced Demand?





NCST Calculator

The National Center for Sustainable Transportation (NCST) developed the California Induced Travel Calculator (“NCST Calculator”) to estimate the VMT induced annually as a result of expanding the capacity of publicly owned roadways, like those managed by the Caltrans, in California’s urbanized counties. The NCST Calculator applies only to publicly owned facilities with FHWA functional classifications of 1, 2, or 3. These functional classifications correspond to interstate highways (Class 1), other freeways and expressways (Class 2), and other principal arterials (Class 3). The NCST Calculator can be found here: <https://travelcalculator.ncst.ucdavis.edu/>.

The NCST Calculator was developed to provide an evaluation mechanism to estimate induced demand. In general, the studies that underly the development of the NCST Calculator show that a 10-percent increase in capacity is likely to increase network-wide VMT by 7 to 10-percent (an elasticity of 0.7 to 1.0) in the long run (3+ years), for capacity expansions on major roadways with FHWA functional classifications of 1, 2, or 3. These longer-term elasticities account for shorter-term shifts in travel (as people take advantage of the increased capacity and reduced cost of vehicle travel by driving more), as well as longer-run growth and dispersion of residential and business location and development.

The NCST Calculator estimates induced VMT using the following equation:

$$\text{Induced VMT} = \left(\frac{\text{New Lane Miles}}{\text{Total Existing Lane Miles}} \right) * \text{Existing VMT} * \text{Elasticity}$$

Rural Induced Demand Study⁴

The Rural Induced Demand Study evaluates the appropriateness of applying existing VMT guidance to rural contexts, particularly for analyzing induced demand. The study finds that many current tools, such as the NCST Calculator, are designed with urban conditions in mind and may overstate induced VMT in rural areas where congestion and latent demand are minimal or absent. In rural settings, highway improvements often prioritize safety, goods movement, and emergency evacuation over congestion relief, making urban-centric analysis tools ill-suited for these contexts.

The literature and methodological review reveal that state guidance frequently relies on elasticity-based models grounded in urban data, which limits their relevance to rural and suburban projects. Many induced demand studies also fail to account for important rural-specific factors, such as land development constraints and labor force characteristics. The NCST Calculator, for example, estimates induced demand based on lane miles rather than travel time savings, potentially overstating impacts in areas where congestion relief is not a major outcome. Furthermore, project-level analyses may overestimate induced VMT by counting entire trips that have simply shifted from other parts of the network, instead of focusing on the net change in VMT attributable to the project.

To address these limitations, the Rural Induced Demand Study recommends avoiding aggregate elasticity-based tools like the NCST Calculator for project-level CEQA evaluations in rural areas. It advocates screening projects to determine whether key conditions, such as significant congestion or travel time savings of at least 15 minutes, are present before estimating induced VMT. The study also calls for improvements to guidance documents like Climate Action Plan for Transportation Infrastructure

⁴ California Rural Counties Task Force. (2025, February). *Rural induced demand study*.



(CAPTI) and Regional Transportation Plan (RTP) Guidelines to incorporate rural-specific considerations, including model validations that reflect regional dynamics.

Enhancements to the NCST Calculator are also proposed, including the integration of context-sensitive elasticity values, the use of big data for latent demand estimation, and regular tool validation based on real-world outcomes. Within the context of the NCST, much of the Coachella Valley functions as a rural environment, with major interstates and highways largely located at the periphery of its jurisdictions rather than serving dense, congested cores. As a result, the findings of this study are particularly relevant to CVAG, providing a basis to support potential adjustments or reductions in estimated induced VMT where projects do not meet typical urban conditions for induced demand.

Induced Demand in Coachella Valley

The TPPS was developed to provide CVAG with an objective method for identifying and ranking regional transportation improvement projects to help inform funding decisions. The study area covers roadways across the nine incorporated cities and unincorporated areas of Riverside County. The outcome of the TPPS is a list that represents the universe of identified regional transportation needs and their relative priority.

Table 4 provides a list of currently funded agency-led projects in the 2018 TPPS that are potential candidates for induced demand. These projects involve improvements that increase capacity through the addition of new lanes or the construction of new interchanges and would be subject to SB 743 requirements as the environmental documentation was not completed prior to the deadline for implementing VMT into transportation analysis metrics under CEQA.

To quantify the magnitude of induced travel demand associated with these projects, the NCST Calculator is used. The Calculator is limited to roadways classified under FHWA functional classes 1–3 (interstates, other freeways and expressways, and other principal arterials), so only the capacity increasing projects that meet this criterion are quantitatively assessed for induced VMT.

Table 4 – Potential Induced Demand Causing Projects from TPPS

Agency	Project Name	Added Capacity [miles]	Induced VMT [million VMT/year]	Induced VMT [thousand VMT/day]
Riverside County	Portola Ave I-10 Interchange	2.59	7.3	20.0
Indio	Golf Center Parkway & I-10 Interchange	0.95	2.7	7.4
Indio	Jefferson St widening from Ave 38 to Sun City Blvd.	0.52	1.5	4.1

As noted above, the NCST Calculator may overstate VMT impacts in rural areas. Therefore, it is highly recommended that as each project approaches environmental review the lead agency consider the recommendations from the Rural Induced Demand Study.

While understanding the magnitude and drivers of VMT in the Coachella Valley is essential, the ability to address these impacts depends on the agencies responsible for planning, funding, and implementing



transportation and land use strategies. The following chapter outlines the institutional landscape that governs SB 743 implementation and VMT reduction efforts across the region.



Institutional Landscape for SB 743 and VMT Reductions

The implementation of SB 743 and the transition to VMT as the primary transportation impact metric under CEQA has introduced new roles and responsibilities across multiple levels of government. Unlike traditional LOS-based analysis, which was largely addressed at the local project level, VMT reduction and GHG mitigation require coordination across jurisdictions, agencies, and planning frameworks that operate at local, regional, and state scales.

In the Coachella Valley, this institutional structure is complex. A wide range of agencies including local jurisdictions, regional planning bodies, subregional planning agencies, state transportation agencies, transit providers, and air quality districts each play distinct but interconnected roles in shaping transportation outcomes. These entities are responsible for establishing VMT thresholds, reviewing projects under CEQA, funding and implementing infrastructure, and advancing policies that influence travel behavior and land use patterns.

Understanding this institutional landscape is critical to identifying feasible pathways for VMT mitigation. The ability to implement effective mitigation strategies depends not only on the technical tools available, but also on how responsibilities are distributed across agencies and how those agencies coordinate planning, funding, and implementation. The following sections describe the key agencies involved in SB 743 implementation within the Coachella Valley and their respective roles in advancing VMT reduction and GHG mitigation.

Regional Agencies

The Western Riverside Council of Governments (WRCOG) is CVAG's counterpart for Western Riverside County with similar responsibilities. The Riverside County Transportation Commission (RCTC) oversees countywide transportation planning, funding, and project implementation, including highways, public transit, and commuter rail. The Southern California Association of Governments (SCAG) develops long-range transportation plans and sustainability strategies as the metropolitan planning organization (MPO) for the region. Air quality oversight is managed by the South Coast Air Quality Management District (SCAQMD) and the Mojave Desert Air Quality Management District (MDAQMD), which enforce regulations and programs to reduce emissions and improve air quality. Additionally, the California Department of Transportation (Caltrans) District 8 oversees state highway operations and maintenance. Together, these agencies collaborate to address Coachella Valley's unique transportation and environmental challenges, with CVAG playing a key leadership role in shaping regional solutions.

Coachella Valley Association of Governments

CVAG manages several major programs in the Coachella Valley that maintain and improve infrastructure, including the TUMF. The TUMF was established in 1989 under the California Mitigation Fee Act as a one-time impact fee charged on all new developments in the Coachella Valley. Monies collected through the TUMF program are applied to transportation-related capital facilities and infrastructure required to serve new growth in the region and are intended to compliment revenue generated through Riverside County's Measure A sales tax.

Measure A funds are disbursed by RCTC to CVAG for use on highway and regional arterial projects, to municipalities for local streets and roads, and to the Sunline Transit Agency for public transit. CVAG

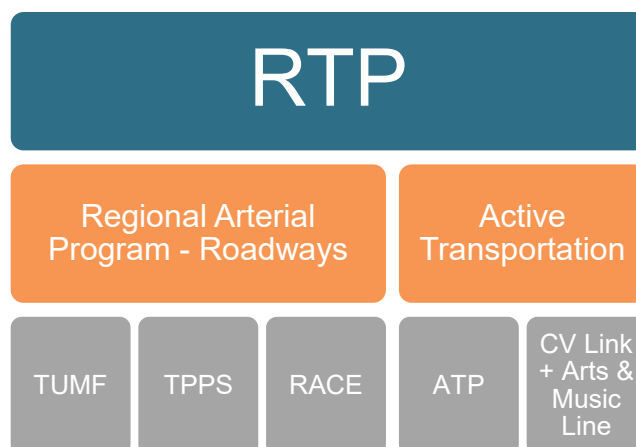


uses its portion of Measure A funding alongside revenues generated by the TUMF program for Regional Arterial System projects. Costs for these projects are shared with member jurisdictions. Participation in the TUMF program is required for local jurisdictions to receive their local share of Measure A funding.

Planning and Funding

CVAG is charged with more than just distributing TUMF funds. As the recognized transportation planning agency, along with RCTC, it is CVAG's responsibility to prepare and adopt a Regional Transportation Plan (RTP) for the Coachella Valley. Responding to the context of the RTP guidelines and California state legislation, CVAG maintains a family of documents that serve as the RTP: the TPPS, the Regional Arterial Cost Estimate (RACE), and the Active Transportation Plan (ATP). These three documents were designed to be updated simultaneously due to their interconnectedness in serving as the region's RTP. In 2014, CVAG's Executive Committee unanimously confirmed an approach that involved integrating ATP projects, such as CV Link, into the overall update of the TPPS. Collectively, the TPPS, RACE and ATP create the summary of needs and priorities for the ultimate regional transportation network used to develop the project list for the TUMF Nexus Study.

The TPPS serves as a methodological ranking system for roadway projects to provide CVAG with direction in determining funding distributions for regional arterials by prioritizing eligible study segments. Projects proposed for the TPPS are considered for inclusion based on how many jurisdictions they traverse, the roadway's general plan classification, the average daily traffic (ADT) along the roadway, whether the roadway includes important river crossings, and their connections with the interstate system. Criteria for ranking the projects in the 2018 TPPS include roadway surface conditions, system continuity, level of service, and accident rates. The TPPS currently does not use VMT as a criterion for ranking projects, but CVAG is currently undergoing a review of the criterion to assess whether it should be included in their next update to the TPPS and may integrate VMT and add other types of criteria for project ranking. After all segments have been analyzed, they are then merged or divided into logical and feasibly constructible buildable projects, and assigned a ranking based on how they are evaluated against the prioritization criteria.



RACE is a methodology used to create planning level cost estimates that are used to determine the approximate amount of funds required to construct each project. The cost estimates include multiple cost elements including the construction costs, right-of-way costs, level of improvement standard, costs related to engineering, design, and construction management, owner's administrative costs, and contingency. The RACE provides cost estimates for all projects in the TPPS and the ATP.

The Regional ATP includes projects for each of CVAG's member agencies and is consistent with other regional planning efforts, including CV Link and the Neighborhood Electric Vehicle (NEV) Plan. Adoption of the Regional ATP by CVAG's member agencies makes them eligible for Caltrans' Active



Transproation Program (Caltrans ATP) funding, as well as allows each agency to meet the requirements of the Complete Streets Act of 2008.

Regional Infrastructure Projects

CV Link is a 40-mile, multi-use pathway in the Coachella Valley. It connects cities from Palm Springs to Coachella, providing a safe and scenic route alternative to Highway 111 for walkers, runners, cyclists, and low-speed electric vehicles.

The Arts and Music Line is a 9-mile bike route that will improve the cycling experience and safety for all users along Avenue 48, between Washington Street and Dillon Road out to the Whitewater River. The route will feature local art, and will connect to local schools, housing, retail, festivals, and employment centers in parts of Coachella, Indio, and La Quinta. The route will also connect to CV Link.



Photo of CV Link

CV Sync is an innovative approach to improving how residents and visitors travel in the Coachella Valley. The project consists of upgrading existing legacy traffic signal controllers, traffic management systems, and communication systems throughout the Coachella Valley with the latest off-the-shelf technologies in order to provide inter-agency traffic signal synchronization. Phase I of the project, now operational, spans three regional roadways: Highway 111, Ramon Road and Washington Street. The project improvements include advanced traffic management systems (ATMS), advanced transportation controllers (ATC), selected Intelligent Transportation System (ITS) elements, ITS sub-systems, and Ethernet/IP-based communications that will be expandable and scalable for future integration of ITS technologies and strategies, such as Integrated Corridor Management (ICM), Smart Cities, and connected and autonomous vehicles (CAVs). This project also includes a Regional Traffic Management Center (RTMC) and local Traffic Operation Centers (TOC) that will have the capability to monitor and control the connected traffic signals, and be used as a monitoring tool for research and analysis to help determine regional system enhancements, operations, and maintenance.

Riverside County Transportation Commission

CVAG and RCTC work collaboratively to address transportation planning, funding, and project implementation within the Coachella Valley. While CVAG focuses solely on the Coachella Valley region, RCTC oversees countywide transportation planning and funding. It manages larger infrastructure projects, including highways, rail systems, and commuter services, while securing federal and state funding for transportation improvements. CVAG often works with RCTC to coordinate regional priorities, secure funding for projects in the Coachella Valley, and ensure local transportation plans align with broader countywide and regional strategies.

Short and long-range transportation planning within Riverside County is a key responsibility of RCTC, including coordination and funding of public transit services, the approval of capital projects for public



transit and highway projects, and the identification of staging and scheduling of project development and construction relative to programming documents such as the Federal Transportation Improvement Program (FTIP) and Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). RCTC plans and implements transportation and transit improvements, particularly those that affect more than one jurisdiction.

In 1988 the Measure A half-cent sales tax was approved by Riverside County voters, along with a 20-year expenditure plan. RCTC became the agency charged with implementing the mobility improvements funded by Measure A. In 2002, voters approved an extension of Measure A until 2039. Measure A funds are distributed to each of the three geographic areas within Riverside County: Western Riverside County, the Coachella Valley, and the Palo Verde Valley. Measure A funds are distributed to the three regions within Riverside County in proportion to the sales taxes they contribute.

The Riverside County Long Range Transportation Study (LRTS) outlines strategies to address transportation challenges and plan for future mobility needs in Riverside County through 2050. The study includes a Congestion Management Plan (CMP), which incorporates projects funded, in whole or in part, by the TUMF, as well as TDM projects. In 1991, all local agencies adopted TDM ordinances to comply with State CMP statutes. In 1996, the State substantially reduced the mandatory enforcement provisions associated with the CMP, including requirements related to LOS deficiency plans, and therefore, RCTC has not required agencies to update their respective TDM ordinances. RCTC facilitates the implementation of TDM projects through the Measure A Commuter Assistance Program, and the implementation of a number of TDM projects (in cooperation with Caltrans and local agencies in Riverside County and in adjoining counties) to achieve TDM objectives. Such TDM strategies include the development of Park-N-Ride lots, commuter rail stations, and public transit feeder services.

The 2024 Riverside County Traffic Relief Plan, developed by RCTC, outlines strategies to enhance transportation infrastructure and services across the county, including the Coachella Valley. The Plan identifies transportation-related improvements across seven categories. In the Coachella Valley, all transportation-related improvements are prioritized through the valley wide TPPS described above.

RCTC also manages a traveler information website that provides real time traffic and travel options for commuters in Riverside County including information on ridesharing and the regional emergency guaranteed ride home program which is offered to employees of employers who have registered for the benefit. [IE Commuter](#) can be used for Rule 2202 compliance, described further below, by Western Riverside County employers.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the MPO for six counties, including Riverside County. SCAG is responsible for developing long-term regional plans to address transportation, housing, economic development, and sustainability. Its primary role includes preparing the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), “Connect SoCal,” which guides infrastructure investments and policies to improve mobility, reduce greenhouse gas emissions, and promote equitable growth throughout Riverside County and the other five counties it covers. The SCS aims to reduce VMT and associated GHG emissions by promoting compact development, transit-oriented communities, and alternative transportation options, helping the state achieve its targets for lowering GHG emissions from cars and light-duty trucks. SCAG is also



responsible for developing the region's Federal Transportation Improvement Program (FTIP) and for administering certain federal and state funds. The FTIP is a federally mandated, four-year program of all surface transportation projects that will receive federal funding or are subject to a federally required action. The FTIP is a comprehensive listing of transportation projects proposed over a six-year period. This listing identifies specific funding sources and fund amounts for each project. It is prioritized to implement the region's overall strategy for providing mobility and improving both the efficiency and safety of the transportation system, while supporting efforts to attain federal and state air quality standards for the region by reducing transportation related air pollution.

Connect SoCal

The Connect SoCal Plan is a long-term regional strategy for sustainable growth and transportation development. As part of the state's mandate to reduce per-capita GHG emissions from automobiles and light-duty trucks, Connect SoCal presents strategies and tools that are consistent with local jurisdictions' land use policies and incorporates best practices for achieving the state-mandated reductions in GHG emissions at the regional level through reduced per-capita VMT. The plan projects a 19-percent reduction in GHG emissions per capita by 2035, along with a 5-percent decrease in VMT per capita. Investments in infrastructure within the Connect SoCal Plan are expected to generate 168,400 new jobs and improve health outcomes through reduced pollution.

To achieve these goals, Connect SoCal allocated \$7.3 billion over the course of the plan to implement transportation demand management strategies throughout the region. There are three primary goals of this program:

- Reduce the number of single-occupancy vehicle (SOV) trips and per capita VMT through ridesharing (which includes carpooling and vanpooling) and providing first/last mile services to/from transit.
- Redistribute vehicle trips during peak demand periods by supporting telecommuting and alternative work schedules.
- Reduce the number of SOV trips through use of other modes such as improvements to transit, rail, bicycling, and walking, or other micro-mobility modes.



Transportation Demand Management

In addition to allocating funding for TDM, SCAG provides tools, resources, and direction for TDM programs as one of the methods to reduce VMT in the region. The Transportation Demand Management Strategic Plan for the SCAG region provides an objective-driven, performance-based planning framework for identifying TDM strategies and programs that increase the efficiency of the transportation system through alternative modes of travel. The plan identifies goals, objectives, and performance measures aligned with regional and state policies, including greenhouse gas reduction targets.

Key recommendations include expanding data collection, leveraging new technologies, fostering public-private partnerships, and improving regional coordination. The plan also introduces a TDM Toolbox with 32 strategies, categorized into education, incentives, infrastructure upgrades, parking management, and supportive policies, to help municipalities and agencies implement effective TDM programs. Additionally, it emphasizes collaboration, training, and data standardization to enhance program effectiveness and ensure measurable impacts. The TDM Toolbox is further refined for easy reference as a technical appendix to Connect SoCal.

South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD) is the regulatory agency responsible for improving air quality in Southern California, including Riverside County. Its primary responsibilities include developing and enforcing regulations to control air pollution from stationary and mobile sources, monitoring air quality levels, and implementing programs to reduce emissions. SCAQMD also ensures compliance with federal and state air quality standards, oversees emissions reduction plans, and provides grants and incentives for clean-air technologies. Portions of eastern Riverside County outside the South Coast Air Basin, including Blythe, fall under the jurisdiction of the Mojave Desert Air Quality Management District (MDAQMD), which performs similar regulatory and planning functions for desert communities.

Rule 2202, adopted by the SCAQMD, aims to reduce air pollution caused by employee commutes. It helps employers comply with state and federal Clean Air Act requirements by offering various strategies to lower vehicle emissions. The rule applies to employers with 250 or more employees working at a single site for six consecutive months. Employers must notify the district when they meet this threshold and have 90 days to comply. Employers must meet emission reduction targets based on the number of employees and their commuting patterns. They can achieve compliance by:

1. Employee Commute Reduction Programs (ECRP): Implementing strategies such as carpooling, vanpools, public transit incentives, and telecommuting to improve Average Vehicle Ridership (AVR).

Education & Marketing

Safe Routes to School Programs

Implementors

Employers / Property Managers / TMA's

- TMA's/TMO's
- Educational institutions
- Property managers – residential

VMT Reduction:



Impact varies based on number of students and parents interacting with TMA's, schools and property managers.

Public Agencies / Transportation Providers

- School districts
- Municipalities
- Transit agencies
- Regional government/MPO's

VMT Reduction:



Impact varies based on size of school district and active transportation infrastructure.

Sample Report Card for a TDM measure from the Connect SoCAL TDM Toolbox.



2. Emission Credit Programs: Purchasing or generating emission reduction credits (ERCs, MSERCs, or VTECs) to offset emissions.
3. Alternative Programs: Participating in the Air Quality Investment Program (AQIP) to fund regional emission reduction projects.

Employers that choose to participate in Option 1 can develop a ECRP that uses measures from the SCAG TDM Toolbox or through participation in the RCTC IE Commuter program.

Transit Agencies

Riverside County is served by a network of public transit agencies that provide vital transportation options for residents, commuters, and visitors. The SunLine Transit Agency is the primary transit provider in Coachella Valley, offering fixed-route bus services, paratransit options, and on-demand rideshare programs to connect communities, businesses, and tribal lands. In the Palo Verde Valley, the Palo Verde Valley Transit Agency, or PV Ride, provides local fixed-route and demand-response transit services centered around the City of Blythe and surrounding unincorporated communities. Beyond the Coachella Valley, the Riverside Transit Agency (RTA) operates a comprehensive system of local, express, and commuter bus routes across western Riverside County, linking urban centers, suburban areas, and rural communities. Metrolink, a regional commuter rail service, provides connections between western Riverside County and neighboring counties. SunLine provides a connection between local bus services in the Coachella Valley and Metrolink services.

In addition to these major providers, specialized transportation services address the needs of specific populations. Dial-A-Ride programs are available through both SunLine Transit Agency and RTA, ensuring mobility for seniors and individuals with disabilities who require flexible, door-to-door transportation options. Vanpool and rideshare programs, facilitated by agencies like RCTC, support commuters with cost-effective and environmentally friendly travel alternatives. Furthermore, tribal transit services, including shuttles and ridesharing partnerships, enhance connectivity for Native American communities, particularly for those living on or near tribal lands.



SunLine Transit Agency



Photo of SunLine Transit Bus courtesy of SunLine Transit.

Established in 1977, SunLine Transit Agency operates fixed-route bus services that connect cities and communities across the Coachella Valley, including Palm Springs, Palm Desert, Indio, Coachella, and surrounding areas. SunLine's jurisdiction covers 1,120 square miles of the Coachella Valley. Its routes link key destinations such as shopping centers, medical facilities, schools, and major employment hubs. SunLine, the local bus service, currently operates nine local routes in its service area. The local bus network is made up of trunk routes and connector or feeder routes. Trunk routes serve highly traveled corridors with more frequent headways, including routes 1EV, 1WV, and 2. Connector/feeder routes operate in less dense areas and connect to the trunk routes.

The Route 10 Commuter Link is designed to improve regional service between the Coachella Valley and the Inland Empire. For students, the Route 10 Commuter Link provides a direct connection between California State University, San Bernardino's (CSUSB) campuses in Palm Desert and San Bernardino. It also provides service to the San Bernardino Transit Center (SBTC) for connections with Metrolink trains and routes served by the RTA, Omnitrans, Victor Valley Transit Authority, and Mountain Transit.

In 2002, SunLine raised its base cash fare from 75 cents to \$1. In 2011, a SunLine fare study recommended both eliminating the 25-cent transfer fare and incrementally raising the base cash fare to \$1.50, but these recommendations were not implemented. The SunLine Board of Directors has directed staff to explore fare-free operations.

To enhance accessibility, SunLine also provides SunDial, a paratransit service offering curb-to-curb transportation for individuals who are functionally unable to use regular bus routes. SunDial operates within three-quarters of a mile on either side of the SunBus route network and is available by advanced reservation only. Reservations may be made based on the service hours of the fixed routes serving passengers' origins and destinations and may be used only at the same times, days, and frequency as local fixed route service.

In recent years, SunLine has expanded its offerings with SunRide, an on-demand rideshare program that provides flexible, affordable, and convenient travel options within designated zones. SunRide serves seven zones in the Coachella Valley— Cathedral City, Coachella, Desert Hot Springs (including the community of Desert Edge), Indio, Mecca-North Shore, Palm Desert, and Palm Springs. The



SunRide fare is \$3 per person, which includes a free transfer to/from the intersecting fixed bus routes. SunRide's on-demand service allows a rider to book a trip within 15 minutes or to schedule a trip up to seven days in advance.

SunLine's Vanpool Program, SolVan, is operated through a third-party lease arrangement, where SunLine contracts with a consulting firm to competitively procure leasing vendors, who then provide a leased vehicle to vanpool groups. SolVan provides a monthly subsidy of \$400 per vanpool for qualified vans that agree to report on daily riders, miles, hours, and expenses. This subsidy increases to \$500 if a zero-emission vehicle is used for the vanpool. To receive a vanpool subsidy, the vanpool must meet the following criteria: either originate or travel to a work site within a ZIP code in eastern Riverside County, commute at least 25 miles round-trip, commute a minimum of 12 or more days per month, and have at least five riders. Vehicles must also be at least seven-seat vehicles and can seat up to fifteen passengers.

Recently, agricultural-related vanpools have served farm workers living and working in the eastern Coachella Valley, including Thermal, Mecca, Coachella, and Indio. Around 20 vehicles have been provided during each key harvesting month. Non-farm, more traditional vanpools serve work sites throughout eastern Riverside County. The number of vehicles serving these traditional work sites has varied from six to seven per month during the past year, with seven at present.

Additionally, SunLine is committed to sustainability and operates one of the cleanest fleets in the country, utilizing compressed natural gas (CNG) and zero-emission hydrogen fuel cell buses. The agency also participates in regional transit programs, enabling connections to neighboring counties and Metrolink commuter rail services.

Employer and TDM Programs

SunLine offers a 31-day pass to businesses in the Coachella Valley with five or more employees interested in using transit. The pass can be used for unlimited rides on any of SunLine's fixed route services and is priced at \$24 a month. The pass is \$10 less than the 31-day adult pass and is designed to encourage greater use of alternative modes of transportation.

In August 2018, SunLine launched its Haul Pass Program to improve student access to Coachella Valley's colleges and university. Both the College of the Desert and the CSUSB Palm Desert Campus are partners. To ride SunLine, students at these schools can simply swipe their active student ID card through the SunBus card reader when they board. The program began after receiving a grant from California's Low Carbon Transit Operations Program (LCTOP) program. On August 1, 2021, the program expanded to provide free local service to all high school students in grades 9 to 12.

Palo Verde Valley Transit Agency (PV Ride)

The Palo Verde Valley Transit Agency (PV Ride) provides public transit services in the Palo Verde Valley, including the City of Blythe and surrounding unincorporated communities near the Arizona border. Services include fixed-route transit, deviated fixed-route service, and dial-a-ride operations designed to provide mobility for residents, seniors, and individuals with disabilities in this rural portion of Riverside County. PV Ride serves an important role in connecting residents to employment, medical services, schools, and commercial destinations in an area characterized by long travel distances and limited transportation alternatives.



Amtrak

Amtrak provides intercity rail service in Riverside County. The Amtrak Southwest Chief and Texas Eagle routes pass through the County, connecting Riverside to major destinations such as Los Angeles, San Diego, Phoenix, and Chicago. The Amtrak Pacific Surfliner, a popular route along the Southern California coast, also serves Riverside County, providing connections to cities like San Diego, Santa Barbara, and San Luis Obispo. Stations in the County, including those in Riverside, Palm Springs, and Perris, serve as key access points for travelers seeking long-distance and regional transportation options. Amtrak Thruway buses further enhance connectivity by linking rail stations to areas without direct rail service. Together, these services offer a vital transportation alternative, supporting tourism, commuting, and regional mobility while complementing local and regional transit networks.

Future Transit

RCTC certified the Final Tier 1/Program-Level Environmental Impact Statement/Environmental Impact Report (EIS/EIR) in July 2022 for proposed daily intercity passenger rail service between Los Angeles and the Coachella Valley named Coachella Valley Rail (CV Rail). The service would provide improved access to jobs and education centers while reducing VMT and air pollution. In addition, the rail service would significantly expand economic opportunities by opening travel to restaurants, resorts, music festivals, sports facilities, and commercial and retail centers. The nine stations also offer a host of transit-oriented development opportunities. The proposed service would extend approximately 144 miles between Los Angeles and the Coachella Valley with stops in Los Angeles, Orange, San Bernardino, and Riverside counties, including up to six stations in the Coachella Valley. CV Rail would also comprise a substantial segment of Amtrak's Tucson-Los Angeles corridor. The Tucson-Phoenix-Los Angeles corridor would connect passengers to Amtrak's Coast Starlight, Pacific Surfliner, Southwest Chief, Sunset Limited, and Texas Eagle routes, broadening travel opportunities nationwide.

Following certification of the Final Tier 1/Program-Level EIS/EIR, RCTC and Caltrans initiated the Tier 2/Project-Level environmental analysis, which is currently underway and includes evaluation of specific station locations and detailed engineering for construction of CV Rail.

CVAG Member Agencies

Across CVAG's member agencies, the region has established many of the foundational elements needed to support VMT compliance and future regional coordination, although implementation approaches and levels of program development vary by jurisdiction. Collectively, these differences reflect the evolving nature of SB 743 implementation across California, where agencies have adapted statewide guidance to local conditions and priorities. **Table 5** summarizes the key VMT planning tools currently in place across CVAG member agencies. Full agency profiles, including General Plan summaries, active transportation plan details, and municipal code citations, are provided in Appendix C.

COACHELLA VALLEY REGIONAL VEHICLE MILES TRAVELED (VMT) STUDY



Table 5 - CVAG Member Agency Planning Tools

Agency	VMT Threshold Approach	Active Transportation Plan	Parking Reductions	TDM Ordinance
Blythe	County of Riverside guidelines (county-average VMT per resident/employee)	None	None	None
Cathedral City	County of Riverside guidelines (county-average VMT per resident/employee)	Yes — Adopted Feb. 2023; phased bike/ped improvements; DAC focus; SunLine + CV Link connections	Yes — Joint use, up to 50% reduction (CUP required)	Yes — 100+ employees; 10% trip reduction; Ch. 9.102
Coachella	County of Riverside guidelines (local CEQA guidelines do not set VMT thresholds)	Yes — Coachella Valley ATP (2020); bike lanes, sidewalks, CV Link integration; DAC focus	Yes — Reduced parking in Sixth Street core; 1 space/unit residential; shared parking with study	Yes — 100+ employees; 10% trip reduction; Ch. 12.4
Desert Hot Springs	County of Riverside guidelines (county-average VMT per resident/employee)	None	Yes — Joint use, up to 50% reduction	Yes — 100+ employees; SCAQMD-consistent; Ch. 10.56
Indian Wells	LCI Technical Advisory (15% below city/regional average); no locally adopted thresholds	None	None	Yes — 100+ employees; SCAQMD-consistent; Ch. 16.50
Indio	County of Riverside guidelines (county-average VMT per resident/employee)	None	Yes — Unbundled parking required; 30% max reduction; reductions for transit	Yes — 100+ employees; SCAQMD-consistent

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Agency	VMT Threshold Approach	Active Transportation Plan	Parking Reductions	TDM Ordinance
			proximity, carpool, car-share, shared parking; bike parking required	
La Quinta	Locally adopted (June 2020); LCI-aligned; 15% below city or regional average, whichever is more stringent	No formal ATP; GHG Reduction Plan targets 15% VMT reduction via walking/biking	Yes — Shared parking per ULI methodology; 5% FAR bonus incentive; §9.150.060	Yes — 100+ employees; AVR 1.3 performance metric (not trip reduction %)
Palm Desert	County of Riverside guidelines (county-average VMT per resident/employee)	No formal ATP; Walk & Roll program (phased bike/ped infra); PD Link (CV Link connections); Haystack traffic calming	Yes — Joint use, up to 50% reduction; bike parking required	Yes — 100+ employees; AVR 1.3 metric; requires bike, rideshare, and golf cart facilities
Palm Springs	Locally adopted (June 2020); LCI-aligned; buildout VMT per service population as threshold; link-level boundary VMT trigger	No formal ATP; Pedestrian Master Plan (sidewalks, crosswalks, Safe Routes to School)	Yes — Joint use parking	Yes — 10% trip reduction; bike and rideshare facilities required
Rancho Mirage	Locally adopted and updated; LCI-aligned; 15% below city or regional average; broadest screening criteria of any member agency	Active Transportation Guidelines and Best Practices; Class I–III bikeway standards; CV Link integration;	Yes — Shared parking per §17.26.050; additional reductions for mixed-use and rideshare; bike parking required	Yes — 50+ employees (stricter than valley norm); TDM coordinator required; baseline + annual reporting; TMA formation option

COACHELLA VALLEY REGIONAL VEHICLE MILES TRAVELED (VMT) STUDY



Agency	VMT Threshold Approach	Active Transportation Plan	Parking Reductions	TDM Ordinance
		Highway 111 focus		
Riverside County	Locally adopted (Dec. 2020); county-average VMT per resident/employee; GHG screening table (3,000 MTCO ₂ e/yr) for small projects; RIVCOM sketch tool available	None	Yes — Reductions for shared parking, bike parking, ridesharing, and other TDM measures; bike parking minimums	Voluntary — Optional participation; TDM plan required if enrolled; Ch. 10.36
Tribes	Tribal lands under federal jurisdiction; standard CEQA VMT thresholds generally do not apply	None; significant transportation access barriers due to checkerboard land base and infrastructure gaps	N/A	N/A

One of the most significant areas of variation is in VMT threshold methodology. Seven of the member agencies currently rely on the County of Riverside guidelines, which use countywide average VMT per resident and per employee thresholds. Indian Wells and Rancho Mirage use thresholds based on LCI's Technical Advisory, including a residential threshold set at 15 percent below citywide VMT per capita and an employment threshold set at 15 percent below regional VMT per office employee. La Quinta and Palm Springs have locally adopted approaches that differ from both of these methodologies. Because thresholds directly determine when projects require VMT analysis and mitigation, these differing approaches can result in different regulatory outcomes for similar projects across jurisdictional boundaries. Advancing a more consistent regional framework, which this study supports by providing agency-specific General Plan Supplemental EIRs to adopt such thresholds, would improve predictability for project applicants and strengthen the analytical foundation for any future regional mitigation program.

TDM ordinances also demonstrate a broad regional commitment to reducing vehicle travel, with eleven of twelve agencies having adopted some form of TDM requirements. Many of these ordinances are structured around large employers, typically applying to projects with 100 or more employees and targeting a 10 percent trip reduction. While these ordinances establish a common regional baseline,



some jurisdictions have expanded beyond those minimum standards. For example, Rancho Mirage applies a lower applicability threshold, requires a designated TDM coordinator, and includes ongoing monitoring and reporting requirements. However, enforcement of these ordinances is uneven as local agencies often struggle to find staffing capacity. As agencies continue refining their SB 743 implementation approaches, there may be opportunities to further align and strengthen these programs to support broader regional VMT reduction objectives.

Active transportation planning represents another important area for continued regional development. Several agencies have formally adopted active transportation plans, while others have implemented active transportation programs or projects through alternative planning efforts. Because bicycle, pedestrian, and transit improvements form the basis of most VMT mitigation programs reviewed as part of this study, expanding the region's inventory of active transportation projects could support both CEQA compliance efforts and the long-term development of a regional mitigation strategy.

The Coachella Valley is also home to four federally recognized tribal nations — the Agua Caliente Band of Cahuilla Indians, the Cabazon Band of Cahuilla Indians, the Torres Martinez Desert Cahuilla Indians, and the Twenty-nine Palms Band of Mission Indians — whose lands fall outside the standard CEQA VMT framework. Tribal transportation planning operates under federal jurisdiction and presents distinct challenges, including fragmented land bases, limited infrastructure funding, and historical barriers to connectivity that affect the broader regional network. A full discussion of tribal transportation conditions and considerations is provided in Appendix C.



Equity and Community Engagement

The shift to VMT as one of the primary performance measures in transportation planning creates an opportunity to reorient regional transportation planning toward outcomes that are more equitable and sustainable. But that opportunity is not automatic. VMT-based planning can still produce inequitable results if the investments chosen to reduce driving are concentrated in wealthier, more accessible parts of the region or if investments overlook commute sheds and safety.

The Coachella Valley's geography, land use patterns, weather, and demographic composition mean that the communities most reliant on alternatives to driving live in locations that are harder to access such as Thermal, Mecca, and North Shore. For a regional VMT study to be meaningful, it must grapple with these conditions directly rather than treating equity as a supplementary consideration. For this reason, equity was embedded as a core principle of the study from the outset rather than applied as a filter at the end. This took two forms: the development of a locally-tailored methodology for identifying disadvantaged communities to guide investment decisions, and a robust public engagement program designed specifically to reach and reflect the priorities of underserved residents.

Identifying Disadvantaged Communities

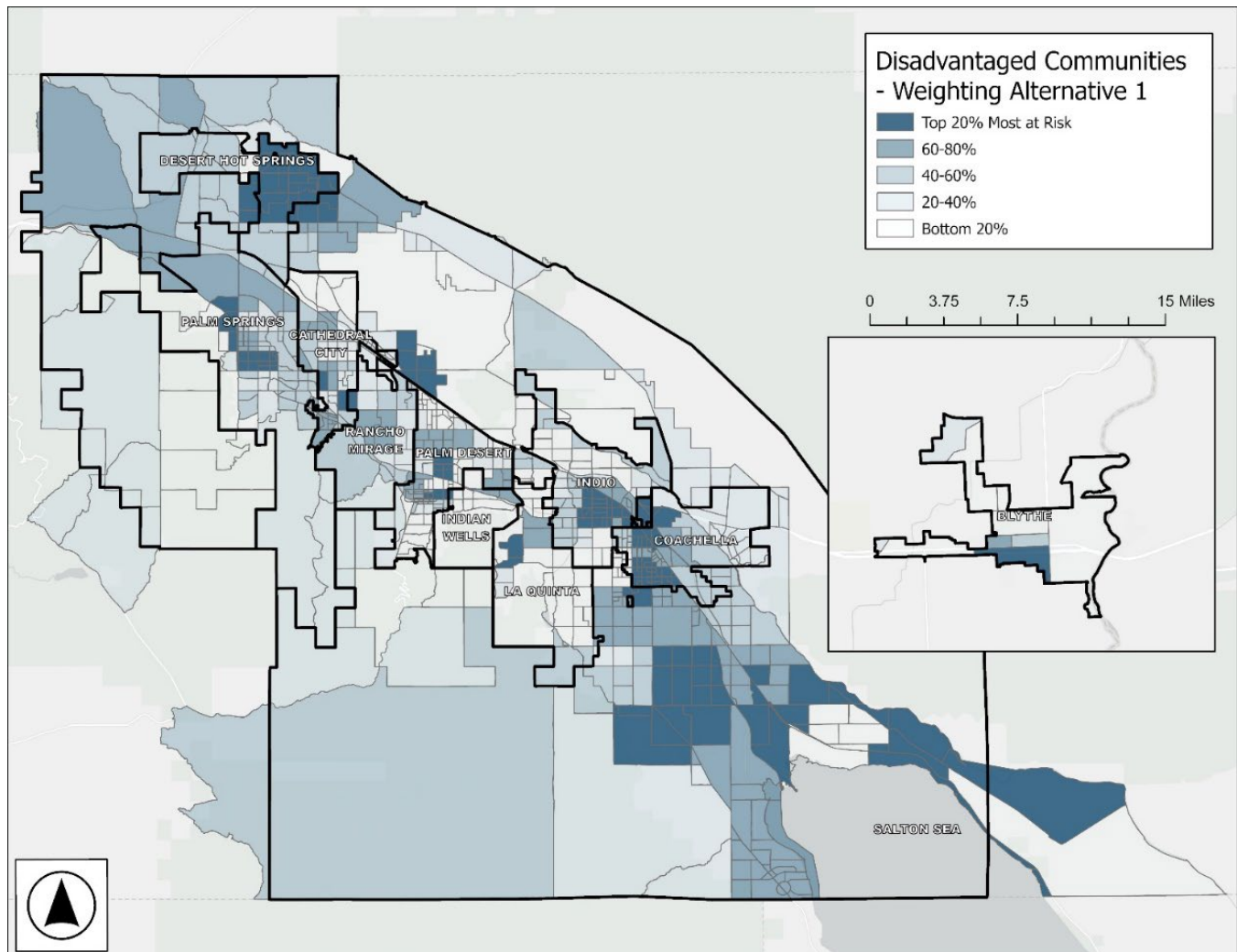
Statewide tools for identifying disadvantaged communities, such as CalEnviroScreen 4.0 and the definitions used by the Regional Early Action Planning Grant program, provide a useful starting point but are not always well-suited to the specific conditions of a given region. A definition developed for statewide application may not fully capture the particular combination of economic hardship, environmental burden, housing instability, and limited mobility access that characterizes disadvantage in the Coachella Valley.

To address this, the study developed a locally-tailored DAC methodology that integrates state and federal guidance with region-specific indicators. Multiple frameworks were considered including the REAP 2.0 program guidelines, the Safe Streets and Roads for All grant program criteria, and CalEnviroScreen 4.0. Indicators were selected across four domains: economic hardship, housing burden, environmental and health conditions, and mobility access. Specific indicators include concentration of poverty, housing cost burden, below-market rate housing availability, SNAP recipient concentration, free and reduced price meal eligibility, pollution burden, prevalence of asthma and cardiovascular disease, zero-car household concentration, and concentration of residents with disabilities.

Four alternative scoring approaches were evaluated, varying whether indicators were scored as simple binary yes or no values or on a scaled basis that assigned partial credit, and whether the three scoring categories were weighted equally or differently. Testing these variants against the full project dataset showed minimal differentiation in project rankings regardless of which approach was used, supporting selection of the simplest option, the binary unweighted model, on the basis of transparency and ease of application by member agencies. Under this approach, communities ranking in the top 40 percent across the combined indicator set are identified as DACs for purposes of project scoring. The full methodology is documented in the Disadvantaged Communities Definition and Methodology memorandum prepared as part of this study and provided as Appendix F. The results of the analysis are shown in **Exhibit 12 - Disadvantaged Communities**.



Exhibit 12 - Disadvantaged Communities



Note: Disadvantaged Communities are considered those in the top two quintiles: top 20 percent and 60-80 percent.

Community Engagement

Understanding how people actually travel in the Coachella Valley and what would need to change for them to drive less required direct engagement with residents, particularly those in communities that are rarely reached through conventional planning processes. The study's outreach program was designed from the start to be genuinely inclusive rather than procedurally compliant, with particular attention to Spanish-speaking residents, farmworker communities, and affordable housing residents.

Engagement was structured across four rounds aligned with key stages of the study, allowing community input to inform the analysis at each phase rather than being collected after decisions had already been made. Activities included virtual workshops, in-person pop-up events at existing community gatherings, an interactive mapping activity, community surveys, a project ranking exercise,



and a statistically valid survey. Alianza and the Coachella Valley Housing Coalition (CVHC) were engaged as community-based organization messengers. Alianza conducted canvassing in Thermal and Mecca, reaching 525 households and businesses in one round. CVHC conducted two rounds of canvassing within its affordable housing communities, reaching over 4,500 residents combined. All materials and events were bilingual in English and Spanish, and virtual workshops were scheduled in evening hours to reduce participation barriers for working residents.

Across 19 events and four rounds of engagement, the program directly engaged over 1,180 community members and collected 1,355 responses through structured engagement tools. The statistically valid surveys conducted in Round 2 generated 757 responses representative of residents across the Coachella Valley and Blythe, providing a quantitative foundation for understanding regional travel behavior and preferences. A Local Advisory Committee comprising representatives from local agencies and community-based organizations met five times throughout the study to review findings, validate technical approaches, and provide guidance on implementation.

Community Responses

Across all four rounds and all engagement formats, several themes emerged consistently: safety concerns, a strong preference for increased transit services, and addressing connectivity gaps.

Safety was the most frequently cited barrier to walking and biking. Residents described the absence of continuous sidewalks, lack of shade and lighting, and dangerous crossing conditions along high-traffic corridors as the primary reasons they do not walk or bike even for short trips. This was particularly pronounced in the eastern valley and in unincorporated communities where pedestrian infrastructure is sparse or entirely absent. The consistency of this finding across different communities and engagement formats underscored that active transportation investments in the region cannot focus solely on facility type or mileage: the quality and safety of the environment matter enormously.

Connectivity gaps were the second major theme. Community members described a fragmented network where jobs, schools, healthcare, grocery stores, and social services are often not accessible without a car, even when transit nominally serves an area. The interactive mapping activity was particularly revealing in this regard, with participants identifying specific gaps, missing sidewalk segments, bus stops without shelters, and routes that require multiple transfers for short trips that are not always visible in aggregate travel data. These gaps were concentrated in lower-income communities and reinforced the importance of geographic equity in project selection.

Transit improvements generated the strongest interest as a strategy for reducing driving. Participants consistently expressed a preference for more frequent service, extended hours, expanded geographic coverage, and fare reductions. Subsidized and flexible transit options, including microtransit and rideshare programs, resonated more strongly than fixed-route expansion alone, reflecting the region's dispersed land use patterns.

The VMT-reducing project ranking activities, conducted at pop-up events and a CBO luncheon, asked participants to prioritize specific transit and bicycle projects based on both personal preference and perceived community benefit. Transit improvements, particularly fare reductions, frequency increases on key routes, and expanded service to underserved communities were ranked highest. Among bicycle improvements, projects providing safe and connected infrastructure in densely populated and lower-



income areas scored highest, consistent with the equity weighting applied in the technical scoring methodology.

Incorporating Equity and Community Input into Project Feasibility

In addition to identifying disadvantaged communities and conducting focused outreach, this study evaluated how future transportation investments could both reduce VMT and respond to community priorities. As part of this study, hundreds of projects were evaluated for their potential to reduce VMT and serve disadvantaged communities. These projects were drawn from adopted local and regional planning documents and include bicycle, pedestrian, transit, and other transportation demand management improvements.

Equity did not just inform which communities were engaged for this project, but was also factored into the project scoring process. The co-benefits scoring framework developed for this study evaluates each project across three dimensions: equity, VMT reduction potential, and mode share. The equity component, which accounts for 60 of the 100 possible points, gives the highest scores to projects located within or adjacent to disadvantaged communities, and within areas that contain existing or planned affordable housing. The VMT component scores projects higher when they are located in zones that currently exceed adopted thresholds. The mode share component prioritizes zones with high drive-alone rates, where the potential for mode shift is greatest. The project evaluation process and highest-scoring projects are discussed further in the “Projects that Reduce VMT in Coachella Valley” section later in this report as well as Appendix G.

The result is a scoring framework that operationalizes the community’s expressed priorities. Projects that serve the communities most in need, in the places where driving is most prevalent, and where affordable housing residents live, score highest. The average score across all 1,172 projects evaluated was 56 out of 100, with 90 projects receiving perfect scores. High-scoring projects are concentrated in Indio, Palm Springs, and Desert Hot Springs, though strong candidates exist throughout the region. While it was not within the scope of this project to identify new projects, the scoring process included projects from adopted plans across the region including active transportation plans, climate action plans, and specific plans. The eastern valley communities of Thermal, Mecca, and Oasis are characterized by lower densities, dispersed services, and a rural land use pattern that has historically supported fewer active transportation facilities. As these communities continue to grow and as local planning efforts advance, there is an opportunity to develop active transportation plans that would expand the pipeline of eligible VMT-reducing projects for future program cycles. However, the transit projects that scored highest -- including fare reductions, increased service on Highway 111 and Route 8, as well as vanpool service -- all provide services to the Thermal, Mecca, and Oasis areas.

As described above, the focused outreach conducted within disadvantaged communities allowed the project team to gather more detailed input on specific project types and generally reinforced the broader themes identified earlier in the engagement process. Safety remained the highest priority, with strong preference given to projects that improve separation between pedestrians or bicyclists and vehicle traffic. Transit-related improvements, including fare subsidies, vanpool programs, and flexible services such as microtransit, were also consistently identified as desirable investments among disadvantaged community members.

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This integrated approach, grounding technical analysis in a locally-tailored equity framework, is what distinguishes this study from a conventional transportation planning exercise. The project list reflects not just what models suggest will reduce VMT, but what the communities of the Coachella Valley have said they need. As CVAG and its member agencies move forward with implementation, the equity framework and community relationships built through this process provide a foundation for continued engagement. Decisions about which projects to fund, sequence, and advance can be evaluated against the same principles that shaped this analysis, ensuring that the communities who participated in this study see their input reflected in outcomes over time.



Programmatic Fee-Based Approaches to VMT Mitigation

Following the overview of the institutional landscape, it is clear that implementing SB 743 and achieving meaningful reductions in VMT and associated GHG emissions requires coordination across a wide range of agencies. While local jurisdictions retain primary responsibility for project-level CEQA compliance, regional entities, state agencies, transit providers, and air quality districts all play complementary roles in shaping transportation outcomes and advancing VMT reduction strategies.

This multi-agency framework creates both opportunities and challenges. On one hand, it enables a broad range of policy tools, funding sources, and implementation mechanisms. On the other hand, it can make it difficult to deliver consistent, scalable mitigation, particularly for projects that are unable to fully reduce VMT through on-site measures alone. As a result, there is a growing need for coordinated, programmatic approaches that can operate across jurisdictional boundaries and align with regional transportation and climate goals.

One approach that has emerged in response to this need is the use of fee-based VMT mitigation programs. These programs provide a mechanism for project applicants to contribute toward larger, regionally beneficial VMT-reducing investments when on-site mitigation is insufficient. Rather than relying solely on project-by-project solutions, fee-based programs allow multiple developments to collectively fund strategies such as active transportation infrastructure, transit improvements, and transportation demand management programs.

This chapter presents a review of fee-based VMT mitigation program approaches that have been developed and implemented across California. It examines key program types including VMT banks, exchanges, and impact fee programs, as well as variations in structure, administration, and application. Together, these examples provide insight into how jurisdictions are translating SB 743 requirements into practical, scalable mitigation frameworks.

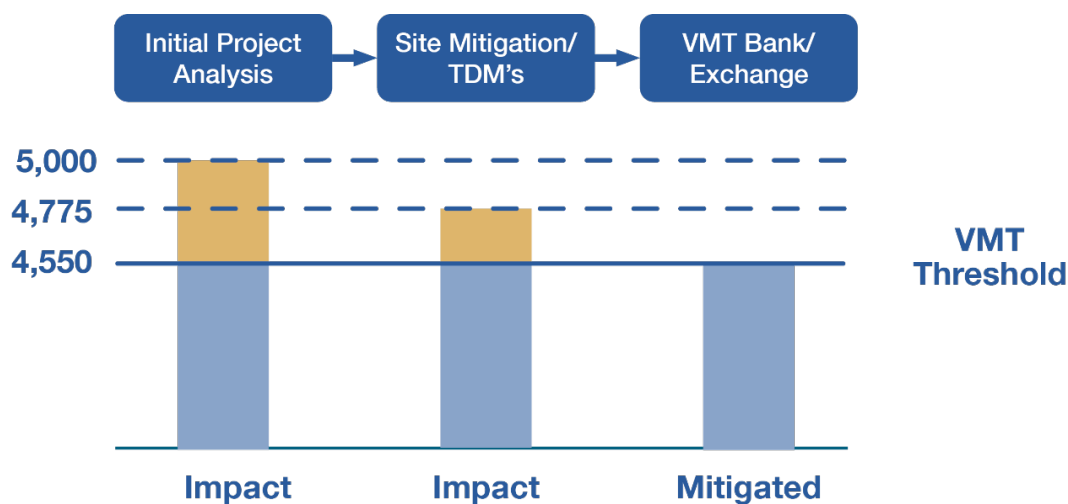


Fee-Based Programs

Exhibit 13 illustrates the general process for mitigating transportation impacts within a fee-based VMT mitigation framework. Even where such programs exist, project applicants are typically required to first implement all feasible on-site mitigation measures to reduce VMT. Regional programmatic options are then used to address any remaining impacts.

As illustrated in the example below, if a project exceeds the applicable threshold by 450 VMT, the applicant would first apply on-site TDM measures to reduce that impact. If those measures reduce the impact by 225 VMT, the remaining 225 VMT would be mitigated through participation in the fee-based program.

Exhibit 13 – Application of a VMT Mitigation Program



Although VMT mitigation programs can take multiple forms, the three most common program types are VMT banks, VMT exchanges, and VMT impact fees.



VMT Bank

As shown in

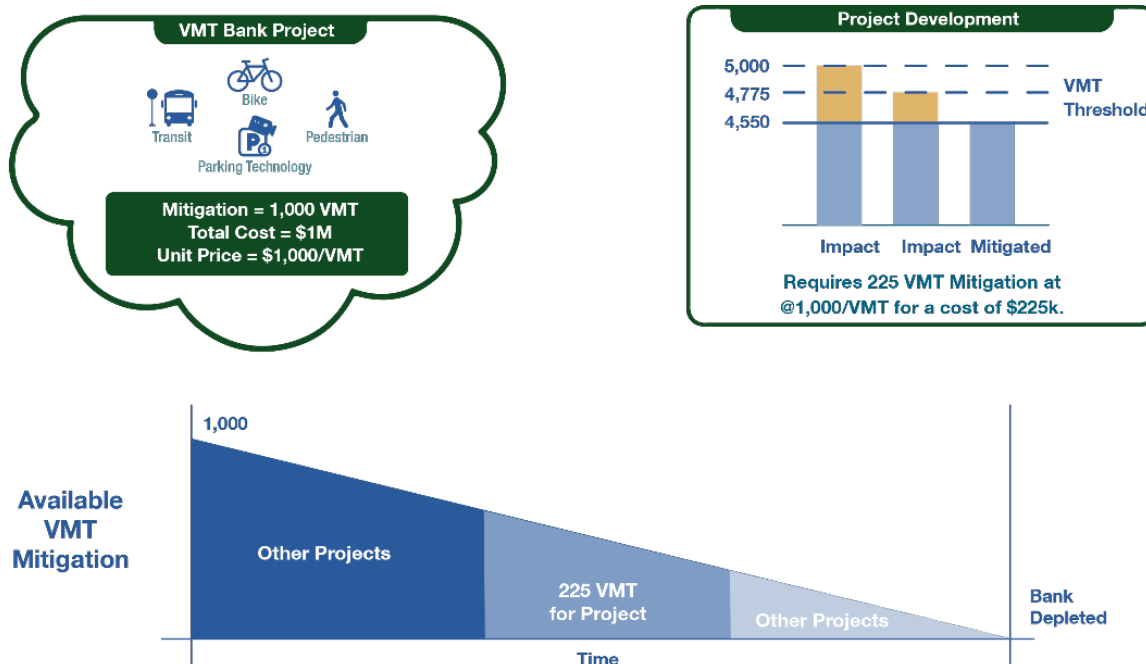
Once established, projects can offset their VMT impacts by purchasing credits from the bank. For example, a project requiring mitigation of 225 VMT would pay \$225,000 based on a cost of \$1,000 per VMT reduced. As credits are used, the bank must be replenished with additional VMT-reducing projects.

Exhibit 14, a VMT mitigation bank is established through the following steps:

1. Identify VMT-reducing mitigation measures (e.g., bicycle facilities, pedestrian infrastructure, transit improvements).
2. Estimate the VMT reduction associated with each measure.
3. Aggregate the total VMT reduction (e.g., 1,000 VMT).
4. Calculate total implementation costs (e.g., \$1 million).
5. Determine a cost per VMT reduced (e.g., \$1,000 per VMT).

Once established, projects can offset their VMT impacts by purchasing credits from the bank. For example, a project requiring mitigation of 225 VMT would pay \$225,000 based on a cost of \$1,000 per VMT reduced. As credits are used, the bank must be replenished with additional VMT-reducing projects.

Exhibit 14 – VMT Bank Example



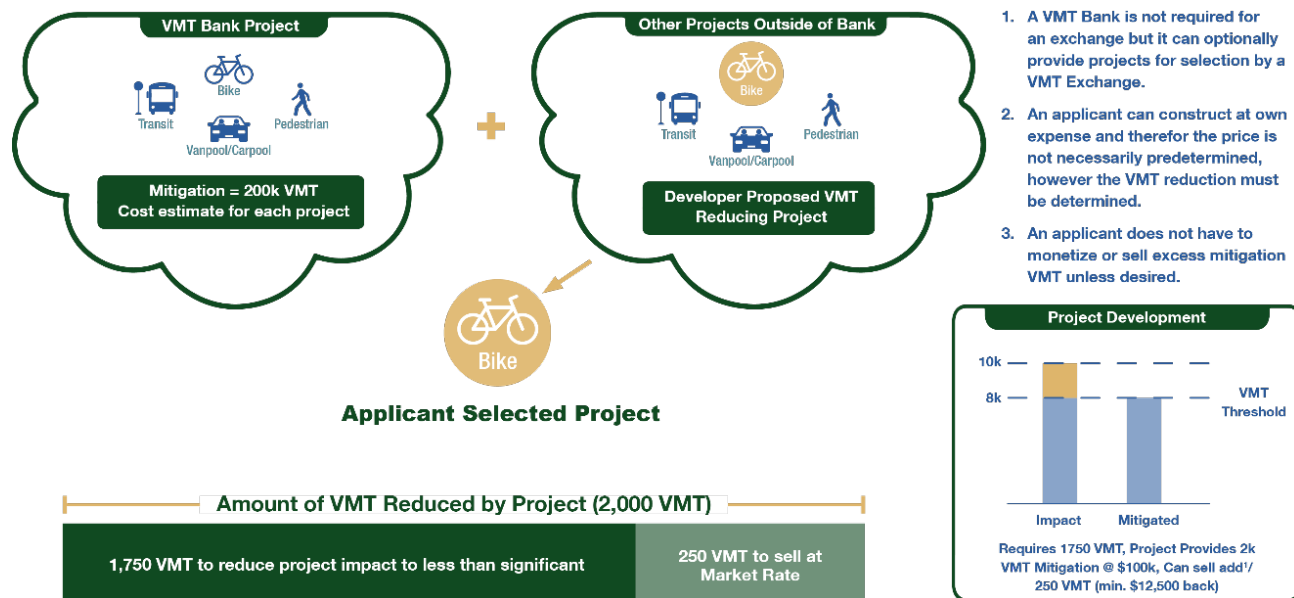


VMT Exchange

VMT exchanges operate similarly to banks but provide greater flexibility. Project applicants may select from a predefined list of mitigation measures or propose new measures for approval.

Unlike a bank, VMT reductions do not necessarily need to be monetized upfront. If a project implements mitigation that exceeds its required reduction, the surplus VMT may be sold as credits to other applicants. As shown in **Exhibit 15** below, a project reducing 2,000 VMT but only requiring 1,750 VMT mitigation would generate 250 VMT in surplus credits.

Exhibit 15 – VMT Exchange Example





VMT Impact Fee

A VMT impact fee program is structured similarly to traditional development impact fees but is focused exclusively on funding VMT-reducing projects.

Under this approach, fees are calculated based on projected VMT generated by different land uses over a defined planning horizon. Total mitigation costs are allocated across land use categories based on their share of VMT generation. Fees are then assessed per dwelling unit or per square foot of development.

For example, as shown in **Exhibit 16**, if residential uses account for 50 percent of future VMT mitigation needs and total mitigation costs are \$1 million, then \$500,000 is allocated to residential development. If 250 units are anticipated, the resulting fee would be \$2,000 per unit.

In some cases, regions may establish multiple benefit areas to reflect geographic differences in VMT. Areas with lower-than-average VMT may be exempt from fees, while higher-VMT areas may be subject to higher fees. As shown in

Exhibit 17, the areas that combine to form Zone 1 all fall below the regional VMT threshold for both residential and non-residential uses, resulting in no fees being administered for projects in that zone. Alternatively, Zone 2 has the worst VMT performance and contains the highest fees charged for the region.

Exhibit 16 – VMT Impact Fee Example

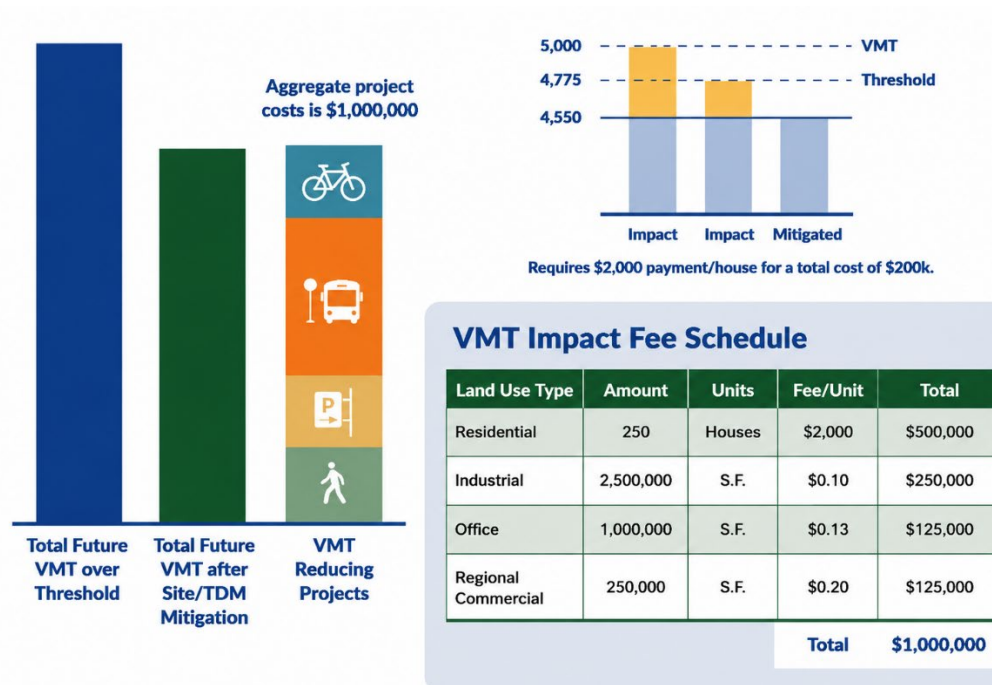




Exhibit 17 – VMT Impact Fee Program with Multiple Benefit Areas



	Zone	Units	Fees/Unit
1	Residential	Houses	0
	Industrial	S.F.	0
	Office	S.F.	0
	Regional Commercial	S.F.	0
2	Residential	Houses	\$2,200
	Industrial	S.F.	\$0.12
	Office	S.F.	\$0.15
	Regional Commercial	S.F.	\$0.22
3	Residential	Houses	\$1,500
	Industrial	S.F.	\$0.08
	Office	S.F.	\$0.11
	Regional Commercial	S.F.	\$0.17

Program Variants

Alongside the three primary fee-based VMT mitigation program frameworks, several alternative models have been explored by agencies in California, including:

Micro (Localized) VMT Banking

This approach considers establishing multiple VMT banking programs instead of a singular regional program. This method allows for funding smaller groups of mitigation measures simultaneously, potentially addressing geographic equity issues, or concerns about benefits of VMT reducing projects being realized by the neighborhoods that are experiencing the negative impacts of increased development. Alternatively, a micro VMT bank could be integrated with a regional VMT bank or VMT exchange. Smaller jurisdictions in less-populated areas may not have as many mitigation measures included in the bank or exchange due to lower efficacy with smaller population densities. In these cases, multiple smaller jurisdictions may join to form a single multi-jurisdictional banking program or participate in the regional-scale program as a backstop while funding smaller groups of mitigation measures through their local bank.

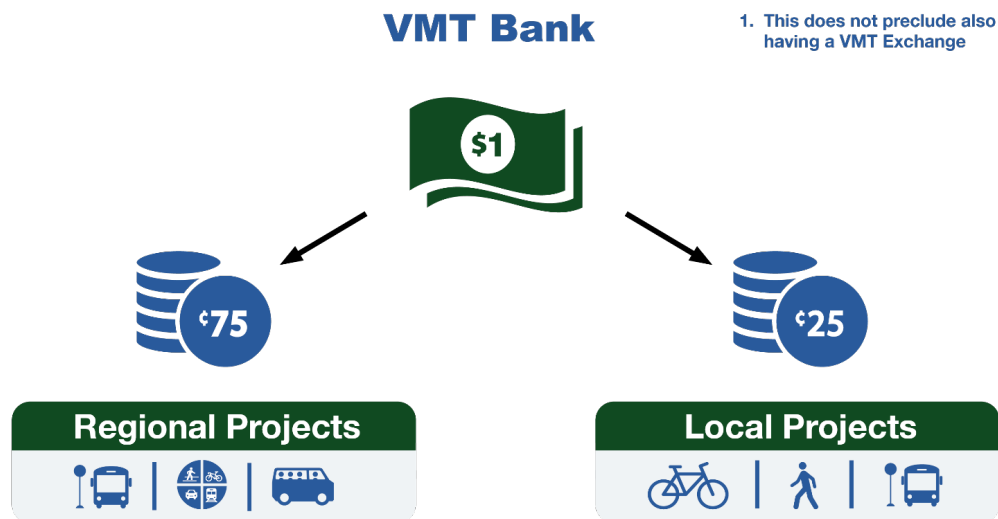
Hybrid VMT Mitigation Programs

This approach involves a combination of different strategies, in particular regional and micro VMT banking. In this case, mitigation funds are distributed both regionally and locally by a predetermined value, utilizing the efficiency of regional mitigation measures while supporting local communities. **Exhibit 18** demonstrates graphically how this might work for each dollar collected by the program. This hybrid model also addresses equity concerns by funding VMT mitigation measures in the communities where the development projects are located. Similarly, a program may wish to form multiple “benefit basins” or



zones within their respective regions to keep a sufficiently local focus under the rubric of a program administered by a single entity.

Exhibit 18 – VMT Bank with Regional and Local Split



Key Considerations for Program Options

Exhibit 19 and **Exhibit 20** provide a framework for comparing variations of fee-based VMT mitigation programs, highlighting the tradeoffs that agencies must weigh when considering implementation. It distills the differences between program types into their practical implications for administration, cost, equity, and alignment with community goals. While all approaches are potentially viable, they vary in complexity, predictability, and scalability. For example, exchanges provide flexibility but raise concerns about proportionality, while impact fees offer more predictability but can add administrative burden and reduce geographic flexibility.

**Exhibit 19 – Fee-Based VMT Mitigation Program Framework Variations**

	VMT Bank	VMT Exchange	VMT Bank with Exchange	VMT Impact Fee
				
Predefined Projects	YES	NO	YES/NO	YES
Applicant Can Select a Predefined Project	NO	NO	YES	NO
Applicant Can Provide a Project Option	NO	YES	YES	NO
Option to have Regional/Local Distribution	YES	NO	YES	YES
Additionality Options	YES	YES	YES	YES
Non-Fee Funding Excluded	YES	YES	YES	YES
Voluntary Non-Fee Funding	YES	YES	YES	YES
Required Non-Fee Funding	YES	NO	YES/NO	YES/NO
Complexity to Administer	MEDIUM	HIGH	HIGH	LOW
Potential Cost Per Unit of VMT Mitigation	LOW	MEDIUM	MEDIUM	HIGH
Supportive of All SB 743 Goals	YES	YES	YES	YES/NO

Key considerations for evaluating program suitability include:

Legal: Does the fee-based VMT mitigation program meet CEQA and statutory requirements, including additionality?

Effective: Does the fee-based VMT mitigation program result in a long-term, financially feasible mitigation program?

Geography: Can the fee-based VMT mitigation program scale to meet the region's needs?

Administration: Does the fee-based VMT mitigation program fund oversight and management of the program and maintain analysis and technical requirements for administering the program?

Equitable: Does the fee-based VMT mitigation program avoid disproportionate impacts to disadvantaged and/or low-income communities? Does the program encourage an equitable benefit distribution throughout the region?

Alignment: Does the fee-based VMT mitigation program support good design of projects and align with community values and existing plans?

Exhibit 20 below provides a qualitative summary of how each type of VMT mitigation program performs against the above considerations. Yellow dots indicate a “concern” that the complexity of a specific program element or the lack of practical experience with it may represent a challenge to its implementation. As it is believed that all the program types are ultimately implementable, these designations should simply be thought of as areas of consideration that will require additional evaluation prior to their respective programs being considered for implementation.



Exhibit 20 – Regional VMT Mitigation Program Evaluation

		VMT Bank	VMT Exchange	VMT Bank with Exchange	VMT Impact Fee
					
	Legal	●	●	●	●
	Effective	●	●	●	●
	Geography	●	●	●	●
	Administration	●	●	●	●
	Equitable	●	●	●	●
	Alignment	●	●	●	●

● Feasible ● Concern

A VMT exchange raises concerns about nexus and proportionality if an applicant or a city were to request improvements that were disproportionate in consideration of the impact and/or not closely tied to the VMT threshold of the region. Additionally, administering a program where unknown mitigation measures are proposed raises questions about the predictability of VMT reductions available to the region. Since a VMT exchange allows for mitigation measures that may not be on the radar or in the plans of the jurisdiction, there are also questions as to whether proposed mitigation measures would align with jurisdictional goals as established in community plans. Lastly, such mitigation measures could be implemented indiscriminately around the region and/or with a bias towards certain areas, therefore raising concerns about equitable distribution of mitigation.

While a VMT impact fee addresses many of the concerns raised by the VMT Exchange model, it is fixed regarding geographic implementation and does not allow for as much flexibility to respond to development mitigation needs. The way impact fees are calculated adds more complexity to the program's administration and more staff time on both the part of the jurisdiction and the bank organization.

While the preceding discussion outlines the primary structures and design considerations for fee-based VMT mitigation programs, the practical application of these frameworks varies significantly across jurisdictions. Differences in local context, including development patterns, institutional capacity, funding availability, and policy priorities, have led agencies throughout California to implement a wide range of program types and adaptations.

To better understand how these approaches function in practice, the following section highlights illustrative examples of VMT mitigation programs currently being implemented or actively developed across the state. These case studies demonstrate how jurisdictions have translated programmatic concepts into operational frameworks, including how mitigation measures are selected, how costs are



determined, and how programs are administered. Collectively, these examples provide insight into the opportunities and challenges associated with different approaches and help inform potential pathways for application within the Coachella Valley.

Illustrative Programs

Several local and regional agencies in California have developed or are actively developing VMT mitigation programs in response to SB 743. These programs vary in structure, scale, pricing methodology, eligible mitigation measures, and administrative approach. Across these efforts, agencies are increasingly looking beyond traditional transportation improvements and considering a broader range of VMT-reducing strategies, including affordable housing, transit-oriented development, transportation demand management, mobility hubs, micromobility, transit improvements, and active transportation projects.

Many agencies are also taking an iterative approach to program development. Rather than beginning with a fully defined bank, exchange, or fee program, agencies often first evaluate whether there is a sufficient inventory of feasible, cost-effective, and monitorable mitigation projects. This reflects a practical challenge common to VMT mitigation programs: strategies such as transit and active transportation can produce meaningful VMT reductions, but may have high implementation costs, uncertain timing, or complex monitoring requirements. As a result, several programs prioritize projects that are already planned, partially funded, or have seed funding and are capable of being accelerated through mitigation funding.

Table 6 summarizes VMT mitigation programs and related initiatives identified during preparation of this study. More detailed profiles of selected programs are provided in Appendix A: Illustrative Program Profiles. While each program reflects its local planning context, three examples are especially relevant to CVAG: WRCOG's VMT Exchange Program, the City of Riverside's VMT Bank Pilot Program, and VTA's emerging regional VMT mitigation framework and are described further below.

Table 6 – Summary of VMT Mitigation Programs in California

Agency	VMT Mitigation Program Type	Current Status	Proposed Pricing
<i>Local Agencies</i>			
City of Escondido	VMT Exchange	Implemented in 2023, with a cost basis varying for each mitigation measure	--
City of Fresno	Hybrid Urban Design Calculator and VMT Bank	Under development	--
City of Hollister	VMT Bank	Under development	--

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Agency	VMT Mitigation Program Type	Current Status	Proposed Pricing
City of Lancaster	VMT Mitigation Impact Fee Optional Program	Implemented in 2023	\$150/VMT
City of Palmdale	VMT Bank	Implemented in 2024	\$261/VMT
City of Riverside	VMT Bank Pilot	Implemented in 2025	\$94/VMT
City of Salinas	VMT Bank	Under Development	--
City of San Diego	Active Transportation In-Lieu Impact Fee	Implemented in 2020	\$1,400/VMT
City of San Jose	Transportation Analysis Policy	Implemented in 2018	\$2,300 / VMT for Residential and \$3,200 for Commercial
City of Tracy	VMT Bank	Under Development	--
City of Watsonville	VMT Bank	Implemented March 2023	\$1,524/VMT
City of West Sacramento	TBD	Being evaluated as part of an upcoming study	--
County of Santa Cruz	VMT Bank Pilot	Under Development	\$500-\$1,000/VMT
Town of Los Gatos	Not Determined	Study completed in 2024.	--
<i>Regional Agencies</i>			
Contra Costa Transportation Authority (CCTA)	Hybrid VMT Exchange / In-Lieu Fee Pilot	Study completed in 2023. Pilot program under development.	--
Fresno COG	VMT Bank	Study completed in 2023. An additional study is underway to define remaining program elements required for implementation.	--
Los Angeles County Metropolitan	VMT Bank for Metro Projects on State Highway System	Program adopted by Metro Board in 2024.	Varies

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Agency	VMT Mitigation Program Type	Current Status	Proposed Pricing
Transportation Authority (Metro)			
Sacramento Transit Authority (STA)	TBD	Being evaluated as part of an upcoming study	--
San Bernardino County Transportation Authority (SBCTA)	VMT Bank	\$2,000,000 in grant funds awarded in 2024 to seed identified mitigation measures.	--
San Luis Obispo Council of Governments (SLOCOG)	VMT Bank Pilot	Study completed in 2023. An additional study is being considered to define remaining program elements required for implementation.	--
Santa Clara Valley Transportation Authority (VTA)	TBD	Adopted 2025 as an exchange with the option to switch to a bank	--
Stanislaus Council of Governments (StanCOG)	TBD	Being evaluated as part of an upcoming study	--
Tahoe Regional Planning Agency	Mobility Mitigation Fee Program	Implemented April 2021	Up to \$218/VMT based on Development Category
Western Riverside Council of Governments (WRCOG)	VMT Exchange	Adopted 2025	--

Western Riverside Council of Governments VMT Exchange Program

WRCOG's VMT Exchange Program is the most directly relevant regional example for CVAG because it was developed by a neighboring subregional agency within Riverside County. The program is structured as a voluntary exchange, with WRCOG serving as the program administrator. Member agencies may



opt into the program, submit eligible VMT-reducing projects, and make those projects available for purchase by public or private entities seeking VMT mitigation credits.

For CVAG, WRCOG's approach demonstrates the potential value of a regional administrative structure that allows for active local agency participation and project identification. This may be useful in the Coachella Valley, where jurisdictions vary in their adopted VMT thresholds, planning documents, and readiness to participate in a regional program. However, this approach does require local agencies to participate on an ongoing basis and actively propose projects. The WRCOG model also illustrates the importance of having a clear project intake process, participation agreement, administrative fee, and project list refresh process.

City of Riverside VMT Bank Pilot Program

The City of Riverside's VMT Bank Pilot Program is relevant to CVAG because it shows how a jurisdiction can begin with a smaller, lower-cost pilot program rather than launching a full-scale bank at the outset. Riverside evaluated multiple project portfolios and found that costs varied substantially depending on the type of mitigation measures included. Bicycle projects produced the lowest cost per VMT reduced, while transit and pedestrian measures increased the available mitigation supply but also significantly increased program costs.

For CVAG, the key lesson is that early implementation should focus on projects that are easy to quantify, relatively low cost, and feasible to deliver. A pilot approach could allow CVAG and its member agencies to test administrative procedures, pricing, monitoring, and applicant demand before committing to a larger regional program. Riverside's experience also highlights the importance of coordinating with the development community so that the program is both technically defensible and financially usable.

Santa Clara Valley Transportation Authority Regional Framework

VTa's program is relevant because it presents a phased regional model that begins as a VMT exchange and may later transition into a VMT bank. The framework allows participating jurisdictions to opt into a coordinated regional program while maintaining local control over participation. Initial mitigation strategies focus on scalable and relatively cost-effective measures, including bus speed and reliability improvements, e-bike incentives, and vanpool or shared mobility programs.

For CVAG, the VTA framework is useful because it demonstrates how a regional program can begin with projects that are relatively easy to administer, quantify, and monitor before expanding into more complex mitigation strategies. A focus on scalable projects is particularly applicable in the Coachella Valley, where the need for mitigation is currently low, but will grow over time as specific plans are built out. The opt-in structure may also be relevant given the variation in local VMT policies, planning priorities, and implementation readiness among CVAG member agencies.

Legal Considerations

The development of a regional VMT mitigation program must be consistent with CEQA requirements governing feasible mitigation, proportionality, enforceability, and implementation timing. While fee-based VMT mitigation programs are increasingly being explored across California, most programs remain relatively new and continue to evolve alongside emerging legislation, guidance, and case law. A more



detailed discussion of the legal framework applicable to regional VMT mitigation programs is provided in Appendix B: Legal Framework for Regional VMT Mitigation Programs.

One of the most important considerations is additionality. Under CEQA, mitigation measures funded through a VMT mitigation program must provide reductions that would not otherwise occur through existing funding commitments or already programmed projects. In practice, this means that projects included in a VMT bank or exchange generally must either represent unfunded improvements, accelerated implementation of planned projects, or provide gap funding that makes the project possible. Closely related to additionality is verification, which refers to the ability to quantify, monitor, and document that the anticipated VMT reductions are actually achieved over time.

Regional Transportation Plans (RTPs) and Sustainable Communities Strategies (SCSs) influence how VMT mitigation programs are structured with regard to additionality. Because RTPs already identify many planned transportation investments, regional mitigation programs must carefully evaluate whether projects included in a bank or exchange satisfy additionality requirements and provide meaningful incremental VMT reductions beyond already funded improvements.

Another key consideration is the concept of feasible mitigation under CEQA. Courts have generally held that mitigation measures must be enforceable, reasonably proportional to the impact being addressed, and capable of being implemented within a reasonable timeframe. For regional VMT mitigation programs, this reinforces the importance of establishing clear administrative structures, transparent methodologies for calculating VMT reductions, and identified implementation pathways for funded projects. Appendix D: Economic Feasibility in CEQA Mitigation contains a detailed discussion of feasibility with a focus on financial feasibility.

Regional VMT mitigation programs must also address concerns related to deferred mitigation. CEQA generally discourages mitigation measures that are undefined or speculative at the time of project approval. However, courts have recognized that mitigation may be implemented over time where the lead agency commits to specific performance standards, identifies the types of projects capable of achieving those reductions, and establishes a clear mechanism for implementation and monitoring. This is one reason many regional programs begin with a defined set of identified projects and quantifiable VMT reduction methodologies.

Recent legislation has also accelerated the evolution of VMT mitigation practice in California. AB 1244 established a statewide Transit-Oriented Development Implementation Program that allows project applicants to satisfy transportation mitigation requirements through contributions to a state-administered fund supporting affordable transit-oriented housing and related infrastructure. AB 130 and SB 131 further expanded CEQA streamlining and introduced additional exemptions and implementation tools including a statewide VMT mitigation bank. Collectively, these laws reinforce the state's broader policy direction toward integrating transportation, land use, housing, and climate objectives.

Key Takeaways for CVAG

The programs reviewed in this chapter demonstrate that there is no single standard model for implementing fee-based VMT mitigation under SB 743. Agencies across California are testing a range of approaches, including banks, exchanges, impact fees, and hybrid models. Each approach reflects different legal, financial, geographic, and administrative considerations, and each requires a clear



relationship between the VMT impact being mitigated, the projects or programs being funded, and the expected VMT reduction.

Several themes are particularly relevant to the Coachella Valley. First, regional coordination is important because many VMT-reducing strategies, including transit improvements, active transportation investments, and transportation demand management programs, do not stop at jurisdictional boundaries. A regional framework can help provide more consistent mitigation options while still allowing local agencies to retain authority over CEQA determinations and local project priorities.

Second, the reviewed programs show the importance of identifying feasible, cost-effective, and monitorable mitigation projects before selecting a final program structure. Many agencies are beginning with projects that are already reflected in adopted plans, have partial or seed funding, can be implemented relatively quickly, or can be monitored using straightforward methodologies. This is especially relevant for CVAG because mitigation demand may vary by jurisdiction and may increase over time as larger specific plan areas and regional transportation projects advance.

Third, the comparison of banks, exchanges, and impact fees highlights the tradeoffs CVAG would need to consider in any future program. Exchanges provide flexibility and local agency participation, but may require more case-by-case review to ensure nexus, proportionality, and equitable distribution of benefits. Impact fee programs provide more predictability, but can be less flexible and may require more extensive nexus documentation and administration. Banks can provide a clearer inventory of pre-quantified mitigation opportunities, but depend on having a sufficient pipeline of eligible projects and a process for replenishing credits over time.

These takeaways provide the basis for the next chapter, which applies these concepts to the Coachella Valley. That chapter evaluates the updated regional travel demand model, threshold consistency, the inventory of VMT-reducing projects, the potential role of a regional mitigation program, and opportunities to integrate VMT into CVAG's existing TUMF and TPPS frameworks.



VMT Mitigation Strategies and Regional Program Integration

The preceding chapters of this report outline the broader policy context, institutional framework, and range of programmatic approaches available for addressing VMT impacts under SB 743. While these statewide practices provide a foundation for understanding how VMT mitigation programs are structured and implemented, their applicability ultimately depends on local conditions, including development patterns, local lead agency thresholds, and regional travel behavior.

This chapter focuses on how these concepts apply within CVAG's regional planning context. It evaluates the region's existing and projected VMT conditions, identifies opportunities to reduce VMT through planned and potential projects, and assesses the extent to which currently identified strategies can address the region's overall mitigation need. This includes consideration of the need for mitigation to address both land use-generated VMT and transportation project-generated VMT, including the role of induced demand.

Regional VMT mitigation programs can help regions grapple with the mitigation deficits that occur when a land use project cannot fully mitigate impacts on site or when a transportation project cannot mitigate within its corridor. However, in order to develop a useful programmatic solution each region must consider the actual potential need based on current growth trends, planned development and infrastructure, as well as their VMT thresholds. This chapter provides a clearer understanding of the scale of the VMT challenge and the potential role of a coordinated regional mitigation framework for the Coachella Valley. It also considers incorporation of VMT into the TUMF in order to align the region with a broader movement towards VMT as one of the primary performance measures used in transportation planning. Underpinning all of the analysis presented in this chapter is an update to the regional travel demand model, which was necessary to ensure that VMT thresholds and projections reflect current conditions rather than the pre-pandemic baseline carried in the prior model version.

Regional Travel Demand Model Update

A critical foundation for the analytical work completed as part of this study was an update to the RIVCOM travel demand model, the countywide forecasting tool maintained by the Western Riverside Council of Governments and used by local agencies throughout Riverside County to inform transportation planning, environmental review, and impact fee programs including the TUMF. Prior to this study, the model had a base year of 2018, meaning that VMT thresholds derived from it reflected pre-pandemic travel conditions and land use patterns that had shifted in the intervening years. Updating the model to a more recent base year was necessary to ensure that the thresholds and analyses produced by this study reflect current conditions and remain defensible for use in CEQA documentation and regional planning.

The update focused on land use inputs and zonal structure across all of Riverside County, recognizing that many member agencies use a countywide threshold rather than a jurisdiction-specific one. Household data was updated using 2023 American Community Survey estimates, disaggregated to the traffic analysis zone level using assessor parcel data to distinguish between single-family and multifamily units. Employment data was updated using permit records from the CVAG and WRCOG



TUMF programs, converted to employee counts using ITE trip generation rates and validated against aerial imagery and SCAQMD employment records. School enrollment was updated using California Department of Education and National Center for Educational Statistics data for the 2022-2023 school year.

In addition to updating socioeconomic data, the zonal structure of the model was refined to better reflect conditions in the Coachella Valley. A number of traffic analysis zones covering large, unincorporated areas were split to separate developed land from areas designated as conservation areas under the Coachella Valley Multiple Species Habitat Conservation Plan, which restricts the amount of development that can take place within them. This correction addressed a longstanding issue in which population and employment growth was being assigned to conservation areas, producing inaccurate VMT estimates for affected zones.

The horizon year land use assumptions were also updated to reflect current planning conditions, incorporating input gathered directly from each CVAG member agency as well as housing element opportunity sites and specific plan data. Several major specific plan areas in the northern and eastern portions of the Coachella Valley were examined individually given their potential to significantly influence future growth patterns in the region. Total growth was constrained to the 2024 Connect SoCal demographic forecasts for the 2050 horizon year.

Following the updates, the model underwent static validation comparing modeled roadway volumes to observed counts from Caltrans PeMS and Streetlight data at the same locations used in the original 2018 validation. The updated model performs consistently with the validated 2018 model, meeting industry-accepted thresholds for percent root mean square error and correlation coefficient. The updated model provides CVAG and its member agencies with a current and technically robust analytical platform that supports VMT threshold screening, the TUMF recalculation, project prioritization, and future planning efforts. Full documentation of the methodology is provided in Appendix E, Travel Demand Model Technical Documentation, prepared as part of this study. Beyond improving the accuracy of regional travel forecasts, the updated model also provides a stronger technical foundation for how VMT impacts are evaluated and mitigated across CVAG member agencies.

Threshold Adoption and Regional Consistency

A foundational step for many agencies is establishing their own VMT thresholds of significance, which provides predictability for project applicants and a consistent basis for impact assessment. While agencies may rely on another jurisdiction's adopted thresholds with appropriate justification, having locally adopted thresholds streamlines the review process and reduces uncertainty. Additional considerations include determining the most appropriate type of CEQA documentation, clarifying whether the program itself requires environmental clearance, and defining the level of CEQA evaluation needed for individual mitigation projects.

As shown in **Table 7**, VMT thresholds currently vary across CVAG member agencies. Most agencies follow the County of Riverside Transportation Analysis for Level of Service and Vehicle Miles Traveled



guidance⁵, which uses the county average VMT per resident and per employee as the threshold of significance. A smaller number of agencies, including Indian Wells and Rancho Mirage, apply thresholds derived from LCI's Technical Advisory on Evaluating Transportation Impacts in CEQA, setting the threshold at 15 percent below the city or regional average. La Quinta and Palm Springs have locally adopted policies that reflect variations on these approaches. This variation creates inconsistency in how VMT impacts are evaluated across the region, and can produce meaningfully different outcomes for similar projects depending solely on which jurisdiction they are located in.

Table 7 – Current Threshold Methodologies

Agency	Thresholds in Use	Residential	Employment
County of Riverside	County of Riverside Transportation Analysis for Level of Service and Vehicle Miles Traveled	County Average per Resident	County Average per Employee
Blythe			
Cathedral City			
Coachella			
Desert Hot Springs			
Indio			
Palm Desert			
Indian Wells	Technical Advisory on Evaluating Transportation Impacts in CEQA	15% Below City per Capita	15% Below Regional per Office Employee
Rancho Mirage			
La Quinta	Locally Adopted Policy/Threshold	15% below City per Capita OR 15% below regional per capita whichever is more stringent	15% below Regional VMT per Employee
Palm Springs		Baseline VMT per Service Population Exceeds Buildout VMT OR Baseline link-level Boundary VMT per Service Population increases	

As shown in **Exhibit 21** through **Exhibit 24**, the choice of threshold methodology has a meaningful effect on how development projects are evaluated across the region. The local threshold map reflects

⁵ Riverside County Transportation Department. (2020). *Transportation analysis guidelines for level of service and vehicle miles traveled*. County of Riverside. <https://trans.rctlma.org/sites/g/files/aldnop401/files/migrated/Portals-7-2020-12-15-20--20Transportation-20Analysis-20Guidelines.pdf>



the variation in approaches currently used by member agencies, resulting in a patchwork of screening outcomes that can differ significantly depending on jurisdiction. The county method map, which applies the county average threshold consistently across all agencies, shows a broader distribution of TAZs screening below threshold, particularly in the more urbanized core of the valley. For project applicants, the threshold methodology in effect directly determines whether a project screens out of detailed VMT analysis or requires full assessment and potentially mitigation. Advancing a consistent regional approach reduces the variation in outcomes that currently exists across jurisdictional boundaries and creates a more predictable regulatory environment for development throughout the valley.

To support member agencies in implementing the study's findings, agency-specific model Supplemental Environmental Impact Reports were prepared for each CVAG jurisdiction as part of this study. These documents are designed to serve two related purposes. First, they provide a pathway for each agency to amend its General Plan to formally adopt VMT thresholds consistent with SB 743, establishing a defensible CEQA baseline for future transportation impact analysis. Second, once a General Plan amendment is adopted using the model SEIR, subsequent development projects can tier off that documentation rather than preparing independent VMT analyses from scratch, substantially streamlining the project-level environmental review process.

A secondary but important motivation for developing these documents was to advance consistency in how VMT thresholds are applied across the region. While both the county methodology and the OPR-aligned approach are legally defensible, the variation creates unpredictability for developers working across multiple jurisdictions in the valley. By providing agency-specific model SEIRs that reflect a consistent methodological approach, the study creates a more uniform regulatory environment that reduces uncertainty for project applicants while maintaining each agency's ability to make independent CEQA determinations.

While threshold consistency affects how projects are evaluated under CEQA, a regional mitigation program also depends on having a clear inventory of projects that can deliver measurable VMT reductions. For this reason, the next step in the study was to identify potential VMT-reducing projects from existing local and regional plans, as well as transit project concepts provided directly by SunLine. The study also developed off-model tools that allow CVAG to estimate VMT reductions from projects that are not captured in the regional travel demand model. These tools are important not only for evaluating potential mitigation projects, but also for helping CVAG measure the VMT effects of bicycle and pedestrian projects that may be proposed for the concurrent TPPS update. Existing plans were prioritized because the projects they contain have already been reviewed by local agencies, informed by prior community engagement, and incorporated into broader planning or funding priorities. The transit concepts provided by SunLine also reflect several community priorities identified through this study's outreach, including fare affordability, increased service, vanpool options, and flexible transit service.



Exhibit 21 – Residential Threshold Screening Map Using Current Methodologies

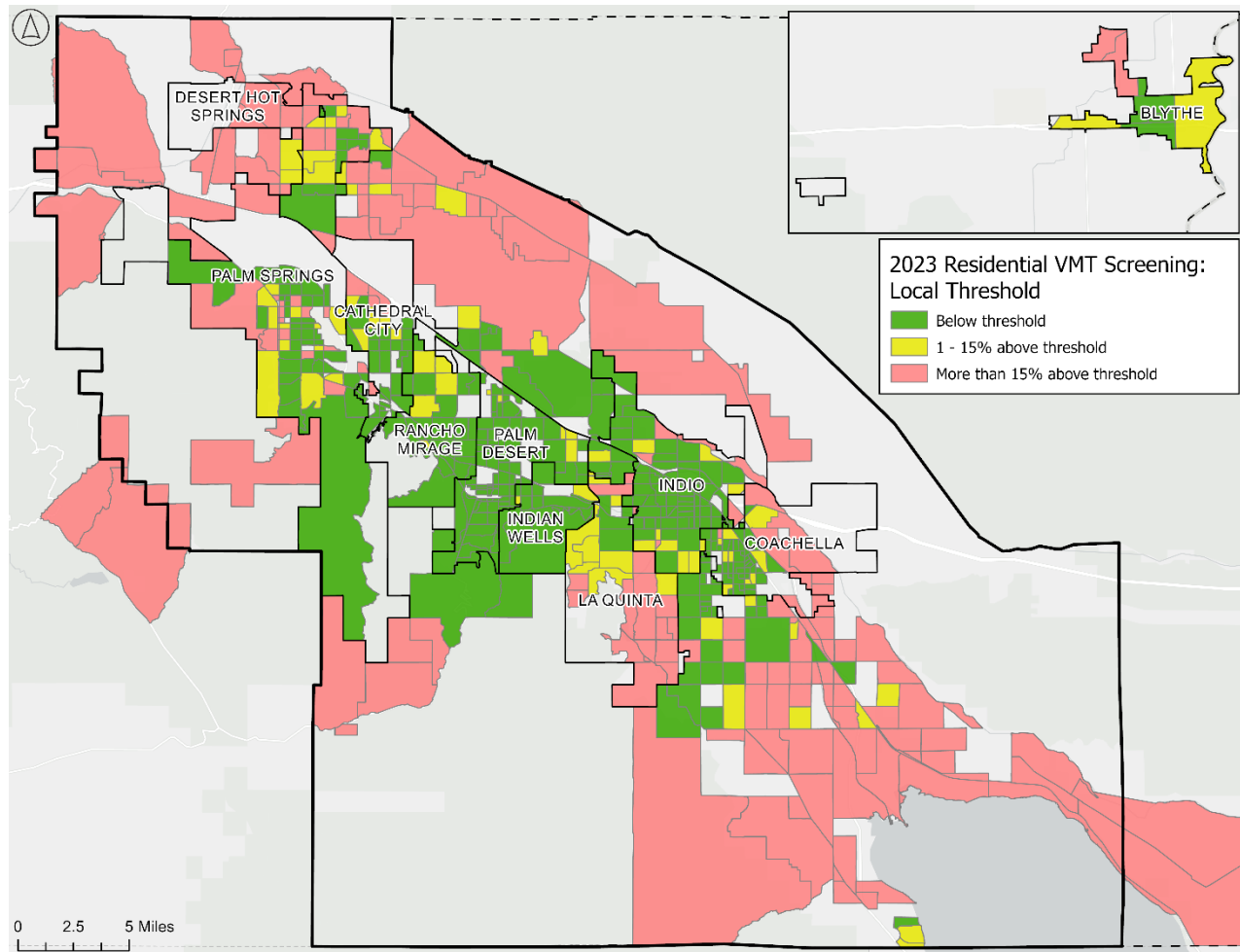




Exhibit 22 – Residential Threshold Screening Map Using County Methodology

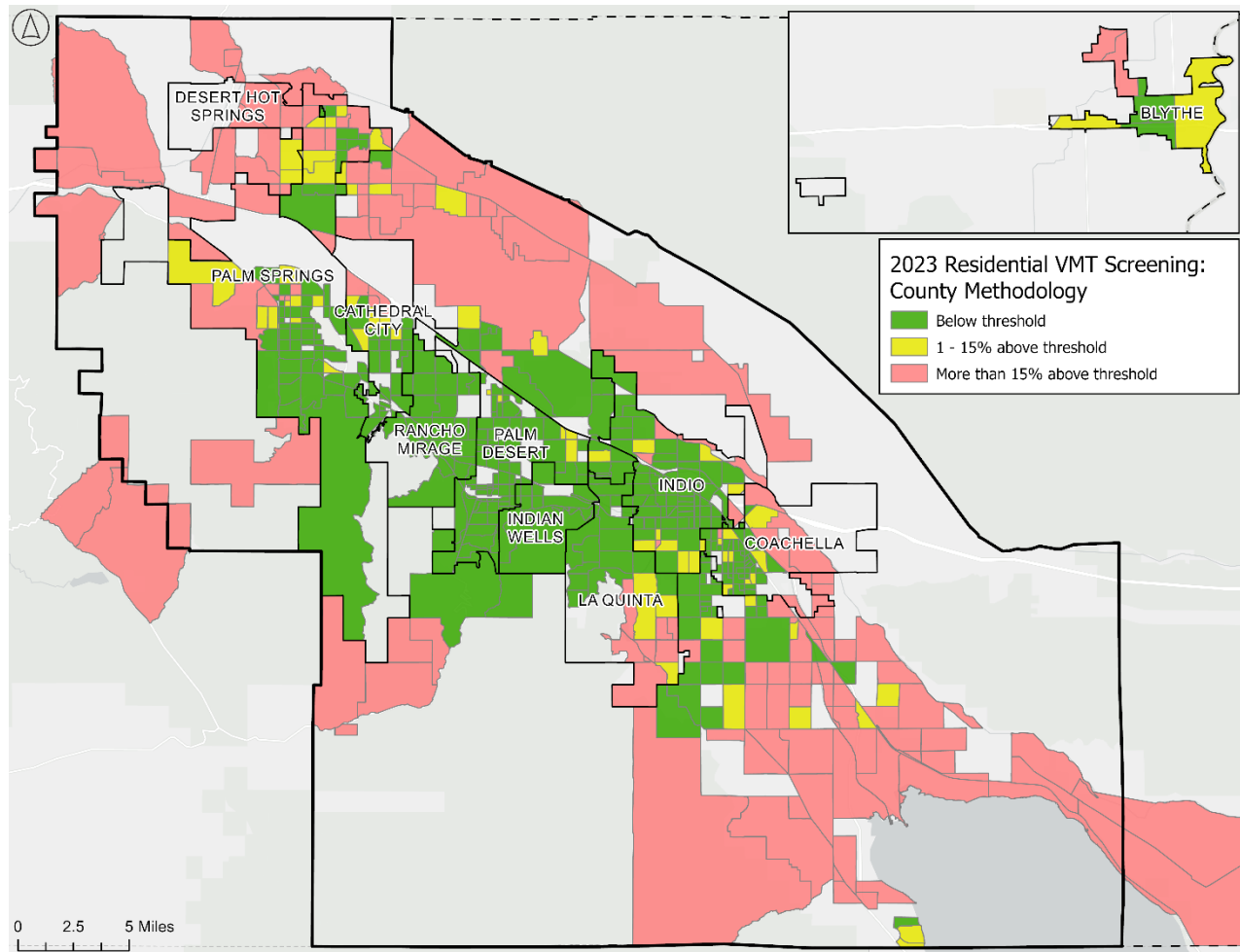




Exhibit 23 – Employment Threshold Screening Map Using Current Methodologies

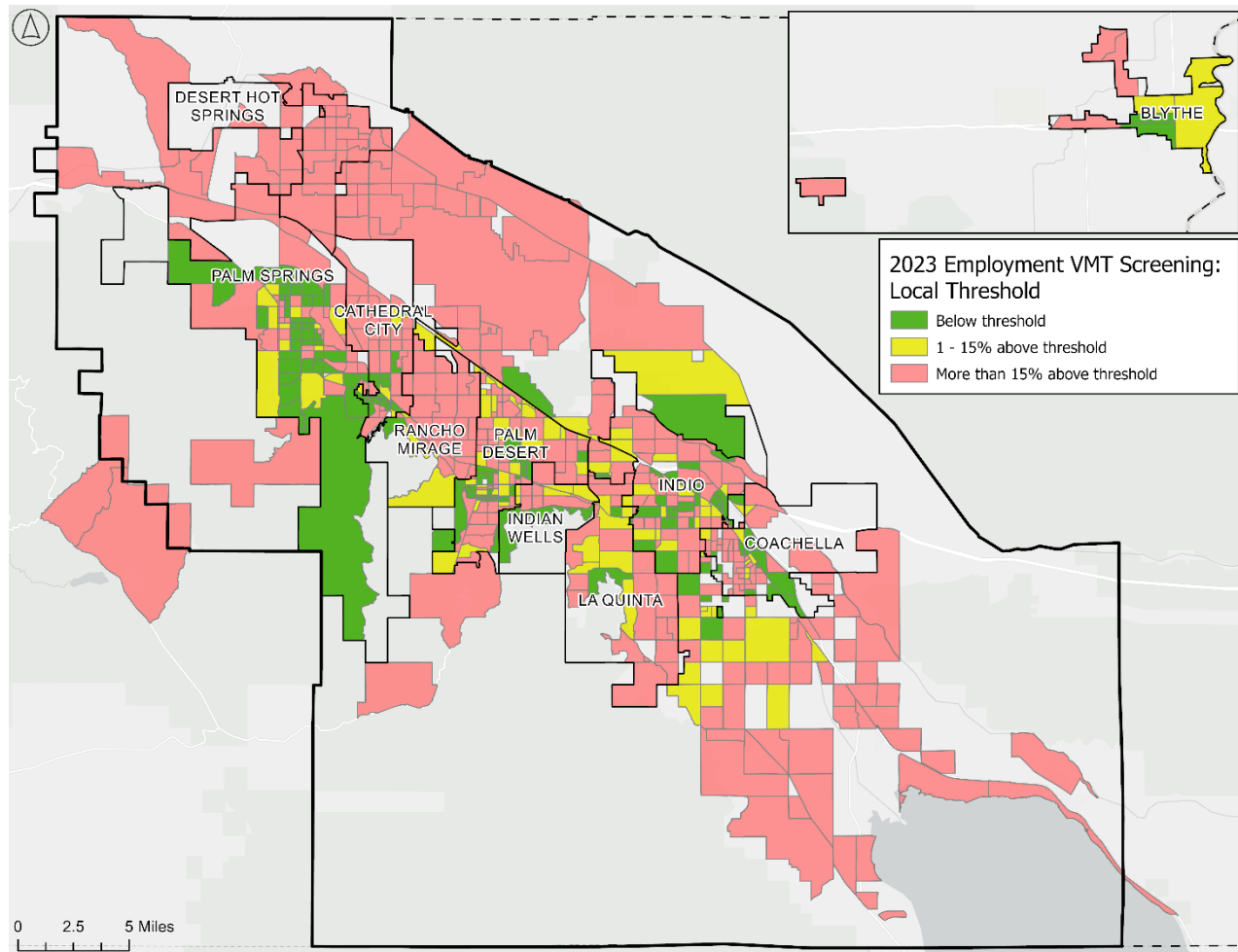
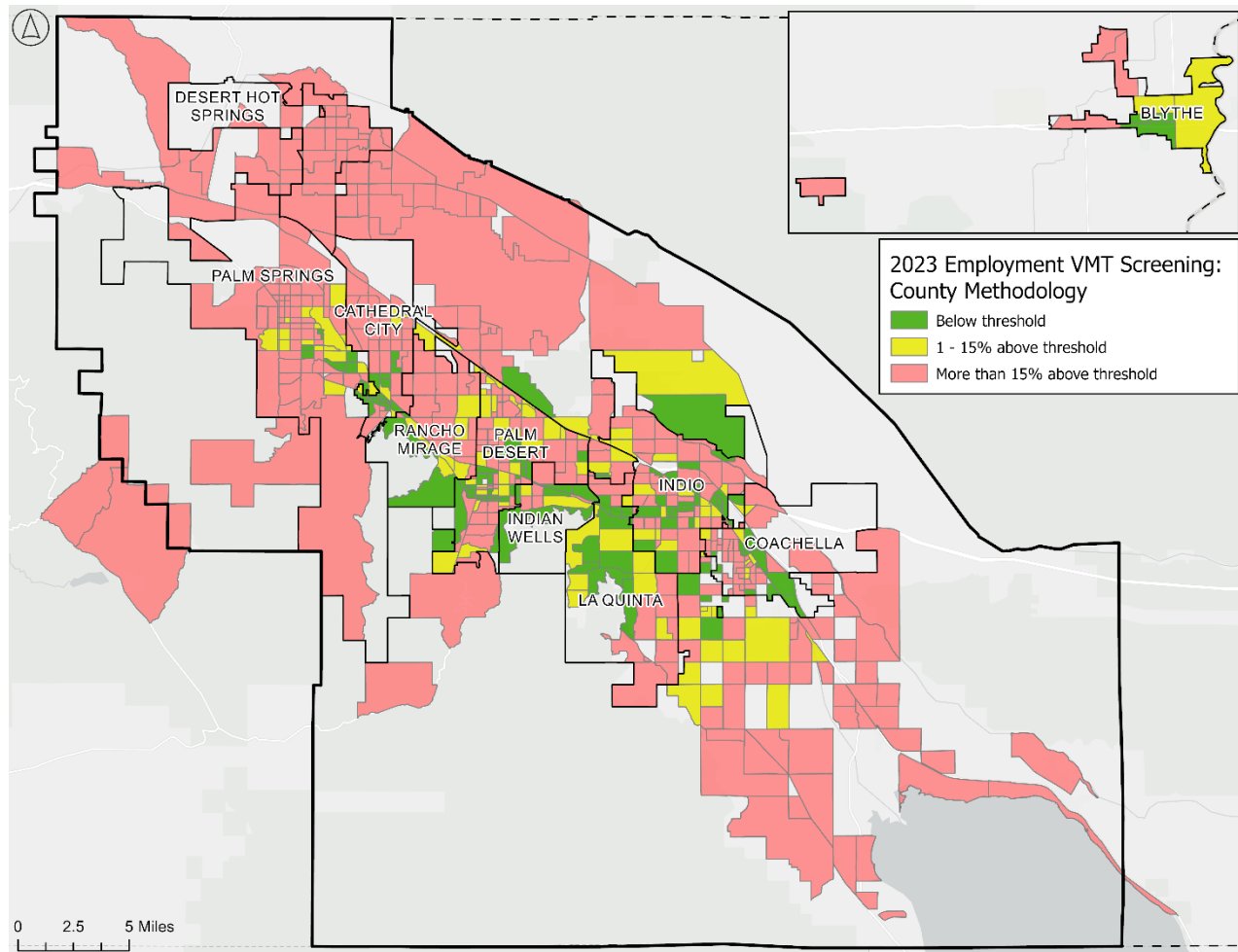




Exhibit 24 – Employment Threshold Screening Map Using County Methodology





Projects that Reduce VMT in Coachella Valley

To understand the region's potential mitigation capacity, this study evaluated planned and potential VMT-reducing projects within the Coachella Valley, including bicycle, pedestrian, and transit investments. This analysis helps identify which investments offer the greatest potential to reduce travel demand, support SB 743 objectives, and contribute to closing the region's VMT gap. It also supports the development of a coordinated regional mitigation strategy by identifying projects that could be considered for future funding or mitigation programs. As described in the Equity and Community Engagement chapter, community input gathered through the study's outreach program directly informed both the identification of projects and the prioritization framework applied here. The methodologies used to estimate VMT reductions from these projects are documented in Appendix H: Methodologies for Off Model Estimation of VMT Reducing Projects.

Transportation Demand Management Strategies

Transportation Demand Management, or TDM, refers to a broad set of strategies designed to reduce the number and length of vehicle trips by influencing how, when, and whether people travel by car. TDM approaches travel behavior through a combination of incentives, disincentives, land use design, and service improvements. Strategies range from transit fare reductions and vanpool programs to parking management, and active transportation infrastructure. In the context of SB 743, TDM strategies are among the most commonly used tools for mitigating project-level VMT impacts, and their effectiveness depends heavily on local conditions including land use patterns, transit access, employment density, and community demographics.

For the Coachella Valley, where dispersed development, extreme heat, and high drive-alone rates create a challenging environment for VMT reduction, having a clear and locally calibrated understanding of which TDM strategies are most likely to be effective is particularly important. General plans, climate action plans, specific plans, and CEQA documents across the region increasingly reference TDM as a mitigation strategy, but local agencies and applicants have historically had limited guidance on which strategies are appropriate for local conditions, what VMT reductions they can be expected to achieve, and what they are likely to cost.

To address this gap, the study developed the CVAG TDM Toolbox⁶, an online interactive resource available at cvagtdmtoolbox.com and as a standalone document. The Toolbox catalogs over 75 TDM strategies organized across six categories: land use, neighborhood design, parking and road pricing and management, school programs, transit, and trip reduction programs. Each strategy includes a description, real-world application examples, and information on VMT reduction potential, cost, return on investment, equity considerations, and relevant funding sources. Strategies can be filtered by land use context, including urban, suburban, and rural settings, as well as by trip type, scale of implementation, and implementation timeline, making it straightforward for agencies to identify strategies that are relevant to a specific project or planning context.

Paired with the Toolbox is a TDM Calculator, which allows users to estimate the VMT reductions associated with specific strategies or combinations of strategies for a given project or plan. The

⁶ CVAG TDM Toolbox Mitigation Calculator. (2026). *CVAG TDM Toolbox Mitigation Calculator*. Retrieved May 2026, from <https://cvagtdmtoolbox.com/>



Calculator is intended to support grant applications and planning processes by providing a methodology-based quantification tool that agencies and applicants can use to demonstrate the effectiveness of proposed TDM measures. Together, the Toolbox and Calculator give CVAG member agencies and project applicants a practical, locally calibrated resource for identifying, evaluating, and documenting TDM strategies across a wide range of planning and regulatory contexts.

While the TDM Toolbox supports planning and policy decisions at the program level, the following section turns to a specific inventory of projects evaluated for their ability to reduce VMT in the context of CEQA impact analysis and the development of a regional VMT mitigation program.

VMT Mitigation Project Pipeline

Bicycle, pedestrian, and transit projects were evaluated and scored using VMT reduction potential, co-benefits scoring, and return on investment. Co-benefits scoring assessed each project's impact on Disadvantage Communities, while return on investment compared estimated VMT reductions against project costs to help prioritize investments that deliver the greatest impact per dollar. Off-model VMT reduction quantification methodologies were used because RIVCOM does not have the capability to model VMT or vehicle trip reductions from bicycle, pedestrian, or transit improvements. To fill this gap, the study developed a suite of spreadsheet-based tools calibrated to local conditions using data from Replica, SunLine, and the National Transit Database. Bicycle projects were evaluated using the NCHRP 552 methodology, which estimates ridership uptake and VMT reduction based on population and employment proximity to new facilities. Pedestrian projects were evaluated using the California Climate Investments Board methodology. Transit projects were evaluated using a range of CAPCOA measures depending on the type of improvement, covering service frequency and coverage expansion, fare reductions, BRT, vanpool, and microtransit. These tools are documented in Appendix G, Co-benefits Methodology, and Appendix H, Methodologies for Off Model Estimation of VMT Reducing Projects, and remain available to CVAG to evaluate future projects as the program develops.

As part of the Study, a total of 841 VMT reducing projects were identified. A project short list was created by filtering for the projects with the highest VMT reduction potential. A co-benefits and return on investment criteria were then sorted to determine the top 20 VMT reducing projects, as shown in **Table 8 – Top 20 VMT Reducing Projects**. Bicycle projects were limited to all projects that are not currently under construction and not already fully funded to meet additionality requirements. These were sourced from local agencies' planning documents, including specific plans, climate action plans, active transportation plans, general plans, and safe routes to school plans. Transit projects were sourced from Sunline Transit agency's short range transportation plan and conversations with staff.

Table 8 – Top 20 VMT Reducing Projects

Project Type	Agency	Project Description
Transit	Sunline	50% Fare Reduction for general users
Transit	Sunline	Sunline Transit Agency Rideshare Program
Transit	Sunline	Express route/BRT conversion for Route 1
Transit	Sunline	Fare subsidies – low income
Transit	Sunline	Fare subsidies – elementary students

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Project Type	Agency	Project Description
Transit	Sunline	Sunline Transit Vanpool Pilot Program - Eastern CV
Transit	Sunline	Route 3: Increase weekday frequency
Transit	Sunline	Increased service coverage in DAC
Transit	Sunline	Route 5: Increase weekday frequency
Transit	Sunline	Route 6: Increase weekday frequency
Transit	Sunline	Route 8: Increase weekday frequency
Transit	Sunline	Route 2: Increase service frequency
Bike	Indio	Oasis St: Class II (bike lane)
Bike	Indio	Miles Ave: Class III (bike route)
Bike	Indio	Requa Ave: Class III (bike route)
Bike	Indio	Arabia St: Class III (bike route)
Bike	Desert Hot Springs	Ocotillo Rd: Class III (bike route)
Bike	Coachella	Tyler St: Class II (bike path)
Bike	Indio	Civic Center Dr: Class III (bike route)
Bike	Indio	Monroe St: Class II (bike lane)

Through the application of VMT reducing projects, the excess VMT above each agency's thresholds is anticipated to decrease, narrowing the gap between forecasted conditions and a VMT-neutral outcome.⁷ Following the VMT project quantification methodologies, **Table 9** provides the magnitude of VMT decreased by the VMT reducing projects in the existing and horizon year scenarios. As shown in **Table 9** below, the identified 841 projects are estimated to reduce 178,131 residential-based VMT and 52,618 employment-based VMT (total of 230,749 VMT). However, these estimated reductions are likely not sufficient to neutralize the VMT mitigation need to below currently adopted thresholds. Additionally, since **Table 9** represents VMT from land use and does not account for induced demand from transportation projects, the need could be greater than what is shown.⁸ Together, these findings support the case for a comprehensive regional VMT mitigation program that extends beyond currently planned projects, enabling CVAG to more effectively address remaining VMT gaps at a systemwide level.

⁷ See **Table 7** – Current Threshold Methodologies.

⁸ See **Table 4** – Potential Induced Demand Causing Projects from TPPS.



Table 9 – Daily VMT Mitigation Need

Category	Daily VMT Over Threshold ¹	Daily VMT Reduction from Top 20 Projects ²	Remaining Daily VMT to Mitigate	Daily VMT Reduction from All Projects ¹	Remaining Daily VMT to Mitigate
Base Year					
Residential (VMT per Capita)	803,247	-86,239	717,009	-178,131	625,116
Employment (VMT per Capita)	1,035,164	-52,618	982,546	-52,618	982,546
Horizon Year					
Residential (VMT per Capita)	891,911	-86,239	805,672	-178,131	713,780
Employment (VMT per Capita)	865,707	-52,618	813,088	-52,618	813,089

¹ Daily VMT uses thresholds currently in place at each local agency rather than assuming regional consistency.

² VMT reduction quantifications based on existing data.

The scale of the remaining VMT gap, combined with the limits of currently identified projects, points to the need for a coordinated programmatic approach that can be activated as mitigation demand emerges. The next section evaluates the need and recommendations for a regional VMT mitigation program.

Regional VMT Mitigation Program Approach for CVAG

The project team conducted multiple one-on-one interviews with each of the Coachella Valley member agencies to better understand land use trends and transportation infrastructure needs across the region. Several jurisdictions described relatively slow near-term growth and indicated that little additional large-scale development subject to CEQA is anticipated. Other cities, particularly those along the I-10 corridor, continue to grow and, in some cases, are annexing land that could accommodate future development. In theory, these areas could generate sufficient development activity to support a regional VMT mitigation framework. In practice, however, much of this growth is expected to occur over a longer time horizon, and recent development trends suggest a near term slowdown in projects that would trigger project-level VMT mitigation requirements. The larger projects that have advanced in recent years have tended to be logistics-focused and have frequently screened out of VMT impacts due to either lower passenger vehicle travel and fewer employees or, in the case of housing projects, have been determined to have a less-than-significant impact using small project thresholds or location efficiency screening mechanism.

These findings demonstrate that despite travel demand model results showing overall VMT that exceeds current thresholds, the practical experience of local agencies is that many projects are screening out. In other words, the structure of the threshold methodology currently in use across most CVAG jurisdictions



has reduced the volume of projects requiring full VMT assessment. Most member agencies rely on the County of Riverside methodology, which includes a small projects screening threshold based on greenhouse gas emissions expressed in metric tons of CO₂. Projects falling below that threshold are presumed to have a less-than-significant transportation impact without requiring a detailed VMT analysis. Combined with the fact that much of the recent growth in the Coachella Valley has occurred in locations and land use categories that perform relatively well against the county average threshold, this has meant that relatively few projects have triggered the kind of project-level mitigation requirement that would drive demand for a regional VMT mitigation program in the near term.

While current market conditions may not yet support the immediate implementation of a regionwide, development-driven VMT mitigation program, trends across the Coachella Valley indicate that such a program will become increasingly valuable in the future. As larger specific plan areas begin to build out, particularly those east of I-10 and in northern portions of the Valley, development activity is expected to generate a more consistent and scalable need for VMT mitigation solutions. At the same time, the region's continued investment in major roadway and corridor improvements will require thoughtful strategies to address induced demand and ensure alignment with SB 743 and long-term climate goals. In particular, the updated TPPS will play an important role in determining where this need may emerge. Depending on the mix, scale, and geographic distribution of projects identified through the TPPS, especially capacity-enhancing projects, there may be a clearer case for establishing a regional VMT mitigation program, even in the absence of a robust near-term development-driven mitigation market. Establishing the framework for a regional VMT mitigation program now helps to position CVAG to proactively manage growth, provide certainty to the development community, and create a reliable, coordinated mechanism for addressing future transportation impacts as market activity accelerates.

In the meantime, a statewide VMT Mitigation Program, currently under development through HCD, offers one potential compliance pathway that could be used in lieu of a regional program. While this option provides a streamlined and consistent compliance mechanism, it does not guarantee that funds contributed by a project will be reinvested within the same community or subregion in which they are collected. This raises practical and political concerns that are likely to shape how the program is received across the Coachella Valley. Regional agencies and member jurisdictions operate under return-to-source principles, expecting that fees and contributions generated by local development will fund improvements that benefit the communities where that growth occurs. A statewide program that pools mitigation funds and directs them based on statewide housing priorities may not align with those expectations despite attempts to structure funding priorities within the region where funds are collected. These concerns do not diminish the value of the statewide program as a compliance tool, but they do reinforce the case for maintaining a parallel regional framework that gives CVAG and its member agencies greater control over how mitigation revenues are directed.

In this context, a statewide program could serve as a valuable complement to a regional VMT mitigation program, rather than a replacement. It's recommended that, as a long-term strategy CVAG pursue a regional approach with low administrative burdens that can be phased into operation as demand for VMT mitigation increases, such as a pilot banking program focused on easily monitored projects. In the near-term it's recommended that CVAG continue discussions with local agencies about such an approach and maintain resources that allow agencies to pursue project-by-project mitigation strategies. In the long term a regional approach would allow CVAG and its member agencies to retain greater



control over how mitigation funds are invested, ensuring that revenues are directed toward locally relevant transportation improvements, such as multimodal infrastructure, demand management strategies, or corridor-specific solutions. This strategy also allows CVAG to right size project mitigation and address equity concerns by intentionally allocating mitigation funding to projects that directly serve disadvantaged communities.

Transportation Uniform Mitigation Fee Program and VMT

Assembly Bill 1600, the Mitigation Fee Act, established the legal framework for local agencies to charge development impact fees to fund public facilities needed to serve new growth. Within the Coachella Valley, this authority led to the creation of the Transportation Uniform Mitigation Fee (TUMF) in 1989 as a one-time fee applied to new development. The TUMF program is designed to fund transportation capital infrastructure needed to accommodate population and employment growth. TUMF revenues are used alongside other regional funding sources, including Riverside County's Measure A sales tax, to implement Regional Arterial System projects and related transportation investments, such as interchanges, identified through the Transportation Project Prioritization Study (TPPS). The current TUMF fee structure was adopted in 2018 following updated nexus and prioritization analyses, which established revised project cost assumptions and trip-based fee calculations derived from Institute of Transportation Engineers (ITE) trip generation rates. The program remains a foundational growth-management tool for funding infrastructure needed to serve new development and is currently undergoing an update.

The VMT Study evaluates how the TUMF could evolve to better align with the statewide shift towards VMT as a performance metric and regional mobility goals. One focus is whether incorporating a VMT-based fee structure into the TUMF would strengthen the nexus between development impacts and transportation system performance by tying fees more directly to how much and how far people drive. This approach would shift the emphasis from trip generation alone to overall travel behavior, while creating incentives for location-efficient development patterns and land uses that reduce VMT.

The study also considers how introducing VMT as a project prioritization metric within the TUMF program could influence regional investment decisions. Applying a VMT lens to project selection redirects emphasis away from roadway capacity projects and toward multimodal investments that reduce driving and expand travel options. This would serve a similar purpose to the TUMF's core objective of maintaining an operationally acceptable transportation system, but through a broader set of strategies that address travel demand rather than capacity alone. Under this framing, investments that reduce vehicle trips contribute to system performance just as roadway improvements do, and the project portfolio can be evaluated accordingly. This approach also creates an opportunity to reduce the overall infrastructure investment needed to accommodate growth: projects and programs that eliminate or shorten trips reduce the demand that would otherwise require new or expanded facilities, potentially allowing the region to achieve acceptable system performance with a smaller and less costly capital program.

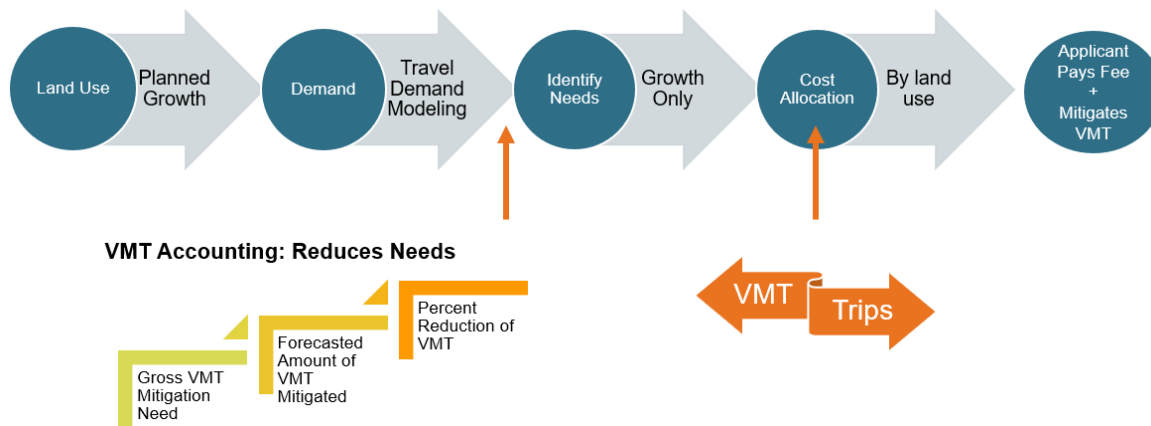
**Exhibit 25 – Potential Roles of VMT Within the TUMF Framework**

Exhibit 25 illustrates two potential ways VMT could be incorporated into the TUMF framework. First, VMT-reducing projects and programs can reduce overall travel demand, which in turn reduces the amount of future transportation infrastructure needed to accommodate growth. Under this approach, multimodal investments and transportation demand management strategies effectively lower the region's long-term infrastructure need by reducing vehicle travel before roadway capacity expansions become necessary. Second, the exhibit illustrates how the TUMF fee structure itself could shift from a traditional trip-based methodology toward a VMT-based methodology. Rather than allocating costs based primarily on the number of vehicle trips generated, a VMT-based approach allocates costs based on both the number and length of trips, more directly linking fees to overall travel behavior and system impacts.

In practice, this frames a coordinated but distinct regional approach. Both the TUMF and a potential regional VMT mitigation program share the same underlying goal of maintaining a transportation system that can accommodate growth, but they serve different functions. The TUMF is a long-range regional infrastructure funding program that collects fees from new development to help construct planned transportation improvements identified through the TPPS and related regional planning efforts. A regional VMT mitigation program, by contrast, would function as a CEQA mitigation tool, allowing project applicants to fund or implement VMT-reducing strategies to offset project-specific transportation impacts. Used together, these tools provide a more complete framework for managing the transportation impacts of growth than either program could achieve alone.

Calculating the TUMF Using VMT

VMT is increasingly recognized not only as a CEQA compliance metric but as a more accurate measure of how development affects the transportation system. A project's impact on roadway demand is a function of both how many trips it generates and how far those trips travel. A trip-based fee treats a short local errand the same as a long regional commute, while a VMT-based fee reflects the actual distance traveled and therefore the actual burden placed on the regional network. This approach has been explored and adopted by other California jurisdictions as a more defensible basis for nexus fee programs, precisely because it directly connects the fee charged to the impact created. This distinction has meaningful policy implications: retail uses, which generate high trip volumes but short average trip



lengths, would see lower fees under a VMT-based approach, while office and industrial uses, which generate longer average trips, would see higher fees. This recalibration more fairly distributes the cost of regional infrastructure among land uses based on their actual contribution to system-wide travel demand.

To explore this evolution, the project team recalculated the TUMF fees using a VMT-informed framework alongside the traditional trip-based methodology. The recalculation maintained the core nexus principles required under the Mitigation Fee Act, relating fee revenue to the cost of transportation facilities needed to serve growth, while testing how VMT could be substituted for a trip-based metric to allocate costs. This included using the updated travel demand model completed for this project, which included updated land use assumptions and a new base year of 2023. While the TUMF and TPPS project list is currently under revision, this analysis provides a foundation for comparing the implications of a trip-based fee versus a VMT-adjusted fee, and for identifying how future updates to the TUMF could support both infrastructure delivery and long-term VMT reduction objectives.

Methodology

The methodology used in recalculating the TUMF is consistent with the methodology outlined in the *Transportation Uniform Mitigation Fee Nexus Report* (2018).⁹ The 2018 TUMF relied on the Riverside County Traffic Analysis Model (RIVTAM) with a 2018 base year. To allow for a direct comparison of trip-based and VMT-based fee structures using an apples-to-apples comparison, the previous TUMF fees were recalculated using the updated RIVCOM 4.0.1 model with a 2023 base year and a 2045 horizon year.

To determine the travel metric used for fee setting, the study focuses on trip ends in the CVAG TUMF boundary (trips that either start or end within CVAG), rather than counting all traffic that may use the network. Internal-internal trips (trips starting and ending in CVAG) account for two trip ends. Internal-external (trips starting in CVAG and ending outside CVAG) and external-internal trips (trips starting outside of CVAG and ending inside CVAG) account for one trip end. This distinction is important because only trips generated by growth within the CVAG region can be used to determine the fees charged. Using the updated RIVCOM travel demand model, the analysis estimates existing and forecasted average daily trip ends and defines the growth in trip ends over the planning horizon as the development-driven increment used for cost allocation and fee calculation.

The TUMF per growth total was calculated two ways, a per-trip TUMF rate and a per-VMT TUMF rate. The per-trip, or trip-based, TUMF rate is calculated by pairing (1) the net cost of the TUMF program attributable to new development with (2) the projected growth in average daily trips (ADT) from 2023 to 2045. Similarly, the per-VMT, or VMT-based, TUMF rate is calculated by pairing (1) the net cost of the TUMF program attributable to new development with (2) the projected growth in VMT from 2023 to 2045. VMT growth was determined by summing all VMT generated by vehicle trips¹⁰ for the following trip purposes: residential home-based productions, home-based work attractions, and home-based other attractions.

⁹ Economic & Planning Systems, Inc. (2018, March). *Transportation Uniform Mitigation Fee (TUMF) 2018 fee schedule update*.

¹⁰ Vehicle trip classifications are derived from RIVCOM and include drive alone, shared ride 2, shared ride 3+, and ride hail.



Net TUMF cost is derived after accounting for other funding sources and offsets (e.g., obligated funds, external funding, policy-based local match assumptions, Measure A contribution, and other adjustments summarized in the net cost table). The resulting “Net TUMF Costs” value is divided by the modeled growth in ADT and VMT to yield an average cost per new daily trip or vehicle mile traveled. As shown in **Table 10** below, the resulting calculations are \$232 per ADT and \$34 per VMT.

Table 10 – TUMF cost per ADT and VMT

	Trip-Based [ADT]	VMT-Based [Miles]
Net TUMF Cost	\$263,335,000	\$263,335,000
2023- 2045 Growth	1,134,766	7,711,959
TUMF Rate	\$232	\$34

The TUMF rates are translated into land use specific fees using the ITE 10th Edition trip generation rates for representative residential and non-residential categories, consistent with the methodology used in the 2018 update. For the trip-based approach, each land use’s fees are calculated as:

$$(\text{ITE daily trips per unit}) \times (\text{average TUMF cost per ADT})$$

For the VMT-based approach, each land use category is assigned a representative trip purpose from the RIVCOM model¹¹. Then, a weighted average trip distance from the model was calculated for each of the representative trip purposes. Each land use’s fees are calculated as:

$$(\text{ITE daily trips per unit}) \times (\text{average weighted trip distance}) \times (\text{average TUMF cost per VMT})$$

For retail land uses, the 2018 Nexus study applies a 35% reduction to the per-trip rate to account for pass-by trips typical of shopping trips before calculating the final retail fee. This reduction was maintained for this analysis to ensure consistency. Results for both methods are shown in **Table 11** below. All other supporting steps and assumptions not called out above are described in the report as being consistent with the prior nexus approach and are carried forward in the same manner for this update.

As shown in **Table 11**, using VMT to determine fees results in an increase in fees for all land use categories except for retail, which would have a reduction in fees charged. The change in fees using VMT reflect trip distance and travel behavior: retail uses experience the shortest trip distance while industrial and office uses experience the longest trip distances and therefore have the largest increase in fees charged using VMT. Fees charged using a VMT metric may better reflect usage of the roadway network and therefore more fairly distribute the cost of improvements necessitated by the growth over the horizon, but could also result in economic impacts by making certain developments more costly.

¹¹ Residential land uses assigned Home-Based productions; industrial and office assigned Home-Based Work attractions; retail assigned Home-Based Other attractions.



Table 11 – TUMF by Land use Category

Land Use Category	Daily Trip Rate	ITE Trip Unit	Trip Distance [mi] ¹²	Trip Based Fee ¹³	VMT Based Fee	Fee Difference
Single-Family	9.44	Dwelling unit	7.72	\$2,190	\$2,490	+\$300
Multi-Family	7.32	Dwelling unit	7.72	\$1,700	\$1,930	+\$230
Industrial	4.96	1 KSF	16.61	\$1,150	\$2,810	+\$1,660
Office	9.74	1 KSF	16.61	\$2,260	\$5,520	+\$3,260
Retail¹	37.75	1 KSF	5.54	\$5,690	\$4,640	-\$1,050

¹Includes a 35% reduction for pass-by trips

Incorporating VMT Considerations into the TPPS

As the region updates the TPPS, there is an opportunity to integrate VMT into how projects are evaluated and advanced. Historically, TPPS project identification and ranking have focused on delay, roadway surface conditions, continuity, and safety. Incorporating VMT introduces a complementary lens that considers how transportation investments influence travel behavior, land use patterns, and long-term regional emissions outcomes.

One approach is to include VMT as a scoring metric within the existing TPPS ranking framework. Under this option, projects would continue to be evaluated using traditional performance measures, with VMT added as an additional criterion. Projects that demonstrably reduce driving, such as active transportation infrastructure and infill supportive roadway enhancements, would receive additional consideration during prioritization. This approach maintains the current structure of the TPPS while incrementally introducing multimodal and demand-focused considerations into project selection. It allows the region to better align investment decisions with SB 743 and climate objectives without fundamentally restructuring the project list or financing strategy.

While this approach has been considered in previous TPPS iterations, it was not advanced due to limitations in the regional travel demand model's ability to reliably capture project-level VMT effects. Since that time, the CVAG portion of the model has been updated to reflect a 2023 base year and more current local land use and socioeconomic data. These updates improve the accuracy of model outputs and forecasts. WRCOG is also initiating a broader model update, which is expected to further improve overall accuracy for the same reason. In addition, the CVAG VMT Study project has developed and provided supplemental off-model tools to estimate VMT reductions due to bicycle and pedestrian projects, transit investments, and transportation demand management strategies, including plan-level

¹² The model does not provide distinct trip lengths for single versus multi family.

¹³ Note that the trip-based fees differ from those in the 2018 update to the TUMF due to the change in model used to evaluate the trips (RIVCOM vs RIVTAM) and the change in analysis years, both base and horizon.



calculators and project-specific spreadsheet methodologies. Together, these resources establish a more reliable technical basis for incorporating VMT considerations into TPPS project evaluation moving forward.

A second approach to incorporating VMT is to develop a TPPS project list that is VMT neutral over the planning horizon. Under this framework, the combined effect of the projects included in the TPPS would be evaluated to ensure that capacity-enhancing investments are balanced with projects and strategies that reduce or offset induced travel. This would represent a more comprehensive shift in how projects are defined, bundled, and advanced. A VMT-neutral project list would likely be larger and more multimodal, requiring significant additional investments in transit, active transportation, and demand management to offset increases in driving associated with roadway improvements. Implementing this approach would also have implications for financing and programming, as traditional funding sources and delivery mechanisms are often structured around capital roadway projects. Additionally, it may not be possible to identify an affordable set of VMT reducing projects to offset capacity increasing projects depending on how many capacity increasing projects are included in the updated TPPS. New or expanded funding strategies, phasing approaches, and interagency coordination would be necessary to support a portfolio that balances mobility needs with VMT outcomes.

Both approaches provide a pathway for integrating VMT into regional decision-making but differ in scale and complexity. Incorporating VMT as a ranking metric represents an incremental policy shift that builds on the existing TPPS structure, while a VMT-neutral project list would require a broader reconsideration of project development, prioritization, and funding practices.



Conclusion

The Coachella Valley is at an inflection point in how it plans for transportation and growth. The implementation of SB 743 has shifted the foundational measure of transportation impact from vehicle delay to vehicle miles traveled, requiring agencies and developers to think differently about where development happens, how people move through the region, and what investments are needed to maintain a functional and equitable transportation system. This study was designed to help CVAG and its member agencies navigate that transition in a way that is technically defensible, practically useful, and reflective of the communities the region serves particularly disadvantaged communities.

Current development patterns suggest that a robust, development-driven VMT mitigation market may emerge gradually rather than immediately. Near-term growth trends indicate relatively limited CEQA-triggering development in some jurisdictions, while planned longer-term growth, particularly in eastern and northern areas of the valley, has the potential to generate a more consistent demand for mitigation. At the same time, the region's ongoing investment in major transportation infrastructure introduces a parallel and potentially more immediate need to consider how transportation projects themselves contribute to VMT and how those impacts are addressed at a programmatic level. Establishing the framework for a regional VMT mitigation program now positions CVAG to respond strategically as growth accelerates, providing certainty to the development community and a reliable mechanism for addressing future transportation impacts. A VMT mitigation bank would, in the long term, allow CVAG to address return to source concerns, right size project mitigations, and intentionally direct funding to communities in greatest need addressing equity issues.

The recent passage of Assembly Bill 130, which introduces a statewide VMT mitigation pathway, signals that the transition to VMT is accelerating at the state level as well. While the statewide program provides a useful compliance pathway, maintaining a regional framework gives CVAG and its member agencies greater control over how mitigation revenues are directed and ensures that investments reflect local priorities and return-to-source expectations.

The relationship between VMT mitigation and existing regional funding frameworks, particularly the TUMF, further illustrates the broader transition underway. While the TUMF has historically been structured around trip generation and roadway infrastructure delivery, the analysis shows that incorporating VMT into fee calculations and project prioritization would more directly link development to systemwide travel outcomes. Therefore, it is recommended that the region move the TUMF toward a VMT-based fee. This shift reflects a broader realignment of transportation finance toward supporting multimodal investments, demand management strategies, and land use patterns that reduce reliance on vehicle travel.

This study highlights the evolving role of VMT as a central metric shaping transportation and land use decision-making in the Coachella Valley. With the implementation of SB 743, the region is transitioning from a system historically focused on congestion relief and roadway capacity toward one that considers travel behavior, land use patterns, and long-term climate outcomes. The analysis completed for this study demonstrates how VMT can be used not only as a compliance requirement under CEQA, but also as a framework that increasingly influences how transportation investments are prioritized, funded, and evaluated across the region.



The study also underscores a structural consideration in how VMT impacts are generated and how they may need to be addressed as development activity grows. Both land use development and transportation projects can contribute to VMT increases, and as more projects trigger VMT analysis under SB 743, project-by-project mitigation limited to on-site strategies is unlikely to provide the scale, cost efficiency, or geographic flexibility needed to address these impacts comprehensively. In practice, this has led to growing interest in regional fee-based mitigation approaches that can pool resources and deliver larger and more effective VMT-reducing investments. The range of program types explored in this report, including banks, exchanges, and impact fees, illustrates that while multiple implementation pathways exist, each involves tradeoffs related to administration, equity, predictability, and alignment with local priorities.

Taken together, these findings point to a region that is well-positioned to take a proactive role in shaping how VMT mitigation is implemented. Pursuing a regional bank program as a long-term approach allows CVAG to monitor need and focus on evolving the TUMF and TPPS approach in the near term. A regional program can also be phased into operation with a pilot as demand for VMT mitigation actually materializes. The work completed as part of this study provides the analytical foundation to move forward with confidence when that time comes.

Deliverables and Implementation Resources

The study produced a substantial set of analytical resources and implementation tools designed to support CVAG and its member agencies to implement VMT reducing strategies across a range of planning, regulatory, and funding contexts. At the core of this work is an updated regional travel demand model, advancing the RIVCOM base year from 2018 to 2023 and updating the 2045 horizon year to 2050 based on detailed input from each member agency. This update corrects longstanding data issues, reflects post-pandemic travel conditions, and provides a technically current platform for VMT threshold screening, impact fee calculations, and project prioritization.

Building on the updated model, the study developed updated VMT thresholds for each member agency following the County methodology and prepared agency-specific model Supplemental Environmental Impact Reports to support General Plan amendments to adopt these thresholds. These documents give each jurisdiction a pathway to formally adopt consistent, defensible VMT thresholds under SB 743, streamlining future project-level CEQA review and reducing uncertainty for developers working across multiple jurisdictions in the valley.

To support project applicants directly, CVAG subscribed to TREDLite, a parcel-based analysis platform customized for the region. TREDLite allows developers and project sponsors to evaluate project-level VMT impacts and identify potential mitigation strategies early in the planning process, giving applicants a consistent and accessible tool that reduces uncertainty and helps streamline CEQA review for both applicants and member agencies.

To support planning and policy decisions at the program level, the study developed the CVAG TDM Toolbox and Calculator. This online resource catalogs numerous demand management strategies with associated VMT reduction estimates, equity considerations, funding sources, and cost information, giving agencies a practical tool for identifying and documenting TDM measures in general plans, specific plans, corridor studies, and grant applications.



A locally tailored Disadvantaged Communities methodology was also developed, integrating state and federal guidance with region-specific indicators to identify the communities most in need of transportation investment. This framework was embedded directly into the project prioritization process, ensuring that the VMT-reducing projects identified through this study reflect both technical merit and the expressed priorities of underserved communities. The public engagement program, which reached over 1,180 residents across 19 events and collected 757 statistically valid survey responses, provided the community foundation for that prioritization work.

For project-level analysis, the study developed a suite of off-model quantification tools for estimating VMT reductions from bicycle, pedestrian, and transit investments, filling a critical gap in the regional modeling toolkit. These tools were applied to an inventory of hundreds of VMT-reducing projects drawn from adopted local plans, producing a scored and ranked project list that can serve as the starting point for a regional VMT mitigation program. A grant toolbox was also developed to help member agencies identify funding opportunities aligned with the study's project and strategy recommendations.

Finally, the study evaluated two pathways for integrating VMT into CVAG's core funding and programming tools. The TUMF recalculation demonstrates how a VMT-based fee structure would distribute costs more directly in proportion to actual system impacts, with meaningful implications for how different land uses are treated. The TPPS integration analysis identifies options for incorporating VMT as a scoring metric or developing a VMT-neutral project portfolio, establishing a technical basis for advancing either approach as the TPPS is updated.

Individually, each of these products addresses a specific need in the region's planning and regulatory toolkit for incorporating VMT into the planning process. Collectively, they represent a comprehensive shift in how CVAG and its member agencies can approach transportation planning, moving from a system organized around vehicle capacity and congestion toward one that considers travel behavior, land use patterns, equity, and long-term climate outcomes. As CVAG and its member agencies move forward, this body of work provides the analytical foundation, implementation resources, and community relationships needed to advance VMT mitigation in a coordinated, equitable, and regionally responsive way.