

# VENTURA COUNTY CEQA VEHICLE MILES TRAVELED ADAPTIVE MITIGATION PROGRAM

**FINAL REPORT**

Approved May 12, 2023

**Recommendations to CEQA Lead Agencies in Ventura County to  
Streamline CEQA Transportation Assessment and Mitigation**

April 2023

VENTURA COUNCIL OF GOVERNMENTS

VENTURA COUNTY TRANSPORTATION COMMISSION

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#### Referenced Acronyms

AMP: Adaptive Mitigation Program  
CAPCOA: California Air Pollution Control Officers Association  
CEQA: California Environmental Quality Act  
EIR: Environmental Impact Report  
GHG: Greenhouse Gas  
LOS: Level of Service  
MMRP: Project Mitigation and Monitoring Reporting Program  
OPR: Office of Planning and Research  
RHNA: Regional Housing Needs Allocation  
RACM: Reasonably Available Control Measures  
REAP: Regional Early Action Planning  
SCAG: Southern California Association of Governments  
TAZ: Traffic Analysis Zone  
TDM: Travel Demand Management  
TPA: Transit Priority Area  
TIMF: Transportation Impact Mitigation Fee  
VCTM: Ventura County Transportation Model  
VMT: Vehicle Miles Traveled

# 1 Executive Summary

The California Environmental Quality Act (CEQA) Guidelines were updated in 2018 to change transportation impact analysis from vehicle operations level of service (LOS) to vehicle miles traveled (VMT) as required by Senate Bill (SB) 743. This changes environmental analysis from how a project affects congestion to the distance traveled by vehicle trips associated with a Project. The change supports the GHG reduction goals of the California Global Warming Solutions Act of 2006 (Assembly Bill 32), as implemented.

The most effective means of reducing VMT, is by providing convenient, safe, and accessible bicycle, pedestrian, and transit network improvements, providing a mix of land use types in close proximity, and providing a range of housing options near places of work. This program will focus on providing a [CEQA VMT Adaptive Mitigation Program](#) that includes a simplified mitigation program to reduce residual significant VMT impacts with a focus on affordable housing development.

VMT impacts may be difficult for projects to mitigate without offsite improvements. This voluntary program will provide a mechanism to apply VMT mitigation measures to reduce VMT impacts to below a level of significance.

The VMT threshold of significance is determined by each CEQA lead agency, not by this program. As this program provides a template for CEQA VMT mitigation, it may be considered for use with any project that generates VMT.

**The “CEQA streamlining” purpose of this program is to prevent a situation where the only significant impact is VMT, directing the lead agency into additional time and expense of preparing an EIR and Statement of Overriding Considerations for only one significant impact, an added burden especially for affordable housing projects that rely on grants and subsidies with fixed budgets and timetables.**

This Program was developed with the assistance of REAP funds to assist CEQA lead agencies in Ventura County to streamline CEQA-required review of potential significant transportation impact as measured by VMT as opposed before 2020 when CEQA transportation impact analysis involved assessment of vehicle operations. Vehicle operations analysis and performance standards may still be required by non-CEQA review and entitlement requirements of jurisdictions.

While demonstrative analysis was conducted using the VCTM, other travel demand models are available to lead agencies. For example, the Cities of Oxnard and Simi Valley have their own travel demand models, which will result in slightly different VMT forecast values. VMT analysis methodology tools may differ by input assumptions and output value. However, the absolute number value of VMT is much less important than the percent difference between Existing Conditions (i.e., No-Project) and With-Project conditions as a metric for CEQA impact assessment for projects that require CEQA review. While not all

land use development projects require CEQA review, a VMT analysis may still be required to document how a project meets a CEQA exemption.

## 1.1 Program Framework

The Program, developed by the Ventura Council of Governments (VCOG) and the Ventura County Transportation Commission (VCTC), is a multifaceted effort to provide mechanisms for clear and consistent application of VMT reduction strategies to streamline the CEQA process in Ventura County. It is intended to develop capacity and standards that provide several options for avoiding or mitigating potential CEQA significant impacts due to project VMT. This will be accomplished through:

1. **AVOID: Identification of “low VMT areas”** where development is less likely to have a VMT impact through mapping and an address look-up tool on the VCTC website.
2. **ASSESS: Support for estimation of potential significant CEQA VMT impacts and mitigation** through a recommended four-step VMT assessment process.
3. **ASSIST: Standards for VMT analysis for applicant preparation and agency review**
  - a. Provides standards for VMT analysis to assist in the review of project’s CEQA impact determination by the lead agency and responsible reviewing agencies.
  - b. Recommended methodology for VMT assessment.
4. **ADDRESS: Recommended VMT reduction/mitigation strategies and their effectiveness** to provide options for lead agencies and project proponents through on-site and off-site VMT reduction strategies. Projects exceeding the VMT threshold of a lead agency could either:
  - a. Provide an on-site or off-site VMT reduction project component or action.
  - b. Pay a VMT offset fee: a fair share cost estimate of VMT reduction as determined by a dollar amount per daily VMT reduced. The fair share cost estimate could be used for a VMT reduction strategy of the lead agency or could be applied towards a multijurisdictional or regional project provided it does not supplant previously committed funding to meet CEQA mitigation additionality requirements.
5. **ADAPT:** The program is ‘adaptive’ in that a menu of reduction/mitigation strategies is available from which to choose so long as the CEQA-determined reduction goal is achieved for a long-term project.

## 1.2 Program Recommendations

The AMP recommendations are provided to participants with different roles in the CEQA process to streamline not only their CEQA transportation assessments, but also those of the other participants in the VMT analysis process.

### Recommendations for VCTC and VCOG

1. Continue to **provide technical analysis available to lead agencies, project proponents and other stakeholders by maintaining the Ventura County Transportation Model (VCTM)** and

publishing its outputs on the VCTC website. The VCTM is the best source for estimating and forecasting VMT in Ventura County, therefore new sources of data to calibrate and validate the model and its interaction with other tools for VMT estimation such as California Emissions Estimator Model (CalEEMOD) should be explored.

2. **Refine the CEQA AMP as a regional standard** of CEQA transportation assessment by working with all parties to continually improve tools and processes.
3. **Pursue Regional Early Action Program (REAP) resources** to support lead agencies.
4. **Develop regional options for transportation VMT impact avoidance/mitigation.** While the AMP does not contain a direct mechanism for funding regional projects as VMT mitigation, it does provide a fair-share cost mechanism that could be used by individual lead agencies or at a regional level to fund multimodal transportation improvements to reduce VMT.

### Recommendations for Lead Agencies

1. Implement 2021-2029 Housing Element policies and programs to focus and **support development in Low VMT Areas and in areas served by transit.** Based on analysis in the AMP, 71 percent of future housing identified in certified or draft 2021-2029 Housing Elements in the 11 jurisdictions is located in areas below 85 percent of current average County-wide VMT and/or served by transit.
2. **Establish Lead Agency VMT Thresholds for CEQA review** by either adopting the State CEQA Guidance threshold of 15 percent below (85 percent of) the most recent regional VMT average, or define another threshold level based on local conditions.
3. **Define a set of multimodal infrastructure projects** that can be allocated a fair-share cost participation as project VMT mitigation. The AMP provides the nexus analysis and “VMT metric” for bicycle, pedestrian and transit infrastructure and services to be quantitatively used as project VMT mitigation. [The CEQA additionality requirement that mitigation funds not supplant previously committed funding must be followed.]

### Recommendations for Project Proponents/Applicants

1. **Review of project area VMT as part of due diligence** by looking up the VCTM outputs for the traffic analysis zone (TAZ) containing the project location. This will show if the TAZ/project area was modeled as above or below the lead agency’s CEQA VMT threshold under existing conditions.
2. If a project is shown to be in an area with higher VMT per capita than the lead agency threshold, **develop VMT reduction strategies to incorporate as project elements/actions to avoid or reduce VMT.** These could be changing the type of project land use (more mixed-use and affordable housing) or elements to reduce vehicle use such as bicycle parking. Ensure the VMT reducing elements of the project are accounted for in the VMT assessment of the project.
3. **Include VMT reduction in early discussions with the lead agency.**

### Recommendations for Other Stakeholders

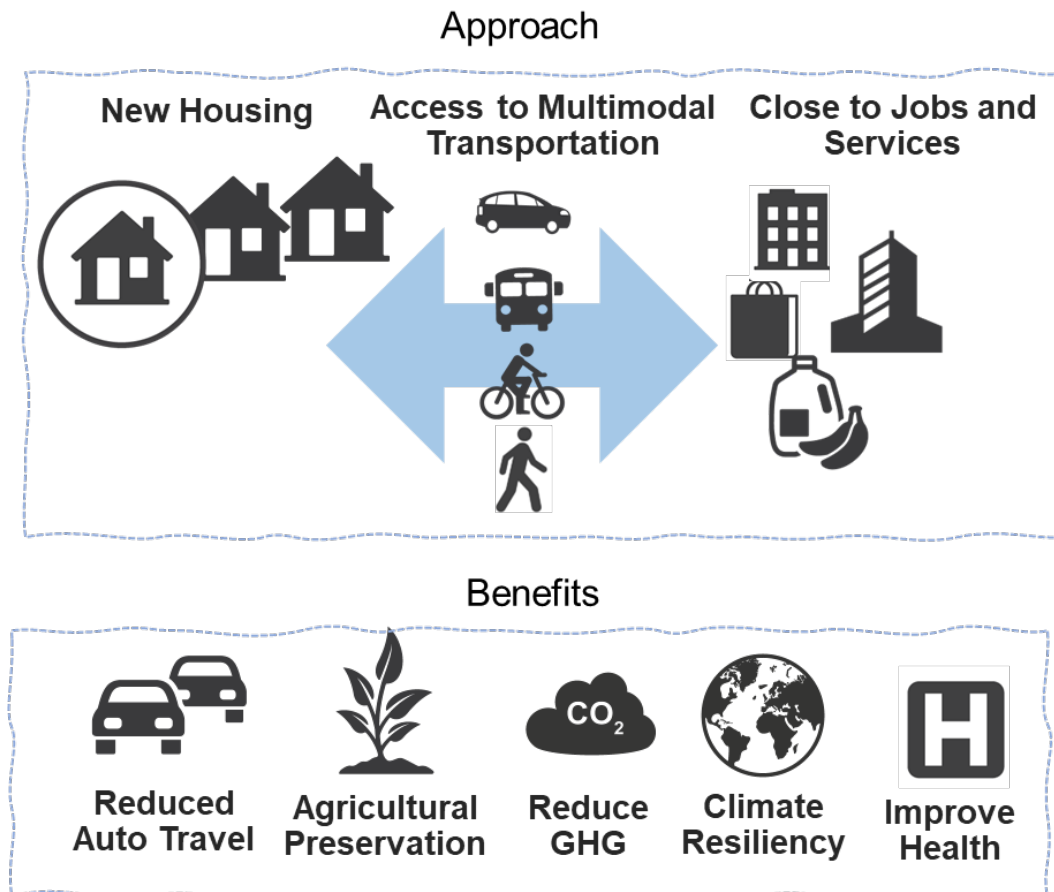
1. **Help CEQA Lead Agencies develop VMT avoidance and mitigation options** such as mechanisms for funding transit operations or development of affordable housing as a VMT reduction strategy through nexus analysis.
2. **Continue to participate in countywide and regional processes to help guide the next steps towards sustainable development.**

# 1. Introduction

The Ventura County CEQA VMT Adaptive Mitigation Program (AMP) is a multifaceted effort to provide mechanisms for clear and consistent application of VMT reduction **strategies to streamline the CEQA review process related to implementing 2021-2029 Housing Element programs that lead to housing development in Ventura County.** It is intended to develop capacity and standards that provide several options for avoiding or mitigating potential CEQA significant impacts due to project VMT.

While automobile travel brings many benefits, orienting land use and transportation to be automobile-dependent has many negative externalities. With the adoption of SB 743, effective in July 2020, CEQA transportation analysis was reoriented from level of service (LOS) analysis to reduction of VMT. The combined intent of SB 743 and the 2021-2029 Housing Element process is to direct new housing to multimodal transportation and closer to jobs and services in order to bring benefits of reduced auto travel, land preservation, reduction of greenhouse gases, climate resiliency and improvements to health as shown in **Figure 1-1.**

**Figure 1-1: Ventura County AMP Approach and Benefits**





## 1.2 Vehicle Miles Traveled

Vehicle Miles Traveled (VMT) is the number of vehicle trips generated by a project multiplied by the distance of each trip.

The primary determinants of a project's vehicle trips are:

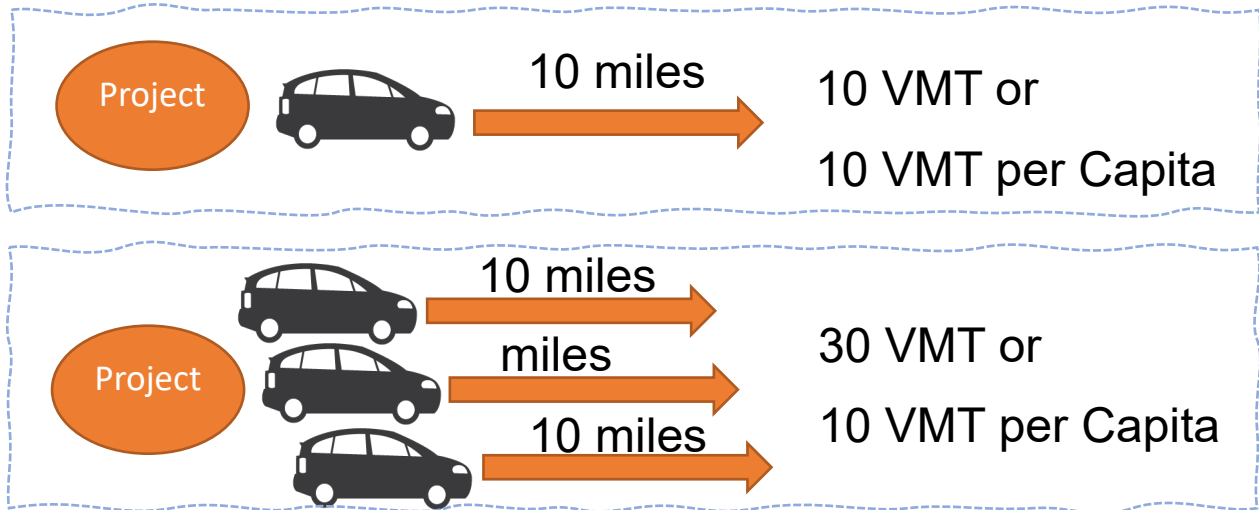
- Projects with Housing: Household Demographics—their size and composition—and their economic circumstances, particularly employment status and income level.
- Projects without Housing: On-site employment and attraction of retail customers, students, visitors, tourists, and others to goods and services.
- Regional geographic distribution of households, employment, schools, shopping, and recreational destinations that influence the distance of travel.
- Transportation system infrastructure and services providing travel options.

In general, VMT is lower in areas where there are a diversity of land uses in close proximity—shortening or avoiding trips by walking or bicycling—and where there are multimodal transportation networks and opportunities (walking, bicycling, trip-share, shuttle, transit bus, light rail, regional rail) —that all help reduce the need for automobile travel, especially single-occupant vehicle trips.

Since assessing total VMT of projects under CEQA would disadvantage larger projects—and generally discourage economic growth, an “Efficiency Metric” or index of VMT by population, employment or both was developed by the Governor’s Office of Planning and Research (OPR).

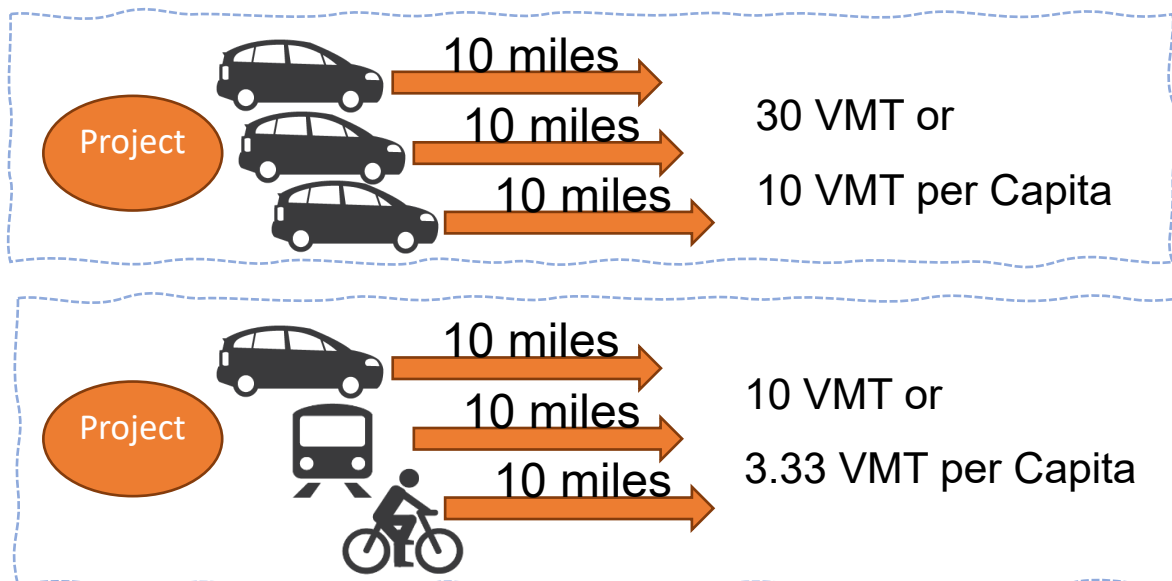
**Figure 1-2** demonstrates this efficiency metric of VMT per capita: A project with one employed person traveling in one car going 10 miles each day creates 10 VMT. The same project with three employees traveling 10 miles each for a total of 30 miles creating 30 total VMT also creates 10 VMT per capita per day. By comparison, **Figure 1-3** shows the same retail project where the three employees also travel 10 miles each but one by car, one by transit, and one by bicycle results in 10 total VMT, or 3.33 VMT per capita per day.

Figure 1-2: Total VMT vs. VMT Index



A VMT index is a systemic transportation metric that accounts for other types of travel by including all people traveling in the denominator but not including the non-vehicle mileage in the numerator. Therefore, as people make an increasing share of trips by non-vehicle modes, the VMT index is reduced.

Figure 1-3: VMT Index for Auto Only vs. Multimodal Trips

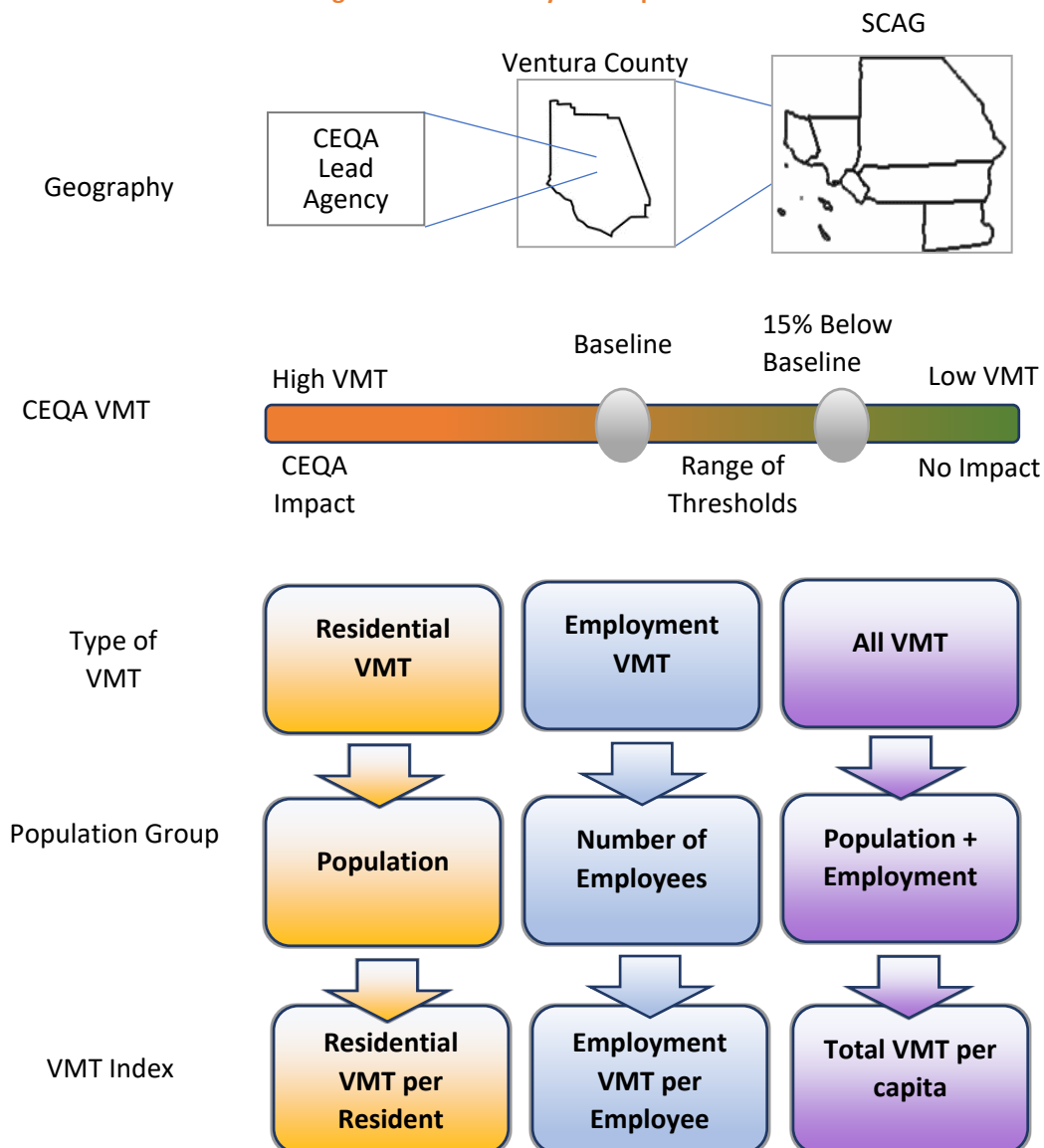


Because cars generally can travel longer distances than other modes, in order to lower VMT per capita, not only do land uses need to be developed to meet local needs, but they also need to be developed closer to transit, walking and biking options and the infrastructure supporting those types of transportation.

### 1.3 Project VMT Assessment

The CEQA lead agency (the government agency taking a discretionary action and responsible for CEQA VMT review, if required) defines the components of the VMT assessment. Project VMT is assessed by comparing a baseline VMT index to the Project VMT index to determine if a threshold of significance is exceeded. As shown in **Figure 1-4**, the region, as defined by California Office of Planning and Research (OPR), is a geographic unit (SCAG region, Ventura County or jurisdiction), the threshold is the difference from baseline which defines a potential significant impact, and the subset of overall VMT used for assessment is based on the project type with the corresponding population group used to index the VMT.

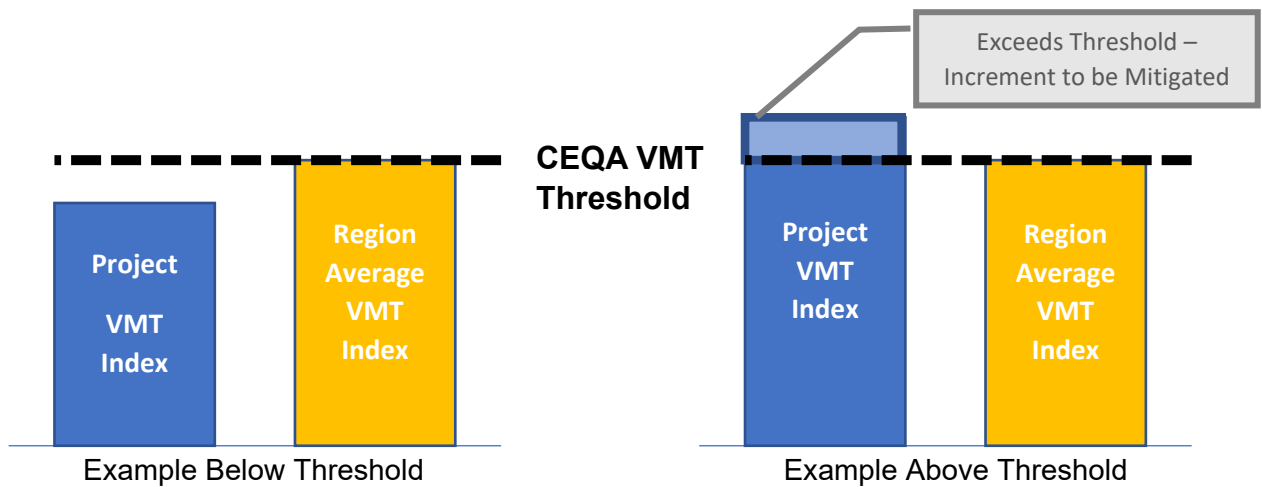
**Figure 1-4: VMT Analysis Components**



OPR recommends a VMT threshold of 15 percent below the regional baseline VMT index ([Technical Advisory On Evaluating Transportation Impacts in CEQA](#), 2018 as amended).

An assessment of VMT is shown in **Figure 1-5** for projects with a VMT index below and above a lead agencies threshold of significance.

**Figure 1-5: VMT Threshold Assessment Examples**



### 1.3.1 Finding Less Than Significant VMT Impacts

The OPR [Technical Advisory On Evaluating Transportation Impacts in CEQA](#) describes CEQA Lead Agency use of screening criteria to quickly identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study. As part of an initial study a project could explain the reasons for determining that potential VMT effects would not be found significant.

These screening criteria are defined by lead agencies with common ones being:

**Screening Threshold for Small Projects** – OPR recommends projects that generate or attract fewer than 110 trips per day based on the CEQA categorical exemption for existing facilities, including additions to existing structures of up to 10,000 gross square feet.

**Low VMT Area** – Projects that locate in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT. Maps created with VMT data can illustrate areas as of 2023 below threshold VMT. “Areas” are usually Traffic Analysis Zones (TAZ) for which VMT information is available. A TAZ is usually a Census Tract sized area of land with different amounts of housing, commercial and/or industrial uses, or a major land use such as a regional hospital or college campus.

**Transit Priority Areas** – located within one half mile around major transit stops.

**Affordable Housing Development** – for full or partial affordable housing development, especially in and near commercially zoned areas.

**Community Serving Projects** – focused on services that primarily serve the community such as neighborhood retail schools, parks, community center, daycare and libraries.

## 1.4 Lowering Project VMT

The AMP provides for Project Applicants and lead agencies to determine if a project may have potential significant impacts based on VMT early in the project development process, so that VMT reduction elements may be integrated into project design from the beginning rather than applied as part of a mitigation program if potential significant impacts are later identified. Mitigation measures should be not only technically and financially feasible, but also appropriate for the context of the project site and expected to achieve the VMT reductions it would be credited for in pre-construction analysis.

If a project's VMT threshold is expected to be exceeded, VMT reduction measures to reduce a project's VMT efficiency below the threshold should be applied to the project, on-site or off-site, before the project description is finalized and published during CEQA review.

On-site VMT reduction may be achieved through increased density, a greater mix of compatible land uses, affordable housing, and/or improving on-site multimodal transportation infrastructure and connections. Appendix G describes VMT reduction strategies in detail.

Off-site mitigations are generally infrastructure or operational improvements to multimodal infrastructure to support non-vehicular travel. Off-site mitigation serves more than just travel to/from the project site, and therefore can reduce VMT to a higher level than on-site mitigations which only apply to the project-generated trips. The drawbacks of off-site mitigations are their relatively higher cost and difficulty to administer from a project applicant or operator and CEQA Lead Agency perspective.

To facilitate off-site mitigation, a fair share cost mechanism for project applicants was developed for use in Ventura County as detailed in Appendix C. The fair share cost mechanism determined the dollar cost of reducing one daily VMT (mile of vehicle travel, not indexed to population or employment). The fair share cost mechanism is not required to be used for determining VMT mitigation cost, but rather to provide a mechanism for lead agencies to allow applicants a means to partially fund off-site mitigations which may be too expensive to fully fund by one project or to be used for yet-to-be identified VMT reduction projects managed by the CEQA Lead Agency.

## 1.5 Recommended VMT Assessment Methodology

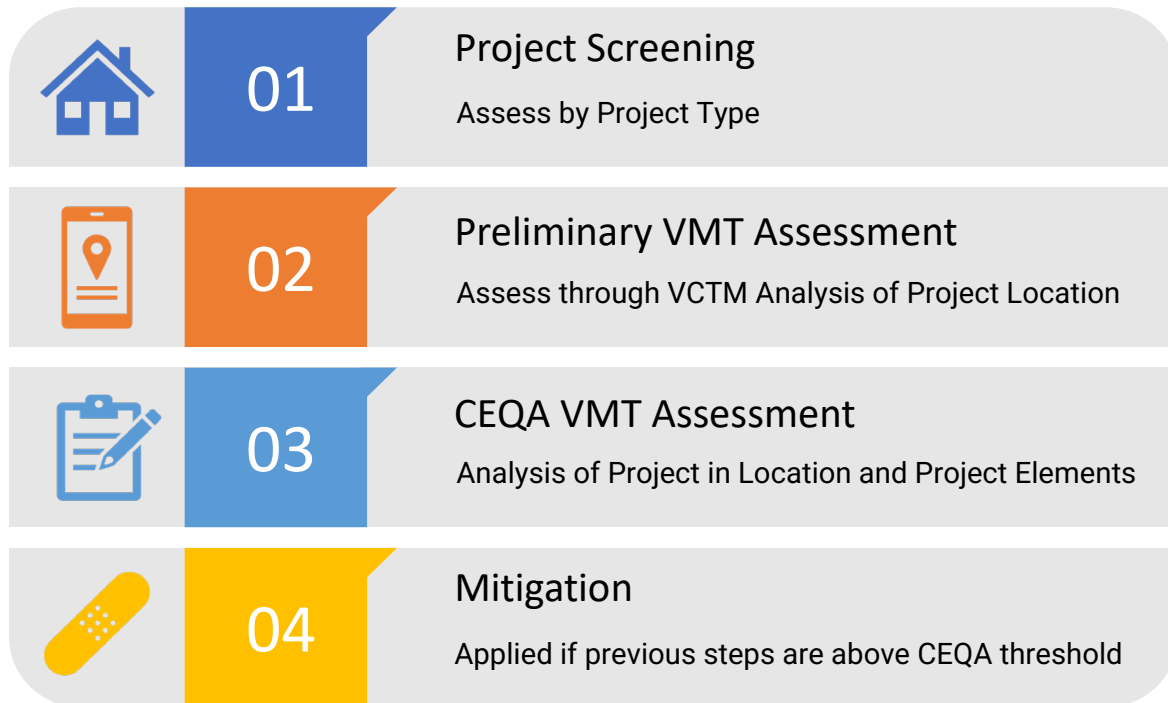
The recommended VMT assessment process provides for early identification of VMT characteristics of Proposed projects to:

1. Determine if a project qualifies for a statutory or categorical exemption when the exemption criteria has certain conditions related to VMT. The exemption statement should include the VMT analysis.
2. If the project is not exempt, estimate project-level VMT by type and compare to the CEQA Lead Agency's VMT threshold of significance to determine if a project would have a potential significant VMT impact. This may be part of an Initial Study.
3. If the VMT impact is less than significant, then the project may only require a Negative Declaration (assuming no other impacts are significant).
4. If the VMT impact is significant, then proceed with a Mitigated Negative Declaration (MND) with inclusion of effective and feasible CEQA mitigation measures to reduce VMT to a less than significant level (assuming no other impacts are significant).
5. If the VMT impact is significant and there are other significant impacts, then proceed with an Environmental Impact Report (EIR) with inclusion of effective and feasible CEQA mitigation measures to reduce VMT to a less than significant level.
6. If the VMT impact is significant and VMT mitigation measures do not fully reduce VMT impacts to a less than significant level, then the EIR will require a Statement of Overriding Considerations to justify approval of the project even with VMT (and possibly other) significant environmental impacts.

**The “CEQA streamlining” purpose of this program is to prevent a situation where the only significant impact is VMT (described in #6, above), directing the CEQA Lead Agency into additional time and expense of preparing an EIR and Statement of Overriding Considerations for only one significant impact, an added burden especially for affordable housing projects that rely on grants and subsidies with fixed budgets and timetables.**

The four steps of the recommended VMT assessment process are:

Figure 1-6: Recommended VMT Assessment Process



This recommended process is applicable for all types of projects whether land use development, programs and plans, and transportation projects.

Lead agencies define screening criteria (Section 1.3) for projects that could be presumed to be less than significant or that can identify VMT reduction options early for project proponents.

Preliminary VMT assessment of projects is available through VCTC’s [VCTM website](#), which provides lead agencies and project proponents the opportunity to estimate VMT characteristics for projects based on their location. This provides proactive indication of the potential for project VMT impacts. Project proponents can work with lead agencies to develop VMT reduction strategies as project elements to address potential VMT significant impacts.

Lead agencies are encouraged to develop preferred VMT reduction strategies that avoid or reduce VMT that can be applied by project applicants as needed.

## 1.6 Streamlining Under CEQA

CEQA, enacted in 1970, requires lead agencies to inform decision makers and the public about the potential environmental impacts of discretionary activities proposed by public agencies or private projects requiring discretionary approval, and to reduce those impacts to the extent feasible. Lead agencies are state and local agencies that have the primary responsibility for approving a project. To be a CEQA Lead Agency, the public agency must have discretionary authority over a project. Lead agencies

in Ventura County are local cities, school districts, water districts, the County of Ventura, and other public agencies.

CEQA compliance is required prior to the approval or undertaking of a project that could significantly affect the environment. There are five types of CEQA documents:

- Notice of Exemption
- Negative Declaration
- Mitigated Negative Declaration
- Environmental Impact Report
- EIR/MND Addendum

Streamlining under CEQA can either be through a statutory or process streamlining or through actions to reduce the potential for a higher level of CEQA review by addressing impacts proactively, which is the purpose of the AMP. Streamlining allows applicants and lead agencies to save time and money in a legally defensible framework.

In the present context, this program is intended to avoid the preparation of an EIR (or Addendum) and Statement of Overriding Considerations for a significant VMT impact by including VMT reduction strategies in the project description and/or Mitigated Negative Declaration, including an optional payment of a per VMT mitigation cost fair share.

### 1.6.1 Exemptions and Tiering Under CEQA – Potential Process Streamlining

A project is exempt from CEQA review if:

- The project is exempt by statute
- The project is exempt pursuant to a categorical exemption
- The activity is covered by the “common sense exemption.”

The standard of review for exemptions is the substantial evidence test where the burden is on the challenger to show that an exemption is not appropriate.

Categorical exemptions are described in Article 19 of the CEQA Guidelines. 32 classes of categorical exemptions are defined. The four most relevant to housing VMT are classes 3, 5, 26, and 32. The class 32 exemption is for in-fill development projects that are:

- Consistent with general plan and zoning
- Project site of up to five acres, substantially surrounded by urban uses
- No value as habitat for endangered, rare or threatened species.
- No significant transportation, noise, air quality, or water quality impacts
- Adequately served by all required utilities and public services



Article 18 of the CEQA Guidelines includes statutory exemptions that apply regardless of environmental impacts under most circumstances. These include ministerial projects, emergency projects, and financial assistance for low/moderate-income housing.

New legislation further supports streamlining of housing development such as:

- AB 2011: ministerial approval for 100 percent affordable and mixed income housing within commercial zones and corridors
- SB 35 streamlines approval for affordable multifamily projects
- SB 6: deems a housing project on an office, retail, or parking zone allowable. Eligible for streamlining under SB 35 if conditions are met and ordinance adoption of SB 6 language is CEQA exempt
- SB 886: Exemption for student housing

If a categorical exemption does not apply or a project is not statutorily exempt, it still may be exempt under the “common sense” exemption (CEQA Guidelines 15061(b)(3) if there is certainty that there is no possibility the activity in question may have a significant effect on the environment.

CEQA also provides for projects to tier off of a previous environmental document. Section 15168 provides for tiering if the project is covered under a program EIR such as a Housing Element. Section 15183 provides for projects consistent with a community plan or zoning that were adopted with a certified Environmental Impact Report. Section 15182 provides streamlining for certain project types consistent with a specific plan for which an Environmental Impact Report was certified and within a transit priority area. Projects may also tier off of a Sustainable Communities Strategy pursuant to SB 226 for infill projects that reduces VMT and SB 375 for mixed-use residential development within a transit priority area.

There are many streamlining and exemption options for projects that are infill, affordable and mixed-use housing developments. The process for streamlining starts by conducting a thorough preliminary review of a proposed activity to determine whether the project is exempt under CEQA.

## Frequently Asked Questions

1. Is this a mandatory fee program?

No. Rather than a prescriptive or mandatory program, this program establishes guidelines and a structure to allow for voluntary funding participation in effective VMT reduction strategies to avoid and mitigate potential CEQA VMT impacts. It is a toolbox for the CEQA lead agencies of Ventura County to streamline the CEQA process for housing projects and other types of projects. While a single countywide mitigation bank was explored (akin to a wetlands bank or the Ventura County Air Pollution Control District’s Transportation Outreach Program (Rule 211), several logistical and legal issues would need to be overcome to enact a “simple” singular fee per VMT to pay for VMT-reducing projects through a countywide program.

2. Why not have a simple fee program to simplify transportation mitigation?

The CEQA and Fee Program requirements make it complicated for a regional or countywide transportation mitigation fee program. VCOG and VCTC are not CEQA lead agencies, which limit the mechanisms they can provide for a mitigation fee program. However, if after experience in utilizing the AMP, it is desired by the CEQA lead agencies of Ventura County to create a fee program, this program provides a foundation for the implementation of such a program.

3. How is VCTC regional and VMT program methodology going to integrate with the VMT methodology implemented (or planned to be implemented) in various Ventura County cities?

The program is intended to complement CEQA lead agencies processes (cities, Ventura County, special districts) and not to supersede any authority or methodology of an individual agency. The CEQA lead agencies have the statutory authority to analyze and make determinations on potential significant impacts, identification of mitigation measures, and mitigation monitoring.

4. What is the anticipated timing for the VMT mitigation program?

The program is intended to be adopted by the Ventura County Transportation Commission in May 2023, and the consultant team will be available to work with lead agencies through December of 2023.

5. Will there be a list of VMT mitigation projects for review and evaluation by lead agencies?

No, the program will identify the types of project components and features that can reduce VMT (and their expected effectiveness in doing so) and a fair share cost estimate. The CEQA Lead Agency has the statutory authority and discretion to direct mitigation funds and to monitor the mitigation implementation. A CEQA Lead Agency could choose to participate in a regional or multijurisdictional project by directing VMT mitigation fees to another Lead Agency or VCTC. This could be an opportunity to leverage local funds as match for state or federal grants.

6. Is the program only focused on residential land uses?

This program is focused on CEQA streamlining of housing development, so the analysis and substantial evidence is based on housing development. However, in our project development team meetings with lead agencies, it was requested the VMT reduction strategies include those for all types of land uses, and the methodologies and tools can be used for all types of land uses and programs and plans. The VCTM includes information on residential and employment land uses.

7. What is the relevance, timing, and nexus associated with the VMT program and AB 1600 Mitigation Fee Act process?

The program is a standardized VMT process with tools for lead agencies and applicants to develop projects that avoid potential significant CEQA VMT impacts if the project is subject to

CEQA review. We will be following requirements included in the CEQA Guidelines, AB 1600, and other state policies and court decisions to ensure the program would be consistent with CEQA mitigation practice and will evolve to meet future needs in the County under the direction of VCTC and partner agencies.

8. What sort of environmental review document is envisioned by VCTC to adopt the CEQA VMT Adaptive Mitigation Program?

It is not anticipated that the program itself requires a CEQA review. The VMT reduction strategies themselves are by-and-large exempt from CEQA review (bicycle lanes, sidewalks, signage, lighting, transit facilities, etc.). However, the program will define those activities that are specifically categorically exempt from CEQA as part of the substantial evidence to further streamline project elements or mitigation measures. Since the intent of the program is to streamline CEQA for housing projects, VMT reduction strategies as project elements or mitigation measures would best be actions exempt from CEQA review.

9. How will the VMT AMP integrate with the County of Ventura's Traffic Impact Mitigation Fee (TIMF)?

An update is currently underway to the County's TIMF program, which is intended to ensure adequate transportation infrastructure is funded and in place to support future development. The program is a mix of improvements that support vehicle travel and improvements that support non-motorized transportation and transit. The new CEQA guidelines may require additional VMT reducing projects to offset potential VMT increases from roadway projects. This effort is not directly related to the TIMF; however, it may inform the types of improvements necessary to ensure the TIMF program has a less than significant CEQA VMT impact.

10. Can the CEQA Lead Agency change VMT mitigations after the CEQA process is completed.

If the CEQA Lead Agency describes the CEQA mitigation as 'adaptive,' it may choose from the various VMT reduction projects and/or utilize the VMT fair share cost option throughout the life of the project so long as a VMT goal is expressed and may reasonably be achieved. This could be useful for a long-term project or general or specific plan where uncertainty in project implementation has the potential for uncertainty of future conditions, such as the feasibility of mitigations over time. In this case, reevaluation of mitigations and mitigation monitoring could be an explicit process within the mitigation program to allow flexibility to achieve migration goals through performance standards and monitoring.

## 2 AMP Development Process

The Regional Early Action Planning (REAP) Subregional Partnership Program is intended to help accelerate housing production throughout California and have a net-positive effect on housing supply by completing regional planning activities to enable cities and counties to meet their respective 2021-2029 regional housing needs assessment (RHNA) allocation.

The Ventura Council of Governments (VCOG) applied for and was awarded funds to promote development of a regional approach to VMT impact mitigation that, when adopted, would support Lead Agency CEQA streamlining. The resulting AMP is intended to support local CEQA lead agencies and developers in Ventura County by providing a reference of standards and procedures to conduct project, program, and plan-level CEQA VMT/transportation analyses and, in cases where the only significant impact is VMT, provide an adaptive mitigation program that avoids preparation of an EIR and Statement of Overriding Considerations. The project development team (PDT) consisted of VCOG and VCTC staff, staff from each of the cities in Ventura County, and Ventura County staff.

The stakeholder engagement for the development of the AMP framework consisted of eight meetings to develop the draft program framework. Three PDT meetings involved presentations of the technical components of VMT baseline mapping and analysis procedures followed by questions and discussion which were used to develop and shape the program. For each PDT meeting, one to two additional meetings were held to ensure a thorough discussion by lead agencies, as well as to address specific issues raised at the meetings.

### PDT 1 – Initial Program Parameters

Presentation	Meeting	Discussion
<ul style="list-style-type: none"> <li>Overview and Components</li> <li>Schedule and Stakeholder Involvement</li> <li>Component Technical Examples</li> </ul>	PDT 1– November 16, 2021	<ul style="list-style-type: none"> <li>Discussion of upcoming major projects for CEQA review</li> <li>Provide analysis for new types of living accommodations</li> <li>Include mitigations for all types of land uses (not just housing)</li> <li>Be consistent with Agencies that have set up their own VMT analysis and mitigation</li> </ul>
	TTAC November 17, 2021	<ul style="list-style-type: none"> <li>Consolidate Agencies CEQA VMT Policies, Housing Element Updates, and major transportation projects</li> </ul>

**PDT 2 – Scale of Program and Mitigation**

Presentation	Meeting	Discussion
<ul style="list-style-type: none"> <li>Purpose and Framework</li> <li>What Does it Cost to Mitigate VMT Impacts?</li> <li>Estimated CEQA Transportation Impacts from Housing Projects</li> <li>Mitigation and Monitoring</li> <li>Schedule and Stakeholder Involvement</li> </ul>	PDT 2– January 27, 2022	<ul style="list-style-type: none"> <li>Mitigation options - Add transit operations (maybe annuity), explore broadband and parking strategies</li> <li>Don't bind agencies to using mitigation program</li> </ul>
	TRANSCOM March 9, 2022	<ul style="list-style-type: none"> <li>How transit operations could be funded with mitigation funds</li> <li>Potential support for transit-oriented development</li> </ul>
	VCTC Staff – March 22, 2022	<ul style="list-style-type: none"> <li>Preference for developer to resolve mitigation, 2<sup>nd</sup> would be CEQA Lead Agency to address, then 3<sup>rd</sup> would be regional project</li> <li>If payment to VCTC could be considered local match to grants</li> <li>Cities and County are better equipped to receive and administer funds</li> </ul>

**PDT 3 – Draft Program Framework**

Presentation	Meeting	Discussion
<ul style="list-style-type: none"> <li>Purpose</li> <li>Program Framework - Discussion</li> <li>Stakeholder Involvement</li> <li>Schedule</li> </ul>	PDT 3– March 23, 2022	<ul style="list-style-type: none"> <li>Potential for single fee or varying fee levels chosen by CEQA Lead Agency</li> <li>Avoid conflict with CEQA Lead Agency programs and standards</li> </ul>
	VMT Users Group – April 7, 2022	<ul style="list-style-type: none"> <li>Stakeholders to invite to review Project Framework</li> </ul>
<ul style="list-style-type: none"> <li>Draft Program Framework</li> </ul>	VMT Users Group – August 2, 2022	<ul style="list-style-type: none"> <li>Types of new data that could be used to measure VMT</li> <li>Appropriate analysis of mitigation measures</li> </ul>
<ul style="list-style-type: none"> <li>Draft Program</li> </ul>	Public Meeting, PDT, VMT Users and other Stakeholders Invited – November 16, 2022	<ul style="list-style-type: none"> <li>Presentation covered:                             <ul style="list-style-type: none"> <li>Ventura County VMT AMP</li> <li>CEQA Streamlining for Housing</li> <li>AMP Recommendations</li> <li>Proactive Identification of Potential VMT Impacts</li> <li>Looking Forward: Next Steps</li> </ul> </li> </ul>

**VCTC Presentation on Program Framework**

Presentation	Meeting	Discussion
<ul style="list-style-type: none"> <li>Background</li> <li>Program Process</li> <li>Program Framework</li> </ul>	VCTC - June 3, 2022	<ul style="list-style-type: none"> <li>Consider land use mitigation (fair share cost to land use, e.g. affordable housing)</li> </ul>

## 3 Vehicle Miles Traveled in Ventura County

Vehicle miles traveled (VMT) in Ventura County is driven by the demand of residents to work, shop, study and recreate at locations they access by automobiles. These choices to travel, and more specifically to travel by automobile, are based on the distance and type of transportation options available to make the trip.

Investments in the infrastructure of the transportation system are made by public agencies charged with providing safe, efficient and accessible means for people to travel. This travel is an expression of economic and social activity that is central to the well-being of residents of Ventura County.

However, nearly a century of focus on investing in roads and parking for the automobile created a dependence on automobile travel for most people. While automobile travel offers many benefits, it is not without drawbacks, including congestion, safety, noise pollution and air emissions. Furthermore, lower-cost, more healthy and environmentally friendly travel modes of walking, biking and taking transit were marginalized in public infrastructure investment.

Recognizing CEQA Guidance was perpetuating the investment in automobile travel over other types of transportation, SB 743 was passed in 2013 to update CEQA Guidance to change the basis of assessing environmental impacts from vehicle congestion, which resulted in more vehicle infrastructure investment, to VMT in order to align CEQA environmental analysis with Statewide environmental goals and policies, particularly those related to reducing greenhouse gas emissions.

### 3.1 Demand for Vehicle Miles Traveled

Vehicle miles traveled is the product of the number of vehicle trips multiplied by the trip distance. Several factors influence both the share of all trips taken by vehicles and trip distance.

#### 3.1.1 Transportation Options

The choice of mode of travel by a person is dependent on the availability of travel options, the amount of time, comfort, convenience, and cost of travel. In general, walking, bicycling, bus or shuttle transit, personal cars, rideshare/taxi, commuter rail, and heavy-rail/light-rail are the primary modes of travel, and each have different levels of attractiveness for users. Trips that do not use personal vehicles or rideshare/taxi services reduce vehicle miles traveled.

Investments in non-vehicular infrastructure (often referred to as multimodal infrastructure) and services can provide reduction in VMT by shifting vehicle trips to non-vehicle modes. These include both on-site and off-site strategies such as improving neighborhood connectivity of sidewalks and bike paths, transit infrastructure and services, and employer commute programs. In some cases, new connections in the roadway system could reduce VMT if it provided a shorter path to destinations. While investments in zero and reduced emissions transportation infrastructure and vehicles do not necessarily reduce VMT,

they would reduce tailpipe GHG emissions and be part of overall statewide strategies to reduce the impacts of climate change.

### 3.1.2 Land Use

The distance traveled by persons in the transportation system is dependent on the network distance between their origin and their destination. Choice of destination is based on personal preference and need, while the distance is a spatial factor of the built environment. The more potential destinations located closer to an origin (generally residences), the less likely long-distance trips would be taken. This is especially true for everyday destinations of workplaces, grocery stores, gas stations, schools, or restaurants.

For new projects, the average VMT per capita or per employee of the site would be expected to be similar to adjacent, similar land uses. Developments that include a mix of uses on site can reduce their VMT potential through “internal capture” of trips within a site. If the project introduced a new type of land use or destination, it could reduce the VMT of visitors to the project, and thereby overall VMT. However, these effects are marginal since the vast majority of the built environment is currently in place, and the capacity of an individual development to influence local and regional traffic patterns is limited.

Reduction of VMT through land use strategies includes mixing uses within a site or a different type of land use serving a local area, increasing development density, siting developments near transit to allow walking and biking to transit services, and pricing strategies for parking and roads. While these strategies are more effective than investment in multimodal transportation at a project level, they are enacted over a long time period.

## 3.2 VMT Characteristics of Ventura County

Ventura County is dominated by open space and agricultural land with developable land concentrated in the ten incorporated cities and several unincorporated communities generally near the cities. Travel within the County relies on multiple modes of travel. The majority of travel in the County is made by automobile travel, however the county supports extensive pedestrian, bicycle, transit and commuter bus and rail service as well as carpooling and vanpooling. These conditions were modeled using the Ventura County Transportation Model (VCTM) base year to estimate VMT characteristics of the County in Table 3.1. The unit of geography for VCTM is the traffic analysis zone (TAZ) whose size is roughly equivalent to a US Census Tract.

**Table 3-1: Population, Jobs and VMT Indices for Ventura County VCTM Base Year**

Source: Ventura County Transportation Model (VCTM), 2022

	Residential Population	Households	Jobs	Residential VMT	Work-Based VMT	Jobs/ Household Balance	Residential VMT/Capita	Work VMT/ Job
	A	B	C	D	E	C/B	D/A	E/C
<b>Total County</b>	854,420	273,925	326,401	14,079,123	6,230,506	1.2	16.5	19.1



As shown in Table 3-2, just over half of the population lives in areas estimated to produce residential VMT per capita below the baseline average for the County, whereas less than one-third of residents live in areas estimated to produce residential VMT per capita below 85 percent of baseline average for the County. When applying each individual jurisdiction’s average baseline VMT per capita, those values drop by about three percent each.

**Table 3-2: Population Living in TAZs with Residential VMT per Capita Meeting Different Thresholds**

Countywide Residential VMT per Capita		Jurisdiction Residential VMT per Capita	
Below Average Baseline	Below 85% of Average Baseline	Below Average Baseline	Below 85% of Average Baseline
53.5%	31.4%	52.8%	26.0%

As expected, approximately half of households in the county are above the countywide average for residential VMT per capita, with approximately 2/3 of households in TAZs with average VMT per Capita above 85% of the countywide residential VMT per capita value. A majority of existing residences in the county are single family homes in built-out neighborhoods.

### 3.2.1 Transit Priority Areas

Transit Priority Areas (also known as High Quality Transit Areas) are locations within one-half mile of major transit stop, which includes a fixed guideway transit stop, a location where two bus route with a headway frequency of every 15 minutes (or less) during peak commuting hours, or a stop along a high quality transit corridor that has a transit service which has a frequency of every 15 minutes (or less) during peak commuting hours. Existing areas in the County that meet these criteria are around the Metrolink rail stations in Simi Valley, Moorpark, Camarillo, Oxnard and Ventura. SCAG defines a future High Quality Transit Area in the corridor served by the existing Gold Coast Transit Routes 1 and 6 (routes as of 2023).

As of 2023, the VCTM estimate for residential VMT per capita in existing transit priority areas is 13.0 VMT per capita, 21 percent below the Countywide VMT value of 16.5 VMT per capita, as shown in 3-4.

### 3.2.2 Regional Housing Needs Assessment

As detailed in Appendix C, and summarized in Table 3-3, the 2021-2029 Regional Housing Needs Assessment (RHNA) allocation by the 11 county jurisdictions are predominately in low-VMT areas: 30 percent are allocated to existing transit priority areas, two-thirds are in areas below 85 percent of the County Baseline VMT per capita, and 70 percent of the RHNA allocation meet either criterion. This implies that about 70% of Ventura County’s total 2021-2029 RHNA allocation are located in areas that would reduce average VMT and have no transportation impact. The remaining 30 percent would be in areas where this VMT AMP could play a mitigation role if housing projects required CEQA review.

**Table 3-3: RHNA Housing Unit Allocation with Percent in Traffic Analysis Zones with a HQTa or Below 15 percent of the Countywide Daily Vehicle Miles Traveled Per Capita**

	Very Low or Low Income Units	Moderate and Above Moderate Income Units	Total RHNA Units for 10 cities and the County	Units in Transit Priority Area	Units in Areas Below County 85% VMT	Units in HQTa or Below 85% County VMT
<b>Total for Ventura County</b>	9,584	14,868	24,452	29%	67%	71%

### 3.3 VMT in Disadvantaged Communities

As shown in Table 3-4 and detailed in Appendix D, disadvantaged communities of both the 75<sup>th</sup> and 60<sup>th</sup> percentile of burdened Census Tracts in the state as calculated by the California Office of Environmental Health Hazard Assessment have residential VMT per capita that are marginally lower than Census Tracts that are not defined as disadvantaged communities. These results demonstrate investment in disadvantaged communities is generally investment in lowering VMT.

**Table 3-4: VMT Characteristics of Disadvantaged Communities in Ventura County**

	Residential VMT per Capita	
	Per Capita	Difference from Total
Total - CalEnviroScreen 75% above (State Definition of Disadvantaged Communities)	15.3	(1.1)
Total - CalEnviroScreen Above 60% Disadvantaged Communities	15.6	(0.8)
Total - Not Disadvantaged Communities	16.9	0.4
Total - County Average	16.5	-

## 4 CEQA Lead Agency Resources

### 4.1 Ventura County Transportation Model

The [Ventura County Transportation Model](#) (VCTM) is a countywide weekday model that helps us to better understand and project traffic and transportation features in relationship to land use. The model can be used for VMT impact assessments and VMT analysis for environmental review and air quality greenhouse gas (GHG) emissions applications.

VCTC maintains a base-year (2016) and baseline forecast (2040) scenario built upon land-use data from the local jurisdictions, planned transportation projects from the Regional Transportation Plan, and research-based assumptions of current and future travel. The VCTM can be used to test how alternative land use development and transportation projects will impact travel in Ventura County by comparison to the base-year and forecast scenarios.

The VCTM is consistent with the regional transportation model used by the Southern California Association of Governments (SCAG), including the base year and forecast year land-use projections and transportation networks. VCTM was developed using the SCAG Sub-Regional Model Development Tool, which allows subregions of SCAG to build a local version of the SCAG model. VCTC built VCTM through the sub-regional modeling program to provide travel demand modeling capabilities to the County and reduce the upfront cost for jurisdictions to build local transportation models. The VCTM is periodically updated using the latest socioeconomic data and transportation network conditions and forecasts.

In 2020 – 2021, VCTM was updated to produce an automated spreadsheet tool to assist local jurisdictions with Vehicle Miles Traveled (VMT) analysis in accordance with Senate Bill (SB)743. The spreadsheet tool generates recommended VMT metrics from the Office of Planning Research guidance for SB 743 for each incorporated city within Ventura County and the unincorporated County.

### 4.2 Technical Advisories

The Governor’s Office of Planning and Research (OPR) provides [technical advisories](#) as a service to professional planners, land use officials, and CEQA practitioners. OPR creates and updates technical advisories as needed on current issues in environmental law and land use planning that broadly affect the practice of CEQA and land use planning in California. While the technical advisories should not be construed as legal advice, they provide guidance and substantial evidence for CEQA determination by lead agencies.

The [Technical Advisory on Evaluating Transportation Impacts in CEQA](#) contains technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures, many of which were incorporated into the CEQA Guidelines.

[CEQA Review of Sustainable Transportation Projects provides](#) an overview of the existing CEQA provisions that can streamline the construction of sustainable transportation projects. These categories of projects are good candidates for mitigation of VMT transportation impacts.

[CEQA Review of Housing Projects](#) provides information on the statutes (not specific to affordable housing, supportive housing, transitional housing, or temporary shelters)

[CEQA Review of Affordable, Transitional and Supportive Housing](#) provides a list of statutes and regulations related to the CEQA review of affordable housing, supportive housing, transitional housing, and temporary shelters.

## 4.3 Screening Criteria to Presume Less Than Significant Transportation Impacts

The OPR [Technical Advisory On Evaluating Transportation Impacts in CEQA](#) describes CEQA Lead Agency use of screening criteria to quickly identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study. As part of an initial study of a project, the CEQA Lead Agency could explain the reasons for determining that potentially significant VMT effects would not be significant.

These screening criteria are defined by lead agencies with common ones being:

### 4.3.1 Screening Threshold for Small Projects

OPR recommends, absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day based on the CEQA categorical exemption for existing facilities, including additions to existing structures of up to 10,000 square feet.

OPR bases its 110-trip screening threshold recommendation based on typical project types for which trip generation increases relatively linearly with building footprint (i.e., general office building, single tenant office building, office park, and business park) generate or attract an additional 110-124 trips per 10,000 square feet.

When applying the Institute of Transportation Engineers' Trip Generation Manual - 10<sup>th</sup> Edition average daily trip generation for single family households (Land Use Code 210) and multifamily (high-rise) the range of housing units that would generate 110 trips per day would be 11 single-family to 27 multifamily housing units.

### 4.3.2 Map-Based Screening (Low VMT Area)

Projects that locate in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT. Maps created with VMT data, for example from a travel survey or a travel demand model, can illustrate areas that are currently below threshold VMT. Because new development in such locations would likely result in a similar level of VMT,

such maps can be used to screen out projects from needing to prepare a detailed VMT analysis. **Figure 2-1** shows VMT characteristic of land parcels in Ventura County outside of the Cities of Oxnard and Simi Valley which maintain their own traffic and VMT models (as of 2023). These include parcels that are 15 percent below the average VMT per capita in each jurisdiction (green) as well as those that are above this threshold (orange). Protected land not suitable for development is shown in gray. The figure also shows areas of high employment (more than 500 jobs in the traffic analysis zone) and low housing development (less than 50 residential VMT) where new housing development could improve the jobs/housing balance of the area.

### 4.3.3 Near Transit Stations

Transit-oriented development is where transit systems and higher density, compact communities allow people to live, work and play with ready access to a multitude of safe and convenient transportation alternatives, thus lowering VMT. Focusing regional growth in areas with planned or existing transit stops is key to achieving equity, economic, and environmental goals. Infill within transit-oriented development can reinforce the assets of existing communities, efficiently leveraging existing infrastructure and potentially lessening impacts on natural and working lands. Growth within these areas supports preserving natural lands and farmlands and alleviates development pressure in sensitive resource areas by promoting compact, focused infill development in established communities with access to high-quality transportation.

There are multiple definitions of areas that support transit-oriented development with the two most common being Transit Priority Areas (TPAs) and High-Quality Transit Areas (HQTAs).

**Transit Priority Areas (TPAs)** are defined in SB 743 as within a one-half mile of an existing or planned major transit stop (as defined in [Public Resources Code Section 21064.3](#)) or an existing stop along a high-quality transit corridor. A major transit stop is defined as a site containing an existing or planned rail or bus rapid transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. TPAs also meet the definition of the areas around stops in a **high-quality transit corridor (HQTC)** as defined in the [Public Resources Code Section 21155](#): A corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

**High Quality Transit Areas (HQTAs)** are defined by SCAG as within one-half mile of an existing or planned fixed guideway transit stop or a bus transit corridor where buses pick up passengers at a frequency of every 15 minutes (or less) during peak commuting hours.

The difference between TPAs, HQTC stops and HQTAs is slight. For a bus stop to be included in a TPA, it must be served by two or more major bus routes with a frequency of service interval of 15 minutes or less. Whereas for a bus stop to be included in a HQTC or HQTA it would only need one bus route with a frequency of service interval of 15 minutes or less. **Figure 4-1** shows existing TPAs/HQTC stops/HQTAs in Ventura County.

CEQA Guidelines Section 15064.3. Determining the Significance of Transportation Impacts states “generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact.” For the purposes of CEQA streamlining, project meeting the transit service frequency definitions are reasonable as screening criteria for a less than significant finding as long as the project is supported by transit use.

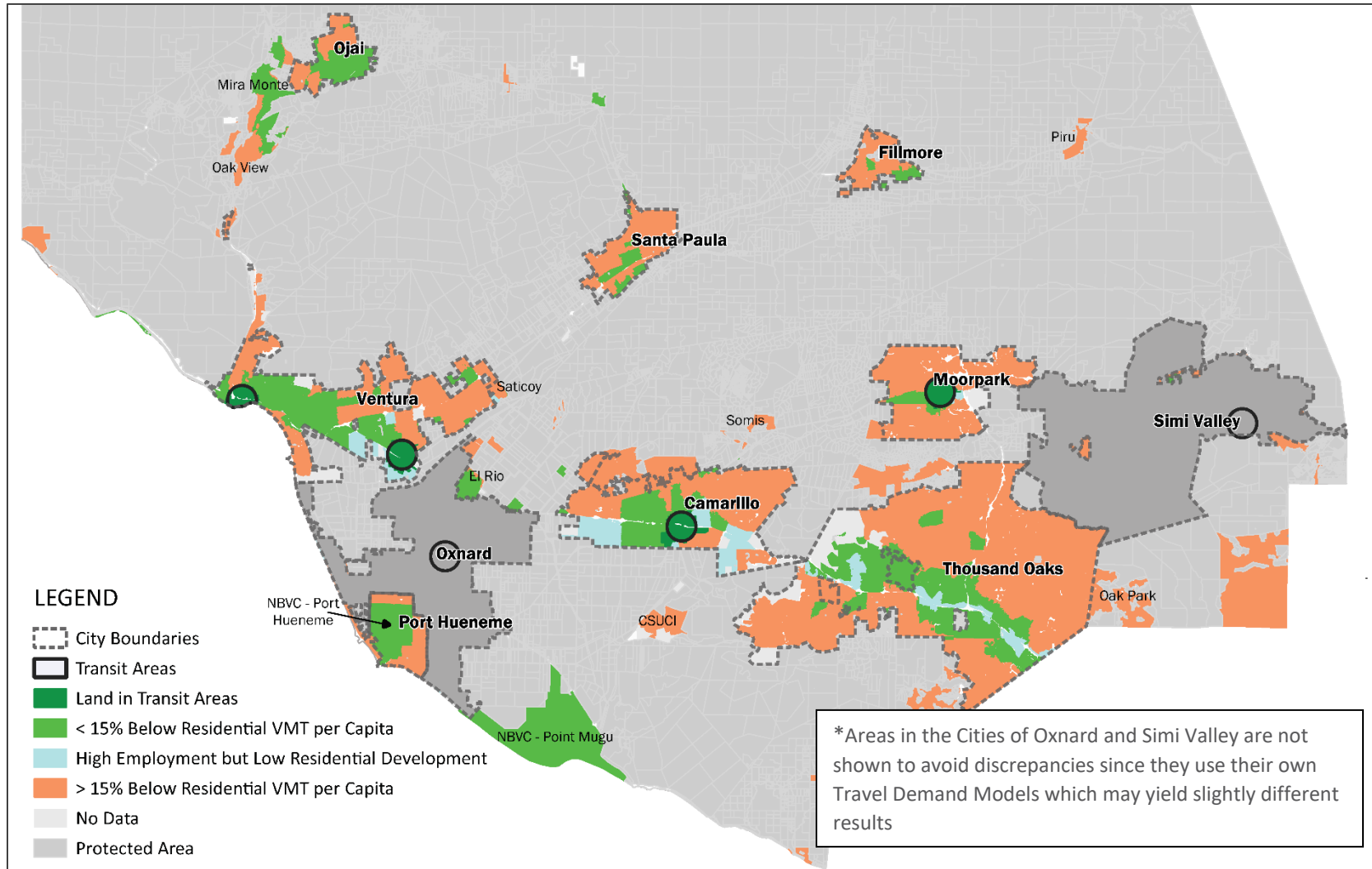
The OPR [Technical Advisory on Evaluating Transportation Impacts in CEQA](#) describes cases where the presumption of less than significant may not be appropriate if the project

- Has a Floor Area Ratio (FAR) of less than 0.75
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking)
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the CEQA Lead Agency, with input from the Metropolitan Planning Organization)
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units

**Transit Priority Projects (TPP)** are a specific type of project for CEQA exemptions established by SB 375. [Public Resources Code Section 21155](#) defines a transit priority project shall (1) contain at least 50 percent residential use, based on total building square footage and, if the project contains between 26 percent and 50 percent nonresidential uses, a floor area ratio of not less than 0.75; (2) provide a minimum net density of at least 20 dwelling units per acre; and (3) be within one-half mile of a major transit stop or high-quality transit corridor included in a regional transportation plan.

The TPP definition also includes a delineation of how to define a parcel within one-half mile of a major transit stop as it states: A project shall be considered to be within one-half mile of a major transit stop or high-quality transit corridor if all parcels within the project have no more than 25 percent of their area farther than one-half mile from the stop or corridor and if not more than 10 percent of the residential units or 100 units, whichever is less, in the project are farther than one-half mile from the stop or corridor.

Figure 4-1: Low VMT Areas and Transit Areas in Ventura County



#### 4.3.4 Affordable Residential Development

OPR states adding affordable housing to infill locations generally improves jobs-housing match, in turn shortening commutes and reducing VMT.<sup>1</sup> Therefore, a project consisting of a high percentage of affordable housing may be a basis for the CEQA Lead Agency to find a less-than-significant impact on VMT. OPR evidence supports a presumption of less than significant impact for a 100 percent affordable residential development (or the residential component of a mixed-use development) in infill locations. Lead agencies may develop their own presumption of less than significant impact for residential projects (or residential portions of mixed-use projects) containing a particular amount of affordable housing, based on local circumstances and evidence. Furthermore, a project which includes any affordable residential units may factor the effect of the affordability on VMT into the assessment of VMT generated by those units.

The [Affordable Housing and High Road Jobs Act](#) (AB 2011, 2022) allows housing development in areas that are currently zoned for parking, retail, or office buildings. AB 2011 exempts housing projects in these commercial areas from local approval processes and CEQA review provided that the project meets affordability, labor, and other standards specified in the law. Projects that qualify for by-right approval can be 100 percent affordable housing or mixed-income housing. Mixed-income housing developments are limited to commercial corridors (typically the locations of strip malls and parking lots) that are wide enough to accommodate increased density and transit, while 100 percent affordable housing can be developed in a wider range of commercial zones. All development must occur within infill areas, which will reduce sprawl, limit greenhouse gas emissions, and ensure that residents are connected to existing transit and infrastructure.

**Figure 2-2** shows commercial sites that are likely eligible for affordable housing development streamlining under AB 2011.

#### 4.3.5 Community Serving Projects

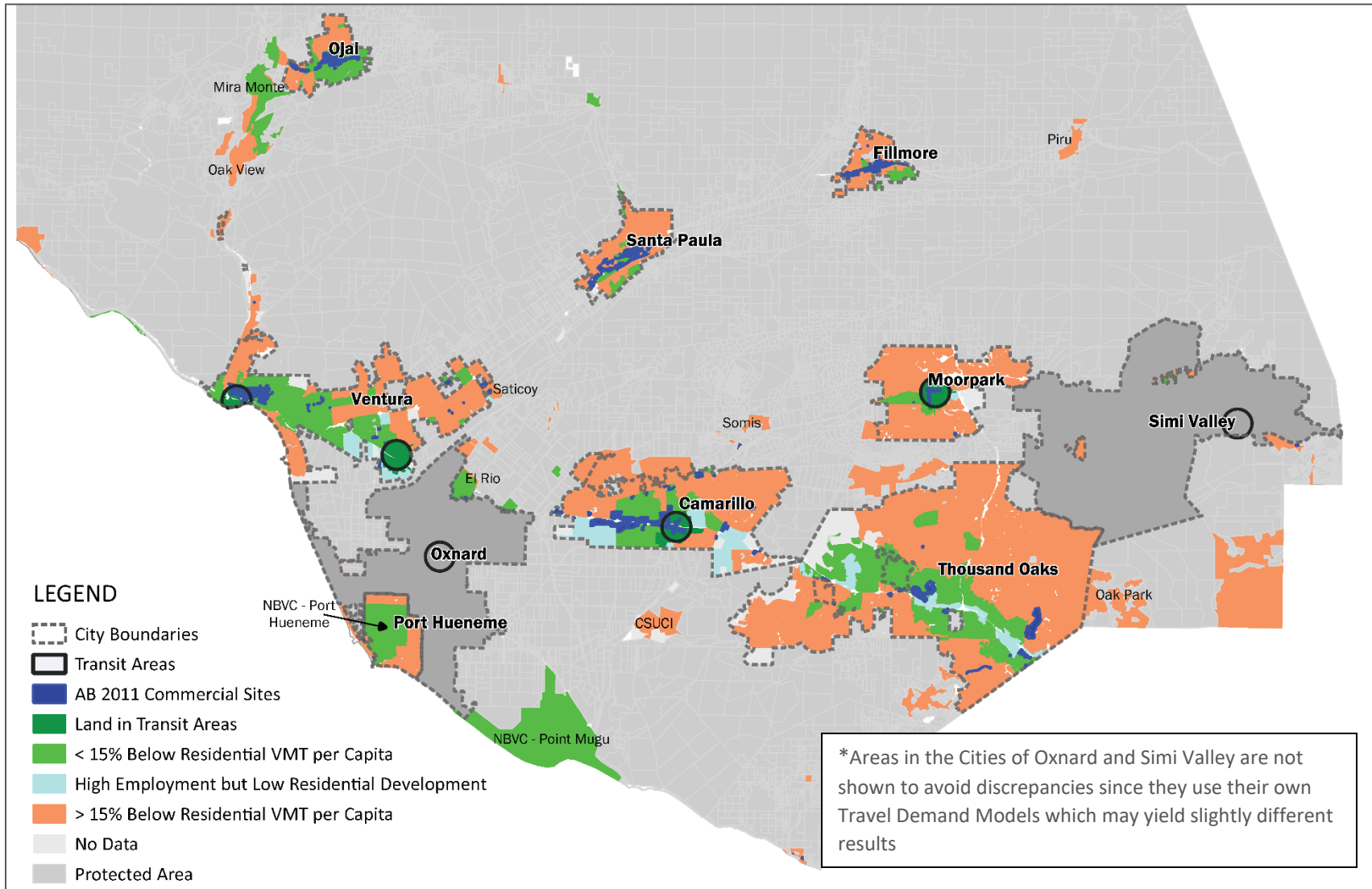
While not explicitly discussed as a presumption of less than significance for VMT based impacts in the OPR Technical Advisory Technical Advisory on Evaluating Transportation Impacts in CEQA, projects that provide services primarily for the local community such as neighborhood retail, schools, parks, community center, daycare and libraries could be presumed to be less than significant by a CEQA Lead Agency.

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<sup>1</sup> Karner and Benner (2015) [Low-wage jobs-housing fit: identifying locations of affordable housing shortages](#)



Figure 4-2: Commercial Areas Likely Eligible for Affordable Housing Development Streamlining Under AB 2011



## 5 Recommended CEQA VMT Analysis for Land Use Projects in Ventura County

The following procedures are intended for use by Ventura County Project Applicants and California Environmental Quality Act (CEQA) lead agencies to assess if a Project would exceed a threshold of significance of vehicle miles traveled (VMT).

Section 21099 of the Public Resources Code states that the criteria for determining the significance of transportation impacts must promote: (1) reduction of greenhouse gas emissions; (2) development of multimodal transportation networks; and (3) a diversity of land uses. The Governor's Office of Planning and Research determined VMT was a metric which would measure transportation impacts based on those three conditions. By analyzing the amount of automobile travel made during regular weekday travel, projects could assess their contribution to greenhouse gas emissions, how much they utilized multimodal (non-automobile) transportation networks and how well it aligned with the diversity of land uses in its vicinity through shorter and non-vehicle trips.

By comparing a project's expected VMT per person to the baseline VMT per person of the area, it could be assessed for reducing (less than significant) VMT or increasing VMT on a per person basis by virtue of its location to other land uses and transportation networks. Developments that provide new types of services or locate housing near employment (or vice versa) would provide shorter trips and if the development is within walking, biking or transit distance from the trips to/from the site, it would raise the possibility of non-vehicle and/or carpoled trips.

### 5.1 Measuring VMT

VMT can be directly measured by surveys of written trip diaries or mobile phone GPS or probe data. However, VMT is usually estimated through use of a computerized travel demand model. The Ventura County Transportation Model (VCTM) was developed by the Ventura County Transportation Commission (VCTC) to analyze the existing and future transportation system of the county.

The model is composed of a transportation network and uses population and employment socio-economic data in a traffic analysis zone (TAZ) geography to represent land use to simulate the travel between land uses on the transportation system. TAZs are approximately the size of US Census Tracts and are the unit of geography used to represent the estimated VMT from a single site. This estimation is

#### Vehicle Miles Traveled Terminology

**Total VMT** – Total distance driven by all vehicles

**Project VMT** – VMT associated with the project site

**Regional VMT** – VMT associated with a City, County or Region

**VMT Efficiency** – VMT per capita or per employee (dividing total VMT by a population)

**VMT Time Scale** – Daily or Annual.

**VMT Threshold** – Percent Difference of Project VMT vs. Regional VMT efficiency

Note: Practitioners often use the term "VMT" interchangeable when describing total VMT and VMT

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the proportion of the individual site to the TAZ. For example, if there are 100 households in a TAZ, and a site is 10 households, the home-based VMT of the site is estimated as 10 percent of the TAZ total home-based VMT.

The model is based on the Southern California Association of Governments (SCAG) travel demand model which is used for regional air quality conformity and transportation analysis. The SCAG parent model is updated every four years.

## 5.2 VMT Metrics

There are multiple types of VMT metrics used for CEQA purposes. VMT generally reported on a daily time scale however annual VMT is also a metric used to show area traffic growth over time and is used for estimating.

Overall total VMT is the total distance of all vehicles traveling on roadways. While total areawide VMT is useful for understanding overall vehicle usage, CEQA requires the analysis of the impact of a Proposed Project in isolation.

When modeling VMT in a travel demand model, the number of vehicles traveling on a roadway is multiplied by the length of the road to obtain total VMT. For project site VMT, the proportion of the project in the unit of geography in the model, a traffic analysis zone (TAZ), is used. A TAZ is generally the size of a US Census Tract.

Project level VMT is divided by the number of persons associated with the project (residents for per capita analysis of housing development and employees for employment land uses). The value of VMT per capita or per employee describes the average amount a driving distance per person per day and is the metric used for CEQA transportation analysis. The VMT per capita or employee differs from trip length, since in one day, people can make multiple trips.

Nearly every project that houses, employs, educates or serves people increases total VMT, the CEQA transportation analysis is therefore based on how efficiently a new project is utilizing the transportation system or providing a new type of service which may shorten trips. It should be noted that only the VMT associated with residential trips (home-based) are used for VMT per capita and only the VMT associated with commute trips (work-based) are used for VMT per employee.

The VMT efficiency metrics related to the specific project site is used to determine a project's potential significant impact as a comparison to "regional" VMT. "Regional" VMT is defined by the CEQA Lead Agency and may be the city, County, or regional VMT metrics.

The CEQA Lead Agency defines a threshold for a difference between the regional VMT metrics and project VMT metrics to determine potential significant impacts. Thresholds for VMT are expressed in a percent difference from the total or efficiency VMT value, therefore it is important that the models/methodology used for the estimate of the baseline VMT, project VMT, and any mitigation VMT

reduction is the same. Lead agencies may define overall thresholds in their own CEQA Guidance documents or on a project-by-project basis.

## 5.3 Process for Estimating Project VMT

The following recommended process for estimating project VMT for CEQA purposes involves up to four steps:

- 1) Screening process to determine if a Project could potentially screen out as presumed less than significant based on the project's characteristics such as project size, transit priority area, or affordable housing status
- 2) Preliminary VMT assessment to estimate if a project could potentially exceed the CEQA Lead Agency's threshold of significance for VMT based on project location by looking up the VMT characteristics of the project's area from the VCTM lookup tool
- 3) CEQA VMT Assessment based on the project location and conditions by modeling the project through VCTM or other models and applying project element VMT reduction strategies
- 4) Identify and incorporate mitigation measures to reduce a project to less than significant under an adaptive mitigation plan, if needed

### 5.3.1 Using VCTM or Other Travel Demand Models to Estimate VMT for CEQA Purposes

For most projects, the use of the VCTM Base Year model is appropriate for estimating project-level VMT as an individual project would not substantially alter the travel patterns of the traffic analysis zone in which it is located. Since VMT is largely based on the geographic conditions found in a traffic analysis zone such as surrounding land uses and transportation system, projects which are similar to other development in the surrounding area are expected to display similar VMT metrics to existing development. If a project is more similar to land uses found in adjacent TAZs, there is an option of using the VMT information of the adjacent TAZs as proxies for the project. If a project is of a large size or a new type of land use, an independent travel demand model scenario can be created for the Project.

The recommended methodology is for use by Project Applicants and CEQA lead agencies to perform CEQA-level VMT analysis. However, the variability of Project types and conditions and the statutory authority given to lead agencies give them the discretion to require other methods or processes to determine a potential significant transportation impact under CEQA. Project applicants should coordinate with its CEQA Lead Agency to determine the most appropriate analysis for the assessment of their Project.

Use of VMT metrics for CEQA analysis began in 2020 and is therefore a new and evolving type of analysis for the environmental impacts of transportation. The following guidance is based on the current best information available and utilizes conservative assumptions. As new methodologies and tools are developed for VMT analysis, this guidance will be updated as a resource for the Project Applicants and CEQA lead agencies of Ventura County.

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### 5.3.2 Use of Other Models for VMT Estimation

Some lead agencies have their own travel demand models or utilize the SCAG model which is also appropriate for CEQA VMT analysis. However, whichever model is used must be used for all aspects of the analysis and data cannot be used interchangeably between models. This is because there can be minor variations in the output values of the models.

The VMT analysis is a comparison of the proportionality of difference between baseline and with project conditions which should be consistent between different models, however if one mixes the absolute model outputs between two different models, this proportionality may be distorted. For example, when using VCTM the project VMT per capita may be 10 while the regional value for comparison may be 11 which would show the project having a lower VMT than the regional VMT. If one were to use the VCTM project VMT per capita value of 10 and compare it to a different model's regional value of 9, it would show the project having a higher VMT than the regional VMT. Just the relative effect of the proposed project on baseline conditions should be used to make a CEQA determination, not the variations in model inputs and outputs.

### 5.3.3 Non-Model VMT Estimation

It is also possible to use non-model methods of VMT estimation. Tools that use derivative VMT outputs from travel demand models, for example CalEEMOD or other air quality analysis tools may be appropriate, however it is recommended the values from any derivative model tool is backchecked against VCTM values to ensure reasonableness of the values.

Sometimes projects have such specific travel patterns, they may be estimated directly from travel patterns of site related activity.

## 5.4 VMT Reduction Measures

The VMT characteristics of a project site are estimated using the VCTM data based on its location in the County. This can be considered the basic VMT characteristics of a project site because the model is an abstraction of the more complicated reality which site design, local transportation services, connections to paths and transit stops play a role in the overall transportation activity of people.

For project analysis, it is recommended that applicants review the specifics of their project site and its amenities to take credit for other factors which may reduce VMT from the estimated model output value such as provision of bicycle racks or connections to the local sidewalk network. This provides an incentive for site planning that integrates into the local multimodal networks and encourages non-vehicle trips.

By identifying those potential impacts early in the project development process, they can be integrated into project design from the beginning rather than applied as part of a mitigation program if potential significant impacts are identified.

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Mitigation measures should be not only technically and financially feasible, but also appropriate for the context of the project site and expected to achieve the VMT reductions it would be credited for in pre-construction analysis.

#### 5.4.1 VMT Reduction Measure Effectiveness

In order to calculate the effectiveness of VMT reduction measure, the total VMT generated from the project must be calculated by the VMT per capita or per employment efficiency metric by multiplying the efficiency metric by the number of persons associated with the project. The number of residents or employees is generally calculated by average occupancy of units or employees per square foot estimates as most developments do not characterize themselves in number of people but rather housing units or square footage of buildings.

Feasible reduction measures are selected based on options available to project applicants that are financially, technically and institutionally feasible. Generally, for land use development projects these would be on-site or off-site improvements to non-automobile transportation infrastructure. The effectiveness in reduction project VMT is generally expressed in a percent reduction from the VMT of the Project without the measure.

#### 5.4.2 Applying Multiple VMT Reduction Measures

The use of multiple VMT reduction measures is not directly cumulative (one cannot expect to keep adding reduction measures to the point where no automobile travel occurs to/from the project development. Therefore, when taking VMT reduction estimates, it is recommended to cap total reductions at 25 percent and to use dampening where each successive reduction measure is taken as a percentage of the remaining VMT. The 25 percent cap on VMT reductions is based on the 25 percent reduction in statewide VMT during the second quarter of 2020 in which the stay-at home conditions of the COVID-19 pandemic limited travel to essential travel.<sup>2</sup>

Dampening each successive strategy acknowledges strategies would generally affect the same market segment of residents or employees. Within each trip type (home-based work trips, for example), if two strategies are applied (A=5% and B=2%), then the effectiveness would not be A+B (7%), but rather  $1-(1-A)*(1-B)$  which would be:  $1-(95%)*(98%)=6.9%$ . If the CEQA Lead Agency wants a more conservative analysis, each successive VMT reduction could be reduced by a factor. If a factor of 50% is used the overall VMT reduction in the example would be:  $1-(95%)*(99%)=5.95%$ .

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<sup>2</sup> Caltrans quarterly mobility performance reporting of a drop of VMT from 9.45 billion in the second quarter of 2019 to 7.23 billion in the second quarter of 2020. VMT returned to within five percent of 2019 levels in 2022 with 8.94 billion VMT in the second quarter of 2022 <https://dot.ca.gov/programs/traffic-operations/mpr/quarterly>

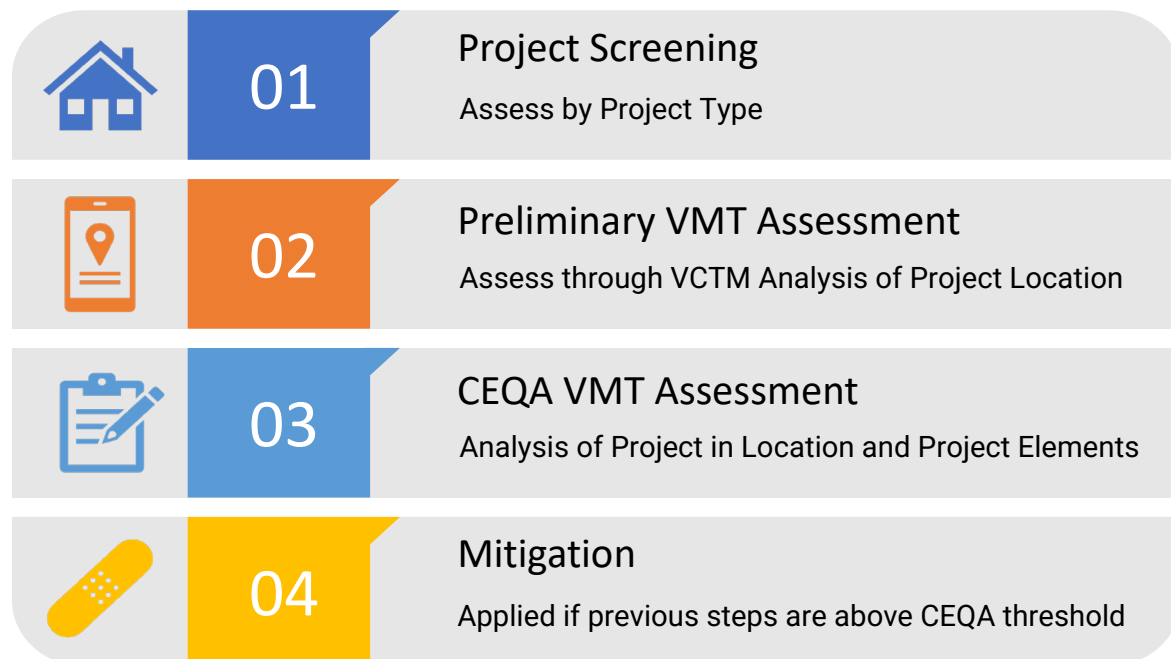
## 6 VMT Analysis Steps

The recommended VMT assessment process provides for early identification of VMT characteristics of Proposed projects to:

1. Determine if a Project could use streamlined CEQA process of a Notice of Exemption or Negative Declaration or would need additional transportation analysis under a Mitigated Negative Declaration or Environmental Impact Report.
2. Estimate Project-level VMT compared to the CEQA Lead Agency threshold to understand if a project could have a potential significant impact
3. Development of effective and feasible Project elements or mitigation measures to reduce VMT to a less than significant level.

The four steps of the recommended process are:

**Figure 6-1: Recommended VMT Assessment Process**



This recommended process is applicable for all types of projects whether land use development, administrative actions (such as land use plans) and transportation projects.

### Step 1: Project Screening

*Project Screening analysis can be used in the planning, due diligence or CEQA initial Study analysis of Project Applicants and can be a basis for determining the best next steps in partnership with the CEQA Lead Agency*

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CEQA Lead Agencies define screening criteria (Section 1.3) for projects that could be presumed to be less than significant which can identify streamlining options early for project proponents.

#### *Low VMT Area Screening*

1. Determine if the Project has housing or employment – the VMT analysis can be for residential or employment based-VMT. For other types of projects see below (Other Issues)
2. Location of Project (address or parcel identification number)
3. Consult VCTM Map or lookup feature to receive the VMT metrics of the Project area.
4. Determine if zone is above or below the CEQA Lead Agency’s threshold

#### *CEQA Lead Agency Screening Criteria*

Determine if the Project meets a CEQA Lead Agency’s screening criteria for presuming a project has a less than significant impact based on small project size, transit-oriented, affordable housing, or community serving development.

The VMT screening analysis will indicate if a Project is likely to be below or exceed the CEQA Lead Agency’s threshold for planning and due diligence purposes. Based on the Project VMT screening information a Project Applicant and the CEQA Lead Agency can determine the next steps of CEQA analysis:

- Initial Study Negative Declaration
- Initial Study Mitigated Negative Declaration
- Environmental Impact Report

#### **Step 2: Preliminary VMT Assessment**

Preliminary VMT assessment of projects is available through VCTC’s [VCTM website](#) which provides lead agencies and project proponents the opportunity to estimate VMT characteristics of projects based on their location. View the project’s area VMT conditions by:

1. Determine if the Project has housing or employment – the VMT analysis can be for residential or employment based-VMT. For other types of projects see below (Other Issues)
2. Location of Project (address or parcel identification number)
3. Consult VCTC Map or lookup feature to receive the VMT metrics of the Project area.
4. Determine if zone is above or below the CEQA Lead Agency’s threshold

This provides proactive indication of the potential for VMT impacts from a project. If the VMT metrics of the Project’s TAZ are below the CEQA Lead Agency’s threshold, the project could be presumed to have a less than significant CEQA transportation impact on VMT. If the VMT metrics of the Project’s TAZ are above the CEQA Lead Agency’s threshold, the Project Applicant could include “[VMT Reduction Strategies](#)” as project elements or as project mitigation working with the CEQA Lead Agency.



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### Step 3: CEQA VMT Assessment

Initial Study Negative Declaration or Mitigated Negative Declaration VMT analysis is similar to the Project Screening methodology, however if a Project exceeds the CEQA Lead Agency's threshold of significance, VMT reduction project elements or mitigation measures must be quantified.

Projects that require to perform an Environmental Impact Report are recommended to perform Project scenario analysis in a travel demand model, both due to the Project being of a potential scale to affect travel patterns and the use of travel demand model outputs for other resource areas of air quality, greenhouse gas and noise analyses.

It is recommended Project Applicants use the Ventura County Transportation Model (VCTM) for analysis. However, applicants could use other VMT estimating tools such as a city travel demand model, the Southern California Association of Governments travel demand model, VMT calculator tools or CalEEMod. Regardless of the VMT modeling tool used, it should not be blended with other VMT modeling tools in the analysis. All analysis must utilize the same VMT modeling tool.

### Step 4: Mitigation

If after the assessment and application of VMT reduction strategies a project still exceeds the VMT threshold, feasible mitigations should be applied to reduce the project to less than significant.

To calculate the amount of VMT reduction needed, the difference in daily VMT per capita or employee metrics from the threshold level of the CEQA Lead Agency must be determined. Feasible VMT reduction strategies can be used as mitigation to bring the project VMT below the threshold. This may be analyzed proactively, prior to the environmental documentation phase of a project, to determine if VMT reduction measures can be used as project elements to avoid a potential significant impact.

Lead agencies are encouraged to develop preferred VMT reduction strategies for use as project elements or mitigation as well as to identify a roster of active transportation and/or transit projects which could have a fair share cost mitigation applied by project applicants as needed.

Mitigation plan should be developed to ensure significant impacts are reduced to less than significant. For relatively short-term development of housing, civic or government, or commercial projects where VMT with mitigations is reduced to or below the CEQA Lead Agency VMT threshold of significance, adaptation of the mitigation plan is probably not necessary.

For large projects and adopted long-term programs and plans such as a General Plan or build out of a new or amended specific plan, VMT mitigation plans should be "adaptive" in its Project Mitigation and Monitoring Reporting Program (MMRP) with a goal statement "...to achieve or exceed the VMT threshold of significance utilizing alternative and/or new VMT reduction strategies and/or fair share cost participation in VMT reduction updated and/or become available during project development and operation."

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## 6.1 Other Issues

### 6.1.1 Projects that are not Housing or Employment

Please consult with the CEQA Lead Agency for guidance, the method of VMT analysis may be different for other types of Projects. For example, generally retail projects over 50,000 gross square feet the recommendation is to calculate a net change in VMT which would require a new travel demand model scenario.

### 6.1.2 For Projects that are a New Type of Land Use in its TAZ

For projects which introduce a new type of land use which could alter the VMT metrics of the TAZ by shortening or lengthening trips or changing trip types, analysis using adjacent TAZs which include similar land uses or a new travel demand model scenario with the project are recommended.

### 6.1.3 Using Adjacent TAZs if the TAZ the Project TAZ Does Not Represent the VMT Metrics of the Project

At the borders of TAZs, projects may be expected to have VMT metrics with more similarity to an adjacent TAZ than the one it is contained within due to the mix of land use types or location within the transportation system. The use of the adjacent TAZ may be used in those cases if justified by the Project Applicant.

### 6.1.4 Projects at Edge or That Overlap One or More TAZs

Projects on the edge or overlap multiple TAZs should select the most appropriate TAZ for analysis purposes based on the project location, access to the transportation system and similarity to other types of land use in a particular TAZ. The decision process of selecting an appropriate TAZ for project analysis should be described in a VMT assessment.

## 7 VMT Reduction Strategies

VMT reduction strategies can be used to avoid, reduce or mitigate VMT of a Project. The following is a reference of strategies and standardized and generalized emission reduction quantification methods and procedures. Also included in this assessment are best practices for strategy implementation and discussion of factors which may significantly impact measure outcomes such as project location and scope.

### 7.1 Actions that Reduce VMT from Land Use and Transportation Projects

#### 7.1.1 Using VMT Reduction Strategies as Project Elements

To the degree possible, proactive application of on-site VMT reduction strategies is recommended for proposed projects. The use of avoidance and minimization measures or environmental commitments to avoid potential significant impacts is beneficial both to the applicant and CEQA Lead Agency by lowering CEQA analysis costs and mitigation administration and monitoring.

#### 7.1.2 Using VMT Reduction Strategies as Mitigation

If a project is determined to have a potential significant impact and project elements are not sufficient to reduce a project's impact to less than significant, it will need to be mitigated through further VMT reduction measures. These may be on-site or off-site mitigations. Off-site mitigations are generally infrastructure or operational improvement to multimodal infrastructure to support non-vehicular travel.

Off-site mitigation serves more than just travel to/from the project site, and therefore can reduce VMT to a higher level than on-site mitigations which only apply to the project site trips. The drawback of off-site mitigations is their relatively higher cost and difficulty to administer from an applicant and CEQA Lead Agency perspective.

To facilitate off-site mitigation, a fair share cost-per-VMT-reduced mechanism for project applicants was developed for use in Ventura County.

#### 7.1.3 Fair Share Cost for VMT Mitigation Measures

The fair share cost mechanism determined the dollar cost of reducing one daily VMT. The fair share cost mechanism is not required to be used for determining VMT mitigation cost, but rather to provide a mechanism for lead agencies to allow applicants a means to partially fund off-site mitigations which may be too expensive to fully fund by one project or to pay a CEQA Lead Agency a mitigation to be used for yet-to-be identified VMT reduction projects. For more information see **Appendix B: Fair Share VMT Cost Estimate for Multimodal Mitigations**.

Fair share cost participation is calculated by converting the amount of daily VMT to be reduced into the total VMT from the efficiency metric. To reduce a 100-person development's VMT per capita metric

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from 11 VMT per capita to 10 VMT per capita, one VMT per capita needs to be reduced which would be 100 total VMT. The fair share cost would be 100 total VMT x the fair share cost per VMT. The fair share cost would likely be paid to the permitting agency when the building permit is issued, similar to the Ventura County Air Pollution Control District's "Off-Site Transportation Demand Management Fund," incorporated in the 2003 Ventura County Air Quality Assessment Guidelines, Section 7.5.3 [<http://www.vcapcd.org/pubs/Planning/VCAQGuidelines.pdf>].

#### 7.1.4 Regional VMT Reduction Bank

VCTC is exploring the potential of a VMT Reduction Bank that can be used for larger, regional projects. However, this account is not necessary as a CEQA Lead Agency could directly collect fair share VMT reduction funds as mitigation from project applicants and hold those funds for use as a local share of a regional project.

## 7.2 Summary of VMT Reduction Strategies

The following are a synthesis of previous reports on VMT and GHG reduction measures published by various California agencies which provide information on methodologies for quantifying their effectiveness. Literature on GHG reduction measures is relevant to this task as many transportation related GHG reduction measures reduce emissions by way of reducing VMT. In general, VMT reduction strategies reduce single-occupancy vehicle travel by encouraging transit and alternative transportation and/or reduce the number of vehicle trips or vehicle trip miles through land use planning. The primary reports referenced for this project are:

- California Air Pollution Control Officers Association. (2021). Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.
- San Diego Association of Governments. (2019). Mobility Management VMT Reduction Calculator Tool – Design Document.
- California Air Pollution Control Officers Association. (2010). Quantifying Greenhouse Gas Mitigation Measures.

In particular, the CAPCOA 2021 Handbook and SANDAG 2019 VMT Reduction Calculator Tool were both written with consideration toward SB 743-related CEQA compliance.

This synthesis of reduction methods is only meant to serve as a reference and should not be used to quantify actual project related VMT reductions. Project-specific considerations, such as location and quality of strategy implementation, need to take into account when estimating reductions. This report takes into account the most up-to-date regional-, state-, and national-level data and may not be appropriate for all projects.

VMT reduction strategies are organized into six categories (consistent with the CAPCOA 2021 Handbook):

1. Land Use
2. Trip Reduction Programs
3. Parking or Road Pricing/Management
4. Neighborhood Design
5. Transit
6. Clean Vehicles and Fuels.

Implementing multiple strategies within a category is likely to have diminishing returns on VMT reduction, whereas implementing multiple strategies across categories may have more additive effects. There is limited research on quantifying reductions across multiple strategies. Literature comparing VMT in suburban to urban neighborhoods suggests that implementing a full array of high-quality reduction strategies across multiple categories may reduce VMT at most 70 percent.

### 7.2.1 Location

A reduction strategy can either be applied to the project site or at the neighborhood/community-level. For example, constructing a bus stop at the development would be an example of a reduction strategy applied to the project site whereas increasing bus transit frequency for a bus route servicing the development would be an example of a reduction strategy applied to the neighborhood/community. A developer can include project site reduction strategies in their project design. A developer would work with local or regional jurisdictions or transit agencies to coordinate on a neighborhood/community-level strategy.

### 7.2.2 Type

Reduction strategies are further classified as either built environment or transportation demand management (TDM) strategies. Built environment strategies relate to physical transportation facilities and other land use features including land use intensity and type. Demand management strategies aim to maximize traveler choices. TDM increases opportunities for transit, non-motorized, and/or carpool travel.

### 7.2.3 Targeted Trip Reduction

VMT reduction strategies can address a variety of trip types such as commute, shopping, or school trips. An employer sponsored vanpool program, for example, is a strategy which addresses reducing commute trip VMT. This analysis also identifies the targeted trip reduction type for each measure.

The complete list of mitigation measures and their corresponding category, type, and maximum effectiveness for project site strategies in **Table 7-1** and off-site strategies in **Table 7.2**. A full description of the VMT reduction strategies is included in **Appendix G**.

**Table 7-1: On-Site VMT Reduction Strategies**

Category	Type	Strategy	Maximum	Affected Group
Land Use	Land Use	Increase Density (Residential or Job)	31%	Site
Land Use	Land Use	Increase Residential Density	30%	Site
Land Use	Land Use	Increase Job Density	30%	Site
Land Use	Land Use	Provide Mixed Use Development	30%	Site
Land Use	Land Use	Provide Transit-Oriented Development	27%	Site
Land Use	Land Use	Integrate Affordable and Below Market Rate Housing	1.2%	Site
Land Use	Location	Increase Destination Accessibility	24.6%	Site
Land Use	Location	Locate Project near Bike Path/Bike Lane	0.63%	Site
Land Use	Location	Orient Project Toward Non-Auto Corridor	0.5%	Site
Neighborhood Design	Infrastructure	Provide Bike Parking in Non-Residential Projects	0.63%	Site
Neighborhood Design	Infrastructure	Provide Bike Parking in Multi-Unit Residential Projects	0.5%	Site
Neighborhood Design	TDM	Implement Preferential Rideshare Parking Program	1%	Commuters
Parking Management	Infrastructure	Unbundle Residential Parking Costs from Property Cost	15.7%	Community
Parking Management	Infrastructure	Limit Residential Parking Supply	13.7%	Site
Parking Management	Infrastructure	Provide Electric Vehicle Charging Infrastructure	11.9%	Site
Trip Reduction Programs	Infrastructure	Provide End of Trip Facilities	4.4%	Site commutes
Trip Reduction Programs	TDM	Telework and Alternative Work Schedules	100%	Site teleworker commutes
Trip Reduction Programs	TDM	Implement Commute Trip Reduction Program (Mandatory Implementation and Monitoring)	26%	Site commutes
Trip Reduction Programs	TDM	Provide Employer-Sponsored Vanpool	20.4%	Site commutes
Trip Reduction Programs	TDM	Price Workplace Parking	20%	Site commutes
Trip Reduction Programs	TDM	Implement Employee Parking Cash-Out	12%	Site commutes
Trip Reduction Programs	TDM	Provide Ridesharing Program	8%	Site commutes
Trip Reduction Programs	TDM	Implement Subsidized or Discounted Transit Program	5.5%	Site
Trip Reduction Programs	TDM	Implement Commute Trip Reduction Program	4%	Site commutes
Trip Reduction Programs	TDM	Implement Commute Trip Reduction Marketing	4%	Site commutes

**Table 7-2: Off-Site VMT Reduction Strategies**

Category	Type	Strategy	Maximum	Affected Group
Land Use	Location	Improve Street Connectivity	30%	Community
Neighborhood Design	Infrastructure	Provide Pedestrian Network Improvement	6.4%	Community
Neighborhood Design	Infrastructure	Construct or Improve Bike Boulevard	0.2%	Corridor
Neighborhood Design	TDM	Implement Conventional Carshare Program	0.15%	Community
Neighborhood Design	TDM	Implement Pedal (Non-Electric) Bikeshare Program	0.03%	Community
All Categories	Infrastructure	Require Contributions to Infrastructure Projects	varies	Community
Cleaner Vehicles and Fuels	TDM	Use Cleaner-Fuel Vehicles	100%	Vehicle replacement
Neighborhood Design	Infrastructure	Provide Traffic Calming Measures	1%	Corridor
Neighborhood Design	Infrastructure	Construct or Improve Bike Facility	0.8%	Corridor
Neighborhood Design	Infrastructure	Dedicated Land for Bike Trails	0.8%	Corridor
Neighborhood Design	Infrastructure	Expand Bikeway Network	0.5%	Community
Neighborhood Design	Infrastructure	Create Urban Non-Motorized Zones	0.2%	Community
Neighborhood Design	TDM	Implement Electric Carshare Program	0.18%	Community
Neighborhood Design	TDM	Implement Electric Bikeshare Program	0.03%	Community
Neighborhood Design	TDM	Implement Scooter-share Program	0.03%	Community
Parking Management	Infrastructure	Implement Market Price Public Parking (On-Street)	30%	Community
Road Pricing	Infrastructure	Implement Area or Cordon Pricing	22%	Community
Parking Management	Infrastructure	Install Park-and-Ride Lots	0.5%	Community
Parking Management	Infrastructure	Require Residential Area Parking Permits	0.36%	Community
Transit	Infrastructure	Increase Transit Service Frequency/Speed	11.30%	Corridor
Transit	Infrastructure	Extend Transit Network Coverage or Hours	4.6%	Corridor
Transit	Infrastructure	Provide Local Shuttles	2.5%	Community
Transit	Infrastructure	Implement Transit-Supportive Roadway Treatments	0.6%	Corridor
Transit	Infrastructure	Provide Bike Parking Near Transit	0.09%	Community
Transit	TDM	Microtransit NEV (neighborhood electric vehicles)	12.7%	Corridor
Transit	TDM	Reduce Transit Fares	1.2%	Community
Trip Reduction Programs	Infrastructure	Implement School Bus Program	63%	Students
Trip Reduction Programs	TDM	Implement School Pool Program	15.8%	Students
Trip Reduction Programs	TDM	Provide Community-Based Travel Planning	2.3%	Community

### 7.3 Ventura County Air Pollution Control District RACM Analysis

Reduction strategies included in this analysis were cross referenced with those included in Ventura County Air Pollution Control District's reasonably available control measures (RACM) analysis for Transportation Control Measures (TCMs) for the 2022 Air Quality Management Plan (AWMP). In the RACM analysis, potential air quality improvement measures were analyzed to determine their feasibility and current use within Ventura County. The analysis also identified potential implementing agencies for each measure.

Air quality improvement measures that result in VMT-reduction were also analyzed for this report. Results from the RACM analysis are summarized in this report for further information.

### 7.4 Quantification of Transportation VMT Reduction Strategies

Quantification of the reduction of VMT from reduction strategies should be clearly documented by the source of the reduction factor and the clear demonstration of the calculation of the reduction. The most common method for calculating VMT reduction is a percent reduction applied to a base VMT. However, some VMT reduction strategies may be directly calculated from the total project VMT. For example, a bikeshare program may estimate number of users and vehicle miles redirected to bicycle travel. In that case, total project VMT (VMT per capita x number of persons) would need to be calculated, the reduction in absolute VMT applied and then divided by population to perform the VMT assessment.



## Appendix A: VCTM Data Outputs

The Ventura County Transportation Commission's (VCTC) Ventura County Transportation Model (VCTM) is maintained to provide regional travel estimation and forecasting. It, along with travel demand models maintained by some cities, is the highest standard of vehicle miles traveled information. VCTC publishes the latest outputs of the travel demand model for use by lead agencies and project applicants to assess vehicle miles traveled and existing and forecasted future travel conditions.

The VCTC website has a page devoted to VMT outputs from the VCTM:  
<https://www.goventura.org/work-with-vctc/traffic-model/>

The following information is provided

Residential VMT Outputs for assessment of residential projects.

- Parcel Home-Based VMT per Capita (**HB\_VMT**)
- City Average Home Based VMT per Capita (**Avg\_HB\_VMT**)
- Home Based VMT below City Average (Yes/No) (**HB\_Bel\_Avg**)
- Home Based VMT below 85% of City Average (Yes/No) (**HB\_Bel\_85**)

Employment VMT Outputs for assessment of commercial and industrial projects.

- Parcel Work-Based VMT per Employee (**WB\_VMT**)
- City Average Work Based VMT per Employee (**Avg\_WB\_VMT**)
- Work Based VMT below City Average (Yes/No) (**WB\_Bel\_Avg**)
- Work Based VMT below 85% of City Average (Yes/No) (**WB\_Bel\_85**)

Other VMT Characteristics that can be used to determine applicable screening criteria for a project.

- In Transit Area (Yes/No) (**HQTA**)
- In Area With High Employment/Low Housing (Yes/No) (**Emp\_Area**)
- In Area With High Housing/Low Employment (Yes/No) (**Res\_Area**)
- In Disadvantaged Community\* (Yes/No) (**DAC2022**)
- Within 1/4 mile of Transit Stop (**NearTrans**)

## Appendix B: Fair Share VMT Cost Estimate for Multimodal Mitigations

Multimodal Transportation Improvement Cost Analysis was conducted by reviewing capital improvement plans of lead agencies for the cost and VMT reduction potential of multimodal transportation improvement projects. This analysis is intended to demonstrate a process of how a CEQA Lead Agency could identify cost of transportation impact mitigation. Overall, 50 capital projects with a total cost estimate of \$66 million and \$353 million in transit operating support over a ten-year period were identified for the analysis.

The capital projects were organized by category. Each category was determined to have a VMT reduction potential based on information from the Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity: Designed for Local Governments, Communities, and Project Developers, Sacramento Metropolitan Air Quality Management District, Public Draft August 2021. The handbook is an update to the 2010 CAPCOA Quantifying Greenhouse Gas Mitigation Measures Handbook in coordination with the update to the California Emissions Estimator Model (CalEEMod). The update incorporates new GHG mitigation strategies and refreshes quantification methods and underlying data. The VMT reduction calculation was expressed in a percent reduced per scale of the project (e.g. miles of sidewalk or bike lane) or as a percent reduction of the vehicle travel in the traffic analysis zones within ¼ mile of the project site.

The transit operations support analysis was calculated differently than the capital projects. The VMT reduction from transit operations was directly calculated from passenger miles carried by the transit operators of Ventura County with the assumption new transit riders would have the same level of VMT reduction as existing riders. Since CEQA mitigation is most effective in a single assessment as a condition of approval for housing development as opposed to an ongoing payment due to the likely change in ownership of housing units from developer to individual homeowner. Therefore, the funding commitment for transit operations was assumed to be a single lump sum for a ten-year period of operations support—a timeframe comparable to a lifecycle of a capital project.

The estimates for VMT reduction summarizing the costs of the sampling of types is shown in Table B-1.

**Table B-1: VMT Reduction Cost by Type of Project**

Type	VMT Reduction Estimate	# of Projects	VMT Reduced	Cost	Cost/VMT Red
<b>Bike Lane</b>	0.5% per mile	8	5,701	\$11,874,777	\$2,083
<b>Bike Path</b>	1% per mile	10	5,495	8,698,382	\$1,583
<b>Bus Stop</b>	0.4% in 1/4 mile area	6	1,782	1,325,919	\$744
<b>Park and Ride</b>	0.5% in 1/4 mile area	2	1,235	\$880,687	\$713
<b>Sidewalk</b>	2% per mile	14	17,671	20,355,931	\$1,152
<b>Sidewalk and Bike Lane</b>	2% per mile	7	9,410	12,813,332	\$1,362
<b>Traffic Calming</b>	0.25% in 1/4 mile area	2	926	\$7,640,000	\$8,255
<b>Transit Operations (non-commuter service)</b>	Passenger Miles – 10 Years		101,679	282,116,336	\$2,775
<b>Transit Passes</b>	200 passes per operator - 1 trip per weekday		13,317	3,966,838	\$298
<b>Transit-Commuter Bus Operations</b>	Passenger Miles – 10 years		39,255	66,922,148	\$1,705
<b>Transit Station</b>	0.8% in 1/4 mile area	1	573	\$2,862,000	\$4,995

Transit operations cost per VMT reduced were based on 2019 National Transit Database data which include the operating expenses and operations (trips and trip distance data). Annual operating expense was divided by passenger miles carried for each transit agency to determine a dollar cost per VMT reduced. To determine the VMT reduction cost for transit operations shown in Table B-2, a Federal Transit Administration life cycle of transit buses of 500,000 miles (approximately 10 years of service) was used to calculate a dollar value as assigned to a reduction of one daily VMT, analogous to a capital project VMT reduction calculation.

**Table B-2: VMT Reduction Cost for Transit Operations**

Transit Provider	Annual Operating Expense	Annual Trips	Annual Passenger Miles	Cost per one day one VMT Reduced	Lifecycle Cost per Daily VMT Reduced*
Gold Coast Transit	\$21,052,979	2,163,227	14,821,422	\$1.42	\$3,205
Simi Valley Transit	\$3,983,229	266,718	1,821,580	\$1.83	\$4,433
Camarillo Area Transit	\$277,569	77,029	526,078	\$0.64	\$1,559
Ojai Trolley	\$911,834	74,056	505,774	\$1.53	\$3,608
Thousand Oaks Transit	\$3,360,127	145,176	991,495	\$2.14	\$5,362
Moorpark Transit	\$819,532	49,608	338,803	\$1.82	\$4,526
VCTC	\$9,109,441	704,266	13,119,121	\$0.69	\$1,624
<b>Total</b>	<b>\$48,624,152</b>	<b>4,184,346</b>	<b>45,243,394</b>	<b>\$1.05</b>	<b>\$2,775</b>

\*Lifecycle calculated per 500,000 vehicle miles per bus—approximately ten years

In order to calculate the VMT reduction value of transit passes, the VMT reduction potential of 200 passes per year allocated to each transit service. It was assumed this would result in a round trip every other weekday for each user of the pass. The cost of the passes to the transit provider was calculated by dividing the farebox revenue per trip as shown in Table B-3. It was assumed transit passes would be provided for 10 years as part of a VMT reduction measure.

**Table B-3: VMT Reduction Cost for Transit Passes**

Transit Service	Annual Cost**	VMT Per Day Reduction***
Gold Coast Transit	\$68,836	1,370
Simi Valley Transit	\$54,433	1,366
Camarillo Area Transit	\$12,616	1,366
Ojai Trolley	\$61,208	1,366
Thousand Oaks Transit	\$48,763	1,366
Moorpark Transit	\$39,532	1,366
VCTC Commuter Bus	\$72,683	3,931
VCTC Non-Commuter Bus	\$38,614	1,186
<b>Total</b>	<b>\$396,684</b>	<b>13,317</b>

\*200 transit passes per year per transit provider

\*\*Farebox revenue/trip

\*\*\* Assumes one-round trip every other weekday per pass

The VMT reduction actions were further categorized as Transit, Bike, and Pedestrian Infrastructure as show in Table B-4.

**Table B-4: Cost per VMT Reduced by Multimodal Project Category**

Type	# of Projects	VMT Reduced	Cost	Cost/VMT Red
Transit	9	4,449	5,068,606	\$1,139
Bike	22	15,901	26,979,825	\$1,697
Pedestrian	19	23,302	34,402,597	\$1,476
Transit Operations	-	154,250	353,005,322	\$2,289
<b>Total</b>	<b>50</b>	<b>197,902</b>	<b>419,456,350</b>	<b>\$2,120</b>

Since the sampling of projects involves a disproportionate mix of project types a generalized cost per VMT reduced was estimated across the types of transportation mitigation is shown in Table B-5.

**Table B-5: Generalized Cost per VMT Reduced**

Type	Cost/VMT Red
Transit	\$1,100
Bike	\$1,700
Pedestrian	\$1,500
Transit Operations	\$2,300
<b>Average Across Types (normalized)</b>	<b>\$1,650</b>

As Table B-5 shows, the average cost per vehicle miles traveled reduced is approximately \$1,650 for transportation mitigation. This would mean a project that is estimated to generate 100 total daily vehicle miles traveled over a lead agencies threshold would be expected to spend \$1,650 x 100 VMT = \$165,000 on mitigation if doing so through off-site multimodal improvements. It should be noted that this value is similar to a \$1,400 per VMT reduced estimated by the City of San Diego.<sup>3</sup>

Using this methodology, a CEQA Lead Agency could identify one or multiple projects or types of projects and calculate a fair share cost of mitigation. This can be useful when a project impact would not necessitate the full funding of an off-site transportation improvement. For example, a project which would need to reduce its average VMT per capita by a small percent equal to 10 daily VMT and a CEQA Lead Agency determined a pedestrian project in the city that cost \$2 million would have a VMT reduction effectiveness equivalent to \$1,500 per daily VMT reduced, mitigation could be accomplished through a \$15,000 fair share cost participation by the project.

There is a potential for the use of funding for affordable housing programs to be used as CEQA transportation impact mitigation. Denser, more affordable housing is strong driver of reduced overall VMT. It is the demand side of the supply and demand for travel (the transportation system is the

<sup>3</sup> [Active Transportation In Lieu Fee Nexus Study](#), City of San Diego, April 2020

supply). However, a quantification reduction and a nexus to transportation impact needs to be reviewed further to establish the substantial evidence for CEQA mitigation.

An high-level assessment of affordable housing investment through review of the Housing Trust Fund of Ventura County [2022 Report](#) which stated \$26 million in funded or committed loans resulted in 1,120 affordable units committed, funded and produced in the County. This is an average funding participation of \$23,214 per housing unit. The VMT/housing unit (assuming 3 persons per housing unit) for RHNA 6<sup>th</sup> Cycle Very Low- and Low-Income housing was calculated using VCTM as 28.5 VMT/housing unit which is 8.1 daily VMT/housing unit lower than the 36.6 average VMT/housing unit for Medium and Above Medium Income housing. If the \$23,214 funding per housing unit is divided by the 8.1 daily VMT/housing unit it would indicate \$2,850 is the fair share portion of a daily VMT reduction from funding affordable housing. While this is not a comprehensive nexus analysis, it does suggest fair share participation in funding affordable housing is in similar proportion to fair participation funding of transportation improvements.

## Appendix C: Countywide RHNA CEQA Mitigation Analysis

The assesses the potential scale of VMT reduction strategies to reduce the CEQA VMT impact of the Regional Housing Needs Assessment (RHNA) housing development allocation in Ventura County. Since RHNA must be consistent with the growth pattern from the region's long-range plan for transportation, housing, the economy and the environment, the Southern California Association of Governments Regional Transportation Plan/Sustainable Communities Strategy transportation investment in coordination of housing development and the associated CEQA streamlining of potential significant VMT impacts is a key activity for CEQA lead agencies. The RHNA five statutory objectives integrate housing affordability, equity, resource protection, greenhouse gas reduction and transportation goals:

- Increase housing supply and mix of housing types, with the goal of improving housing affordability and equity in all cities and counties within the region.
- Promote infill development and socioeconomic equity; protect environmental and agricultural resources; encourage efficient development patterns; and achieve greenhouse gas reduction targets.
- Improve intra-regional jobs-to-housing relationship, including the balance between low-wage jobs and affordable housing units for low-wage workers in each jurisdiction.
- Balance disproportionate household income distributions (more high-income allocation to lower-income areas, and vice-versa)
- Affirmatively further fair housing

The assessment of the potential VMT impacts based on the location of RHNA housing development proposed by county lead agencies and is organized in three parts:

1. **Multimodal Transportation Improvement Cost Analysis (Appendix B):** Review of planned multimodal improvement projects, their costs, and potential for vehicle miles travel reduction in order to obtain cost value for dollars per vehicle mile traveled reduced.
2. **Scale of Housing Projects Subject to CEQA Analysis:** Determines those developments which could be screened from CEQA analysis either due to affordable housing units, proximity to major transit stops or in a low VMT area.
3. **Potential Cost of CEQA VMT Mitigation for Housing Development:** Combines parts one and two for a conservative estimate of costs to address potential significant VMT impacts from housing development in the County.

### 7.5 Scale of Housing Projects Subject to CEQA VMT Analysis

This section describes the analysis that took the County's 6<sup>th</sup> Cycle RHNA allocation and distributed it in the traffic analysis zones of the Ventura County Transportation Model (VCTM) to determine those developments which would likely be screened from CEQA analysis either due to affordable housing units, proximity to major transit stops or by being located in a low VMT area.

The County’s 6<sup>th</sup> Cycle RHNA allocation is approximately 24,500 total housing units with approximately 10,000 of those very low or low income as show in Table C-1.

**Table C-1: Ventura County 6th Cycle RHNA Allocation**

Jurisdiction (CEQA Lead Agency)	Very Low Income	Low Income	Moderate Income	Above Moderate Income	Total
Total for Ventura County	5,774	3,810	4,525	10,343	24,452

Each CEQA Lead Agency’s most recent housing elements were collected and reviewed to determine the location of the housing allocation by type of housing. Most housing elements or their background reports organized their housing allocation by parcel number while others indicated areas but without specific parcel identification. For those without parcel number identification, manual selection of either the parcel identified in a housing element map or a representative parcel in the center of a traffic analysis zone if specific locations were unclear.

However, on balance these traffic analysis zone boarder issues were minimal and the adjacent characteristics of the traffic analysis zones in terms of their relative location within the county and transportation infrastructure were similar.

Two other characteristics were assigned to traffic analysis zones:

1. Existing Major Transit Stop/Stop Along and Existing High Quality Transit Corridor (High Quality Transit Areas – within one half-mile of a well-serviced transit stop or a transit corridor with 15-minute or less service frequency during peak commute hours. Existing areas are around the County’s Metrolink and Amtrak train stations. Per SCAG, there is a future High Quality Transit Corridor of Gold Coast Transit service from Ventura to Port Hueneme.
2. Traffic Analysis Zones that currently have 15 percent below the county’s average daily VMT per capita. These are zones that would likely result in less than significant CEQA transportation findings for a housing development.

These two characteristics are highly correlated as it nearly all of the HQTAs (85 percent) have a traffic analysis zone average daily VMT per capita below 15 percent of the countywide average.

Table C-2 shows the consolidated amount of Very Low- and Low-Income housing units and Moderate and Above Moderate housing units, their overall total and the percent of units within traffic analysis zones that were in transit areas, had a daily VMT per capita that was 15 percent below the countywide average or met either screening criteria.



**Table C-2: RHNA Housing Unit Allocation with Percent in Traffic Analysis Zones in a Transit Area or Below 15 percent of the Countywide Daily Vehicle Miles Traveled Per Capita**

	Very Low or Low Income	Moderate and Above Moderate Income	Total	Transit Area	Below 15%	Either Screening Criteria
<b>Total for County</b>	9,584	14,868	24,452	29%	67%	71%

Overall, 71 percent of the RHNA allocation by lead agencies would be in locations that are near transit (28 percent of allocation) or in a low daily VMT per capita area (67 percent of allocation).

## 7.6 Potential Cost of CEQA VMT Mitigation for Housing Development

Part three of the analysis combines the two previous parts to estimate the costs to address potential significant VMT impacts from housing development in the County. As Very Low- and Low-income housing is assumed to meet the screening threshold of affordable housing, those units were removed from those that could have a potential significant CEQA VMT impact. The remaining approximately 15,000 moderate and above moderate housing units were analyzed for their location in a traffic analysis zone that was either screened as an HQTAs or a low daily VMT per capita zone. Table C-8 shows that an estimated 3,959 moderate and above moderate housing units are estimated to not meet either screening criteria which represent 16 percent of the total RHNA housing allocation of 24,452 units.

These housing units were multiplied by the average daily VMT per capita in their traffic analysis zone to estimate a total housing project VMT per capita. This value as compared to a threshold value of 15 percent below per capita VMT and converted to a total daily value of potential daily VMT to be mitigated to achieve the 15 percent below per capita VMT at a project level. The daily VMT over the 15 percent threshold was multiplied by \$1,650 per daily vehicle mile traveled mitigation cost for off-site multimodal improvements estimated in part one of the analysis. As shown in **Table C-3**, if RHNA 6<sup>th</sup> Cycle housing projects expected to have significant CEQA VMT impacts mitigate those impacts with off-site multimodal improvements, the total would be approximately \$48 million.

**Table C-3: Estimated Housing Units Subject to CEQA and their Potential Mitigation**

	Moderate and Above Moderate Income	Either Screening	Units with Potential Sig Impact	Daily VMT over 15% Threshold	Mitigation Cost
<b>Total for County</b>	14,868	71%	3,959	29,219	48,211,055

The average size of moderate and above moderate housing developments was 12 units. Therefore the 3,959 units that would have a potentially significant CEQA VMT impact would be in approximately 345 projects with an average mitigation cost of \$146,000.

Important caveats of the analysis are:

- It uses the current calculated VMT per capita by traffic analysis zone—each new development would alter the VMT profile of a traffic analysis zone and additional modeling of an existing plus RHNA allocation scenario to isolate the effect of the building of the housing units on countywide VMT. Given the location of the allocation, it is assumed it would have reduction as compared to existing conditions.
- The generic 15 percent below County VMT per capita was used, whereas jurisdictions can set their own thresholds of significance. This was a conservative value used to make a countywide estimate.
- No assumed on-site or off-site mitigation are included, therefore the analysis is of an upper limit of the total multimodal transportation investment
- Individual projects would vary in size, scope and mixture of affordable and market rate housing.

## Appendix D: Disadvantaged Communities Analysis

Disadvantaged communities are areas burdened by both socioeconomic and environmental factors. The VMT characteristics of disadvantaged communities was analyzed by using the Ventura County Transportation Model (VCTM) outputs and CalEnviroScreen 4.0 information.

### CalEnviroScreen

The Office of Environmental Health Hazard Assessment (OEHHA) developed the California Communities Environmental Health Screening Tool: CalEnviroScreen. CalEnviroScreen is a screening methodology that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution. Several state entities have used CalEnviroScreen in the implementation of different [programs](#). Many of these programs are funded from the Greenhouse Gas Reduction Fund (GGRF) and include benefits to disadvantaged communities identified using CalEnviroScreen. CalEnviroScreen 4.0 was last updated in October 2021.

Disadvantaged communities in California are specifically targeted for investment of proceeds from the State's cap-and-trade program. The California Environmental Protection Agency (CalEPA) designated the top 25 percent of Census Tracts in CalEnviroScreen 4.0 as disadvantaged communities in May 2022, among other categories, for the purpose of investing cap-and-trade proceeds. Furthermore, fifty percent of statewide Affordable Housing and Sustainable Communities (AHSC) Program funding is designated for disadvantaged communities.

CalEnviroScreen 4.0 uses indicators to measure either environmental conditions, in the case of pollution burden indicators, or health and vulnerability factors for population characteristic indicators. CalEnviroScreen indicators fall into four broad groups—exposures, environmental effects, sensitive populations, and socioeconomic factors.

Exposure indicators are based on measurements of different types of pollution that people may come into contact with.

- Environmental effects indicators are based on the locations of toxic chemicals in or near communities.
- Sensitive population indicators measure the number of people in a community who may be more severely affected by pollution because of their age or health.
- Socioeconomic factor indicators are conditions that may increase people's stress or make healthy living difficult and cause them to be more sensitive to pollution's effects.

The CalEnviroScreen Census Tract data was compared to the VCTM model data to produce VMT analysis of disadvantaged communities. Analysis using both the CalEPA disadvantaged communities threshold of the 75<sup>th</sup> percentile of environmental burden and a 60<sup>th</sup> percentile level which better captures the disadvantaged communities of Ventura County (see **Figure D-1**).

Figure D-1: CalEnviroScreen Defined Disadvantaged Communities

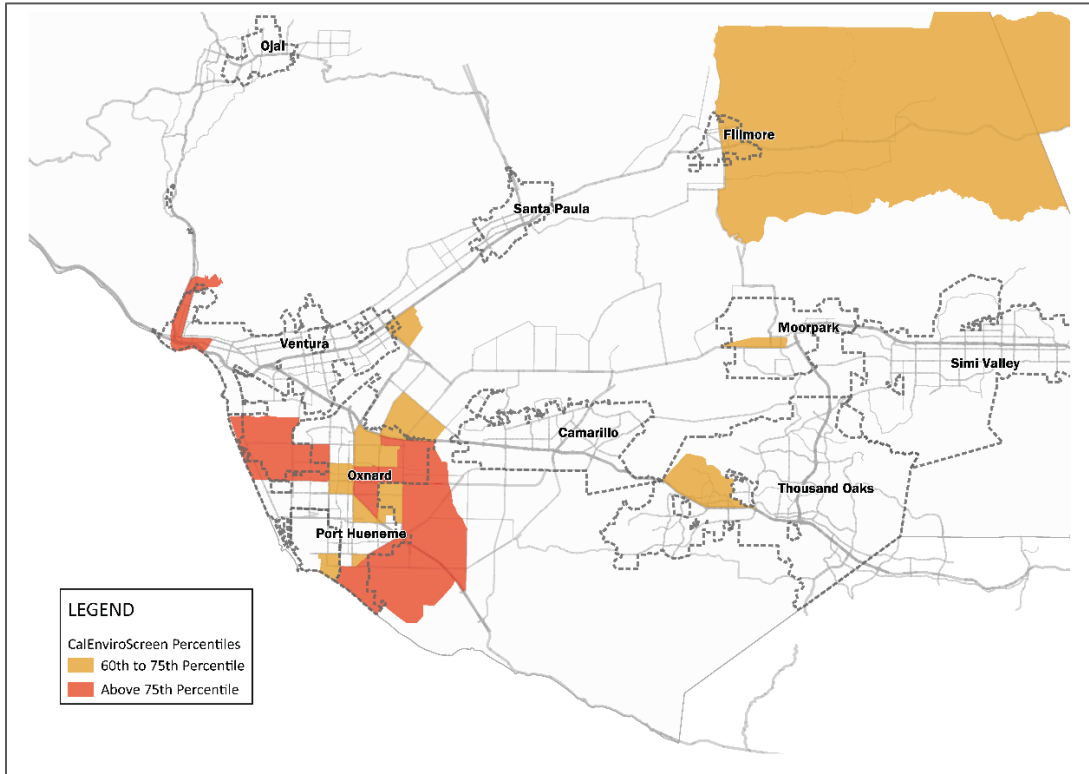


Table D-1: VMT Characteristics of Disadvantaged Communities in Ventura County

	Residential VMT per Capita		Employment VMT per Capita	
	Per Capita	Difference from Total	Per Employee	Difference from Total
Total - CalEnviroScreen 75% above (State Definition of Disadvantaged Communities)	15.3	(1.1)	17.9	(1.1)
Total - CalEnviroScreen Above 60% Disadvantaged Communities	15.6	(0.8)	17.9	(1.2)
Total - Not Disadvantaged Communities	16.9	0.4	19.8	0.7
Total - County Average	16.5	-	19.1	-

Source: VCTM

As shown in Table D-1, disadvantaged communities of both the 75<sup>th</sup> and 60<sup>th</sup> percentile and above burden have residential VMT per capita and employment VMT per employee that are approximately one VMT lower than Census Tracts that are not defined as disadvantaged communities. These results demonstrate investment in disadvantaged communities is investment in lowering VMT.

## Appendix E: CEQA References

The goal of the CEQA VMT Adaptive Mitigation Program and supporting analyses is to be incorporated by VCOG’s member agencies into the environmental documents related to their housing elements and programs. The CEQA VMT Adaptive Mitigation Program provides options for streamlining residential development by standardizing transportation mitigation measures to address and respond to statewide housing planning efforts. The legislature has adopted findings that “the lack of housing, including emergency shelters, is a critical problem that threatens the economic, environmental, and social quality of life in California... Among the consequences of those actions are...reduced mobility, urban sprawl, excessive commuting, and air quality deterioration” (Government Code Section 65589.5[a]). The legislature also recently adopted findings that “California has a housing supply and affordability crisis of historic proportions. The consequences of failing to effectively and aggressively confront this crisis are hurting millions of Californians, robbing future generations of the chance to call California home, stifling economic opportunities for workers and businesses, worsening poverty and homelessness, and undermining the state’s environmental and climate objectives” (Government Code Section 65589.5[a][2][A]). The AMP streamlines the CEQA process by providing tools to help applicants and lead agencies avoid having to prepare an Environmental Impact Report (EIR) only to later adopt a Statement of Overriding Considerations for a VMT impact above a VMT threshold previously determined by each jurisdiction or other CEQA Lead Agency. Therefore, the AMP will help streamline housing projects to address the California and regional housing crisis.

### E.1 California Environmental Quality Act

CEQA, enacted in 1970, requires lead agencies to inform decision makers and the public about the potential environmental impacts of discretionary activities proposed by public agencies or private projects requiring discretionary approval, and to reduce those impacts to the extent feasible. Lead agencies are state and local agencies that have the primary responsibility for approving a project. To be a CEQA Lead Agency, the public agency must have discretionary authority over a project. Lead agencies in Ventura County are local cities, school districts, water districts, the County of Ventura, and other public agencies.

CEQA compliance is required prior to the approval or undertaking of a project that could significantly affect the environment. There are five types of CEQA documents:

- Notice of Exemption
- (Mitigated) Negative Declaration
- Mitigated Negative Declaration
- Environmental Impact Report
- EIR/MND Addendum

The statute is codified in Public Resources Code Section 21000 et seq, and implemented by the California Natural Resources Agency. The California Office of Planning and Research (OPR) develops the CEQA Guidelines to interpret CEQA statute and published court decisions. The version of the CEQA Guidelines adopted on December 28, 2018 includes updates related to analyzing transportation impacts pursuant to SB 743.

### 7.6.1 E.1.1 Exemptions and Tiering Under CEQA – Potential Process Streamlining

A project is exempt from CEQA if:

- The project is exempt by statute
- The project is exempt pursuant to a categorical exemption
- The activity is covered by the “common sense exemption” that CEQA applies only to projects which have the potential for causing a significant effect on the environment

The standard of review for exemptions is the substantial evidence test where the burden is on the challenger to show that an exemption is not appropriate.

## E.2 Senate Bill 743

SB 743 directed a change in the way public agencies evaluate the transportation impacts of projects under CEQA, recognizing that roadway congestion, while an inconvenience to drivers, is not itself an environmental impact (see Public Resource Code, Section 21099, subd. (b)(2)). SB 743 provides opportunities to streamline CEQA for qualifying urban infill development near major transit stops in metropolitan regions statewide. A transit-oriented infill project can be exempt from CEQA if consistent with a specific plan for which an EIR was prepared, and also consistent with the use, intensity, and policies of a Sustainable Community Strategy or Alternative Planning Strategy that is certified by the California Air Resources Board as meeting its greenhouse gas reduction targets. Furthermore, under the bill, parking impacts are no longer considered significant impacts on the environment for select development projects within infill areas with nearby frequent transit service

The primary change to CEQA guidelines due to SB 743 is the prohibition of traditional traffic operations analysis metrics of roadway delay or capacity as described by “Levels of Service (LOS).” OPR identified VMT as the most appropriate metric to determine the significance of transportation impacts in a manner that promotes the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses (OPR 2018). This transitions the environmental analysis of a Project’s effect on the transportation system from how it affects congestion on facilities, such as intersection or roadway lanes, to the average distance traveled by vehicles. The change to VMT is tied to Greenhouse Gas (GHG) emissions and supports the GHG reduction goals of the California Global Warming Solutions Act of 2006 (Assembly Bill 32).

For the purposes of CEQA Transportation Impact Analysis the lead agencies can utilize measures of VMT per capita, per employee, and per service population (residents plus employees). Many cities and counties continue to use LOS traffic analysis to assess project impacts and actions for applicants to meet

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local LOS standards outside of CEQA analysis, generally as a separate traffic study. As a result of this, traffic operations analysis requirements for improvements as directed by lead agencies' general plans are not CEQA mitigation measures and would be enforced by cities and counties as conditions of approval.

### E.3.1 CEQA Guidelines Transportation Analysis Update

Beginning July 1, 2020 California Environmental Quality Act (CEQA) analysis for determining potential significant transportation impacts will transition from an automobile delay or capacity measure to a VMT metric in evaluating a project's environmental impacts under CEQA as required by Senate Bill (SB) 743. As recommended by the OPR and adopted as California Natural Resources Agency guidance, the following relevant changes to CEQA guidance were adopted in 2018:

- Implementing SB 743, new Guidelines section 15064.3 establishes VMT as the most appropriate measure of transportation impacts, shifting away from the level of service analysis that evaluated a project's impacts on traffic conditions on nearby roadways and intersections.
- Section XVII of Appendix G (Environmental Checklist) previously titled "Transportation/Traffic" now renamed "Transportation," and is significantly revised to reflect the state's new focus on reducing VMT and the near elimination of concern with degrading level of service as it pertains to vehicle operations.

This shift in CEQA transportation metric promotes outcomes that reduce reliance on automobile travel which align with State goals for reducing emissions, investing in multimodal transportation networks and encouraging higher density in-fill development.

### E.3.2 History

On September 27, 2013, Governor Jerry Brown signed into law SB 743 which tasked the OPR with developing alternative methods of measuring transportation impacts pursuant to CEQA other than the current practice of using traffic congestion-based measures which tend to promote increased vehicle use. On December 30, 2013, OPR released a technical memorandum which identified objectives for developing alternative criteria in support of the State's goals for greenhouse gas reduction by encouraging higher density, mixed-use development in urban areas served by public transit and more diverse travel options.

In August 2014, OPR proposed to replace roadway capacity and vehicle delay measures as often displayed as levels of service with measures of VMT which estimates the total distance people drive by vehicle. This shift in CEQA transportation metric promotes outcomes that reduce reliance on automobile travel which align with State goals for reducing emissions, investing in multimodal transportation networks and encouraging higher density in-fill development.

In December 2018, after over five years of stakeholder-driven development through nearly 200 stakeholder meetings, public convening, and other outreach events, the California Natural Resources Agency certified and adopted the CEQA Guidelines update package including the Guidelines section implementing SB 743. The final text, final statement of reasons, and related materials are posted at

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<https://resources.ca.gov/ceqa>. The changes have been approved by the Office of the Administrative Law and are now in effect.

The CEQA Guidelines (Section 15064.3, Determining the Significance of Transportation Impacts) requires that all cities and counties update their transportation impact analysis metrics to VMT exceeding an applicable threshold by July 1, 2020. The CEQA Guidelines give lead agencies discretion to choose the most appropriate methodology to evaluate a project's VMT impacts, however the methodology must be based on substantial evidence. Importantly, SB 743 "does not preclude the application of local general plan policies, zoning codes, conditions of approval, thresholds, or any other planning requirements pursuant to the police power or any other authority." (Pub. Resources Code Section 21099(b)(4).). Thus, it does not preclude the on-going use of congestion measures as a project performance metric for operational analysis for conformance with planning for new development consistent with community values. However, the congestion or operations analysis would not be applicable to determining significance under CEQA.

The Natural Resource Agency's Statement of Regulatory Impact Assessment for the CEQA Guidelines identified numerous potential direct and indirect benefits of reducing VMT. Realization of those benefits will depend on the degree to which, pursuant to this CEQA Guidelines update, lead agencies use the streamlined approaches for analysis of low-VMT projects, mitigate high VMT projects, or choose lower VMT project alternatives. Lead agencies determine whether any particular mitigation measure is feasible in the context of the project under review. Further, CEQA allows a Lead Agency to approve a project that has significant environmental impacts so long as it finds that the benefits of the project outweigh those impacts.

Section 15064.3 contains several subdivisions, which are described below. In brief, these Guidelines provide that transportation impacts of projects are, in general, best measured by evaluating the project's VMT. Methodologies for evaluating such impacts for most land use projects, transit and active transportation projects focus on the project's ability to reduce VMT. Methods for evaluating VMT for highway capacity projects are evolving, particularly under Caltrans' [transportation analysis framework](#) and the Guidelines recognize a CEQA Lead Agency's discretion to analyze such projects, provided such analysis is consistent with CEQA and applicable planning requirements.

**Subdivision (a): Purpose Subdivision (a) sets forth the purpose of Section 15064.3.**

First, the subdivision clarifies that the primary consideration, in an environmental analysis, regarding transportation is the amount and distance that a project might cause people to drive. This captures two measures of transportation impacts: auto trips generated and VMT. These factors were identified by the legislature in SB 743. The last sentence clarifies that automobile delay is not a significant effect on the environment.

**Subdivision (b): Criteria for Analyzing Transportation Impacts**

While subdivision (a) sets forth general principles related to transportation analysis, subdivision (b) focuses on specific criteria for determining the significance of transportation impacts. It is further



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divided into four subdivisions: (1) land use projects, (2) transportation projects, (3) qualitative analysis, and (4) methodology.

#### **Subdivision (b)(1): Land Use Projects**

SB 743 did not authorize the Agency to set thresholds, but it did direct OPR and the CEQA Lead Agency to develop Guidelines “for determining the significance of transportation impacts of projects[.]” (Pub. Resources Code § 21099(b)(2).) Therefore, to provide guidance on determining the significance of impacts, subdivision (b)(1) describes factors that might indicate whether the amount of a project’s VMT may be significant, or not.

#### **Subdivision (b)(2): Transportation Projects**

While subdivision (b)(1) addresses VMT associated with land use projects, subdivision (b)(2) focuses on impacts that result from certain transportation projects. Subdivision (b)(2) clarifies that lead agencies should presume that projects that reduce VMT, such as pedestrian, bicycle and transit projects, will have a less than significant impact. This subdivision further provides that lead agencies have discretion in which measure to use to evaluate highway capacity projects, provided that any such analysis is consistent with the requirements of CEQA and any other applicable requirements (e.g., local planning rules). Importantly, this provision does not prohibit capacity expansion. It also does not relieve agencies of the requirement to analyze any other potential impacts of such projects, including, but not limited to, greenhouse gas emissions and other air pollutants. Finally, recognizing that highway capacity projects may be analyzed at a programmatic level, subdivision (b)(2) states that lead agencies may be able to tier from a programmatic analysis that adequately addresses the effects of such capacity projects.

#### **Subdivision (b)(4): Methodology**

Lead agencies have the discretion to choose the most appropriate methodology to analyze a project’s VMT. Depending on the project, VMT may be best measured on a per person, per household or other similar unit of measurement. Subdivision (b)(4) also recognizes the role for both models and professional judgment in estimating VMT.

## **E.4 OPR Technical Advisory**

OPR developed series of Technical Advisories to evaluate transportation impacts in CEQA implementing SB 743. The most current advisory was published in December, 2018 and provided guidance for implementing Section 15064.3. It is not an administrative regulation but provides an overall guiding documentation for lead agencies when developing their CEQA transportation methodology. All jurisdictions have or are in the process of implementing SB 743 following the broad approach outlined in the Technical Advisory with differences for local conditions. The OPR Technical Advisory framework covers the following four areas of SB 743 implementation:

1. **Screening Criteria** – Opportunities to streamline CEQA Transportation analysis under certain project conditions that would reduce VMT by supporting infill development and support multimodal transportation networks

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2. **VMT Calculation Methodology** – How and what types of VMT should be analyzed and how to analyze land use plans, development projects and transportation projects
  3. **Thresholds of Significance** – Lead agencies have discretion to develop thresholds supported by substantial evidence
  4. **Mitigation Measures** – Options available to mitigate potential significant impacts

## E.5 CEQA Guidelines

The following are excerpts from the CEQA Guidelines and additional supporting materials which provide background to support the substantial evidence findings of the Ventura County VMT CEQA AMP. Passages particularly relevant to the AMP are **bolded** for emphasis.

The [CEQA Guidelines \(Title 14, Division 6, Chapter 3 of the California Code of Regulations\)](#) are administrative regulations governing implementation of the CEQA. The CEQA Guidelines reflect the requirements set forth in the Public Resources Code, as well as court decisions interpreting the statute and practical planning considerations. Among other things, the CEQA Guidelines explain how to determine whether an activity is subject to environmental review, what steps are involved in the environmental review process, and the required content of environmental documents. The CEQA Guidelines apply to public agencies throughout the state, including local governments, special districts, and State agencies.

Public Resources Code section 21083 requires the Office of Planning and Research (OPR) and the Natural Resources Agency (Agency) to periodically update the CEQA Guidelines. The most recently updated Guidelines became effective on December 28, 2018. The following are relevant excerpts from the [Statement of Reasons for the Revisions to the CEQA Guidelines in 2018, which](#) contains background information regarding the purpose and application of CEQA transportation analysis as well as the CEQA Guidelines references themselves.

### E.5.1 Statement of Reasons for the Revisions to the CEQA Guidelines in 2018

As directed in Senate Bill 743, the 2018 Guidelines revisions includes a new section addressing the evaluation of transportation impacts. The previous emphasis on traffic congestion in transportation analyses tends to promote increased vehicle use. The new guidance instead focuses on a project's effect on VMT, which should promote project designs that reduce reliance on automobile travel.

Regarding the change related to transportation impacts, the Agency's Statement of Regulatory Impact Assessment identified numerous potential direct and indirect benefits of reducing VMT. Realization of those benefits will depend on the degree to which, pursuant to this CEQA Guidelines update, **lead agencies use the streamlined approaches for analysis of low-VMT projects, mitigate high VMT**

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**projects, or choose lower VMT project alternatives.**<sup>4</sup> Some of the benefits, among many others, that may result from reducing VMT are described qualitatively below:

- Better health and avoided health care costs. Higher VMT is associated with more auto collisions, more air pollution, more greenhouse gas emissions, less active transportation, and less transit use. If California achieves its goals of doubling walking and tripling biking (Caltrans Strategic Management Plan), 2,095 annual deaths will be avoided. Increasing active transit modes would help reduce air pollution and greenhouse gas emissions. Estimates of the annual monetized value of prevented deaths and disabilities in California resulting from achieving those targets ranges from \$1 billion to \$15.5 billion.<sup>5</sup>
- Reduction in transportation, building energy, and water costs. Less vehicle travel reduces vehicle fuel (or electricity), maintenance, parking, and in some cases vehicle ownership costs. Transportation costs are typically the second greatest category of household expenditure after housing itself (Bureau of Labor Statistics, Consumer Expenditures). Compact development, which is associated with lower VMT, tends to consume less building energy and irrigation water, leading to savings to residents and businesses. Busch et al., 2015 estimated that if 85 percent of new housing and jobs added in the state until 2030 were located within existing urban boundaries, it would reduce per capita vehicle miles traveled by about 12 percent below 2014 levels.<sup>6</sup> That combination of reduced VMT and more compact development would, in turn, result in an estimated \$250 billion in household cost savings cumulative to 2030 (with an average annual savings per household in 2030 of \$2,000). Household costs analyzed in the Busch, et al. study included auto fuel, ownership and maintenance costs, as well as residential energy and water costs.
- Reduction in travel times to destinations. Reducing VMT reduces congestion regionally, decreasing travel times, and may also encourage more investment in multi-modal infrastructure. Even if there is localized congestion, due to increased density of development, travel times decrease because of better proximity (Mondschein, 2015).<sup>7</sup>
- Cleaner water. Motor vehicle travel can cause deposition of pollutants onto roadways, which can then be carried by stormwater runoff into waterways. Fuel, oil, and other liquids used in motor vehicles can leak from vehicles onto the ground (Delucchi, 2000). Brake dust and tire

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<sup>4</sup> Lead agencies determine whether any particular mitigation measure is feasible in the context of the project under review. (See, e.g., CEQA Guidelines § 15091.) Further, CEQA allows a Lead Agency to approve a project that has significant environmental impacts so long as it finds that the benefits of the project outweigh those impacts. (Id. at § 15093.)

<sup>5</sup> Maizlish N. Increasing Walking, Cycling, and Transit: Improving Californians' Health, Saving Costs, and Reducing Greenhouse Gases. Final Report. California Department of Public Health (CDPH), 2016.

<sup>6</sup> Busch C., et al., Moving California Forward, How Smart Growth Can Help California Reach Its 2030 Climate Target While Creating Economic and Environmental Co-Benefits, Nov. 2015, at p. 26.

<sup>7</sup> Mondschein A. Congested Development: A Study of Traffic Delays, Access, and Economic Activity in Metropolitan Los Angeles, Institute of Transportation Studies, UCLA Luskin School of Public Affairs, Sept. 2105.

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wear can further cause particles to be deposited onto the ground (Thorpe and Harrison, 2008). Brake pads and tire compounds are made out of compounds that include metal. Further, motor vehicles require roadways for travel. Paved roadways are impervious surfaces which prevent infiltration of storm water in the ground. Impervious surfaces can increase the rate, volume, and speed, and temperature of stormwater runoff (US Environmental Protection Agency, 2003). Wearing down of roadways can further cause particles to be deposited onto the ground (Thorpe and Harrison, 2008). The Victoria Transportation Policy Institute (2015) estimates that in total that motor vehicle contributions to water pollution cost approximately 42 billion dollars per year or 1.4 cents per mile.

The Agency expects more sustainable development decisions to result from the clarified sections addressing water supply, energy, wildfire, greenhouse gas emissions, as well as the clarified exemptions for transit-oriented developments and upgrades to existing facilities. Other benefits of the remainder of the CEQA Guidelines update are expected to include greater certainty for both public agencies and private applicants, as well as time and cost savings due to clearer rules.

### E.5.2 Subdivision (a): Purpose

Subdivision (a) sets forth the purpose of the entire new section 15064.3. First, the subdivision clarifies that the primary consideration, in an environmental analysis, regarding transportation is the amount and distance that a project might cause people to drive. This captures two measures of transportation impacts: auto trips generated and vehicle miles traveled. These factors were identified by the legislature in SB 743. The last sentence clarifies that automobile delay is not a significant effect on the environment.

### E.5.3 Subdivision (b): Criteria for Analyzing Transportation Impacts

While subdivision (a) sets forth general principles related to transportation analysis, subdivision (b) focuses on specific criteria for determining the significance of transportation impacts. It is further divided into four subdivisions: (1) land use projects, (2) transportation projects, (3) qualitative analysis, and (4) methodology.

#### *Subdivision (b)(1): Land Use Projects*

SB 743 did not authorize the Agency to set thresholds, but it did direct OPR and the Agency to develop Guidelines “for determining the significance of transportation impacts of projects[.]” (Pub. Resources Code § 21099(b)(2).) Therefore, to provide guidance on determining the significance of impacts, subdivision (b)(1) describes factors that might indicate whether the amount of a project’s vehicle miles traveled may be significant, or not.

#### *Subdivision (b)(2): Transportation Projects*

While subdivision (b)(1) addresses vehicle miles traveled associated with land use projects, subdivision (b)(2) focuses on impacts that result from certain transportation projects. Subdivision (b)(2) clarifies that lead agencies should presume that projects that reduce vehicle miles traveled, such as pedestrian, bicycle and transit projects, will have a less than significant impact. This subdivision further provides that

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lead agencies have discretion in which measure to use to evaluate highway capacity projects, provided that any such analysis is consistent with the requirements of CEQA and any other applicable requirements (e.g., local planning rules). Importantly, this provision does not prohibit capacity expansion. It also does not relieve agencies of the requirement to analyze any other potential impacts of such projects, including, but not limited to, greenhouse gas emissions and other air pollutants. Finally, recognizing that highway capacity projects may be analyzed at a programmatic level, subdivision (b)(2) states that lead agencies may be able to tier from a programmatic analysis that adequately addresses the effects of such capacity projects.

#### *Subdivision (b)(4): Methodology*

**Lead agencies have the discretion to choose the most appropriate methodology to analyze a project's vehicle miles traveled. Depending on the project, vehicle miles traveled may be best measured on a per person, per household or other similar unit of measurement. Subdivision (b)(4) also recognizes the role for both models and professional judgment in estimating vehicle miles traveled.**

#### *Necessity*

The proposed addition of CEQA Guidelines section 15064.3 is reasonably necessary to implement the direction in Public Resources Code 21099 that the CEQA Guidelines provide for a new methodology for analyzing transportation impacts of projects. The language of this section of the CEQA Guidelines follows the direction of the Legislature and ensures that that the CEQA Guidelines best serve their function of providing a comprehensive, easily understood guide for the use of public agencies, project proponents, and other persons directly affected by CEQA.

#### *Appendix G*

Appendix G in the CEQA Guidelines contains a sample initial study format. The purpose of an initial study is to assist lead agencies in determining whether a project may cause a significant impact on the environment. (CEQA Guidelines, Section 15063.) To help guide that determination, Appendix G asks a series of questions regarding a range of environmental resources and potential impacts. Appendix G's questions are not an exhaustive list of all potential impacts. For that reason, Appendix G advises that "[s]ubstantial evidence of potential impacts that are not listed on this form must also be considered." Appendix G further advises that its environmental checklist is only a sample form that can be tailored to address local conditions and project characteristics. *[However, most local agencies utilize Appendix G to frame the CEQA analysis topics for transportation.]*

Transportation: The Agency made several changes to the questions related to transportation in Appendix G. First, the Agency revised the questions related to "measures of effectiveness" so that the focus is more on the circulation element and other plans governing transportation. Second, the Agency deleted the second question related to LOS, and instead inserted a reference to new Guideline section 16054.3, subdivisions (b), to focus on VMT where appropriate. Third, the Agency clarified the question related to design features.

#### E.5.4 2018 CEQA Guidelines Section 15064.3. Determining the Significance of Transportation Impacts.

The text of Section 15064.3 is:

*(a) Purpose. This section describes specific considerations for evaluating a project's transportation impacts. Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the 12 purposes of this section, "vehicle miles traveled" refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project's effect on automobile delay shall not constitute a significant environmental impact. (b) Criteria for Analyzing Transportation Impacts.*

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

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

*(3) Qualitative Analysis. If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a Lead Agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.*

*(4) Methodology. A Lead Agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A Lead Agency may use models to estimate a project's vehicle miles traveled and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.*

*(c) Applicability.*

*The provisions of this section shall apply prospectively as described in section 15007. A Lead Agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide.*

*Note: Authority cited: Sections 21083 and 21099, Public Resources Code. Reference: Sections 21099 and 21100, Public Resources Code; Cleveland National Forest Foundation v. San Diego Association of Governments (2017) 17 Cal.App.5th 413; Ukiah Citizens for Safety First v. City of Ukiah (2016) 248 Cal.App.4th 256; California Clean Energy Committee v. City of Woodland (2014) 225 Cal. App. 4th 173.*

### E.5.5 Thresholds of Significance

CEQA Guidelines Pages 14-15 discuss thresholds of significance for VMT analysis.

Section 15064.7. Thresholds of Significance.

*(a) A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, noncompliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant.*

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

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

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

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

(2) adopted for the purpose of environmental protection;

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

(4) applies to the project under review.

*AUTHORITY: Note: Authority cited: Section 21083, Public Resources Code. Reference: Sections 21000, 21082 and 21083, Public Resources Code; Communities for a Better Environment v. California Resources Agency (2002) 103 Cal.App.4th 98; Protect the Historic Amador Waterways v. Amador Water Agency (2004) 116 Cal. App. 4th 1099.*

## E.6 Presumption of Less than Significance Through Screening Criteria

The OPR Technical Advisory and the 2018 CEQA Amendments [Final Statement of Reasons](#) include options for screening projects as being presumed to have a less than significant impact on VMT metrics.

*Transit Priority Areas*<sup>8</sup>

**Evidence Demonstrates that Projects Located Near Transit Are Likely to Reduce Vehicle Miles Traveled; Therefore, Agencies Should Presume that the Transportation Impact of Such Projects Is Less Than Significant.**

A significant body of research indicates that projects located close to existing transit will enable lower vehicle use because of the availability of transit.<sup>9</sup> The California Air Pollution Control Officers

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<sup>8</sup> “Transit priority area” means “an area within one-half mile of a major transit stop that is existing or planned, if the planned stop is scheduled to be completed within the planning horizon included in a Transportation Improvement Program adopted pursuant to Section 450.216 or 450.322 of Title 23 of the Code of Federal Regulations.” (Pub. Resources Code § 21099(a)(7).) A “Major transit stop” means “a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.” (Id. at § 21064.3.)

<sup>9</sup> See, e.g., Cervero, R. (2002). Built Environments and Mode Choice: Toward a Normative Framework. Elsevier Science Ltd.; Cervero, R. & Duncan, M. (2006). Which Reduces Vehicle Travel More: Jobs-Housing Balance or Retail-Housing Mixing? Journal of the American Planning Association; Cervero, R. (2006). Transit Oriented Development’s Ridership Bonus: A Product of Self-Selection and Public Policies. University of California Transportation Center; Ewing, R. & Cervero, R. (2001). Travel and the Built Environment: A Synthesis. Transportation Research Record 1780 – Paper No. 01-3515; Ewing, R. & Cervero, R. (2010). Travel and the Built Environment: A Meta-Analysis. Journal of the American Planning Association; Handy, S., Cao, X. & Mokhtarian, P. (2005). Correlation or causality between the built environment and travel behavior? Evidence from Northern California. Elsevier Ltd.; Kolko, J., Meija, M., Reed, D., & Schiff, E. (2011). Make the Most of Transit: Density, Employment Growth, and Ridership around New Stations. Public Policy Institute of California; Lund, H., Cervero, R., & Willson, R. (2004). Travel



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Association’s report “Quantifying Greenhouse Gas Mitigation Measures” also cites several studies that quantify VMT reductions resulting from transit proximity. (Lee, Barbara, et al. “Quantifying Greenhouse Gas Mitigation Measures.” California Air Pollution Control Officers Association, Aug. 2010, pp. 171-174.) This reduction in vehicle miles traveled is most pronounced within one-half mile of transit. Notably, because many other programs and other statutory provisions focus on one-half mile surrounding transit, using that distance in the presumption promotes consistency with other policies.<sup>10</sup>

That body of evidence, together with the statement in the Guidelines, also gives lead agencies a basis to fill out the initial study checklist and at least initially determine that a project’s transportation impacts are less than significant.

#### *Affordable Housing*

The shift to VMT in CEQA analysis will benefit low-income earners in at least three ways. First, it streamlines transit and active transit modes, which a disproportionate number of low income residents rely upon for transportation. Providing greater transportation choices, such as transit and active transit modes, can save low-income residents money.<sup>11</sup>

Second, because low-income earners generate less household VMT, affordable housing is more likely to be found to have a less than significant transportation impact with VMT analysis. (See, e.g., Lee, Barbara, et al. “Quantifying Greenhouse Gas Mitigation Measures.” California Air Pollution Control Officers Association, Aug. 2010, pp. 160-161, 176 [“Income has a statistically significant effect on the probability that a commuter will take transit or walk to work. [Below market rate] housing provides greater opportunity for lower income families to live closer to jobs centers and achieve jobs/housing match near transit. . . Lower income families tend to have lower levels of auto ownership, allowing buildings to be designed with less parking . . . ”], 178 [“R]egardless of distance from BART, lower income households generate at least 50% higher BART use for school trips than higher income

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Characteristics of Transit-Oriented Development in California. Funded by Caltrans Transportation Grant – “Statewide Planning Studies” – FTA Section 5313 (b); Ewing, R., K. Bartholomew, S. Winkelman, J. Walters, and D. Chen, *Growing Cooler: The Evidence on Urban Development and Climate Change*, Washington, D.C.: Urban Land Institute, 2008 [see section 7.3.4, citing and discussing ample evidence of transit proximity reducing vehicle travel].)

<sup>10</sup> See, e.g., Public Resources Code § 21155(b) (defining projects that may benefit from CEQA streamlining as those projects within one-half mile of transit); see also Strategic Growth Council, *Affordable Housing and Sustainable Communities Program Guidelines*.

<sup>11</sup> (See Fang, K. and Volker, J. “Cutting Greenhouse Gas Emissions Is Only the Beginning: A Literature Review of the Co-Benefits of Reducing Vehicle Miles Traveled,” National Center for Sustainable Transportation, March 2017, pp. 12-13; see also California Department of Housing and Community Development, “California’s Housing Future: Challenges and Opportunities,” Feb. 2018, p. 3 [“In California’s rural areas, high transportation costs often negate the relatively more affordable housing prices.”], 50 [“The proximity of jobs and services, density, and the availability of public transportation are among the factors that can affect the need for automobile travel and thus transportation costs.”; “When households move further from job- and transit-rich areas to find more affordable homes, they encounter consequences in the form of higher transportation costs and commute times.”].)

households.”.) This is particularly noteworthy because opponents to affordable housing often cite increased traffic congestion as a reason to oppose such projects.

Third, the shift to VMT analysis would lead to more infill and transit-oriented development, and such development often allows lower living costs when transportation and housing costs are both taken into account.<sup>12</sup>

Relatedly, encouraging infill development is strongly correlated to economic mobility and thus infill would benefit low-income communities in urban areas.<sup>13</sup>

#### *Affordable Housing in Commercial Areas*

[AB 2011: Affordable Housing and High Road Jobs Act](#) (2022) allows housing development in areas that are currently zoned for parking, retail, or office buildings. AB 2011 created a ministerial, CEQA-exempt, time-limited approval process for multifamily housing developments on commercially zoned property. Eligibility is further limited by several site and project criteria. Projects must pay prevailing wages to construction workers and meet specified Below Market Rate (BMR) affordable housing targets. The legislation provides two distinct options: one for 100 percent BMR projects and a second for mixed-income (typically 15 percent BMR) projects. Mixed-income housing developments are limited to commercial corridors (typically the locations of strip malls and parking lots) that are wide enough to accommodate increased density and transit, while 100 percent affordable housing can be developed in a wider range of commercial zones. All development must occur within infill areas, which will reduce sprawl, limit greenhouse gas emissions, and ensure that residents are connected to existing transit and infrastructure.

#### *Standard of Adequacy*

Section 15151 describes the standards of adequacy for CEQA analysis and is specifically referenced in terms of assumptions used to estimate vehicle miles traveled and any revisions to model outputs. The Methodology for VMT analysis should be documented and explained in the environmental document prepared for a project.

##### *Section 15151. Standards for Adequacy of an EIR*

*An EIR should be prepared with a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably*

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<sup>12</sup> See Center for Neighborhood Technology, *Losing Ground* (2012) [available at [https://www.cnt.org/sites/default/files/publications/CNT\\_LosingGround.pdf](https://www.cnt.org/sites/default/files/publications/CNT_LosingGround.pdf)]; Center for Neighborhood Technology, *Penny Wise, Pound Fuelish* (2010) [available at [https://www.cnt.org/sites/default/files/publications/CNT\\_pwpf.pdf](https://www.cnt.org/sites/default/files/publications/CNT_pwpf.pdf).)]

<sup>13</sup> See Fang, et al., *supra*, pp. 12-13 [discussing the direct financial impacts on households in reducing vehicle miles traveled]; see also Center for Neighborhood Technology, “Penny Wise, Pound Fuelish,” March 2010, pp. 7-8 [concluding that location efficiency reduces transportation costs].)

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*feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.*

*(1. Change without regulatory effect amending Note filed 10-6-2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 40).)*

*Note: Authority cited: Section 21083, Public Resources Code. Reference: Sections 21061 and 21100, Public Resources Code; San Francisco Ecology Center v. City and County of San Francisco, 48 Cal. App. 3d 584 (1975).*

### *Mitigation Measures*

The CEQA requires public lead agencies to impose feasible mitigation measures as part of the approval of a “project” in order to substantially lessen or avoid the significant adverse effects of the project on the physical environment.

When a CEQA Lead Agency identifies a potentially significant environmental impact, it must propose feasible mitigation measures in the environmental document for a project. (Pub. Resources Code, §§ 21002 (duty to mitigate), 21080(c)(2) (mitigated negative declaration), 21100(b)(3) (EIR must include mitigation measures).) The formulation of mitigation measures cannot be deferred until after project approval. (Communities for a Better Environment v. City of Richmond (2010) 184 Cal.App.4th 70, 92 (“reliance on tentative plans for future mitigation after completion of the CEQA process significantly undermines CEQA’s goals of full disclosure and informed decision-making; and consequently, these mitigation plans have been overturned on judicial review as constituting improper deferral of environmental assessment”).)

When imposing mitigation, lead agencies must ensure there is a “nexus” and “rough proportionality” between the measure and the significant impacts of the project. (CEQA Guidelines § 15126.4, subd. (a)(4)(A)–(B), citing *Nollan v. Ca. Coastal Commission* (1987) 483 U.S. 825, *Dolan v. City of Tigard* (1994) 512 U.S. 374.) All mitigation must be feasible and fully enforceable, and all feasible mitigation must be imposed by lead agencies. (CEQA Guidelines, § 15041.) But, if any suggested mitigation is found to be infeasible the CEQA Lead Agency must explain why and support that determination with substantial evidence, presented in their findings and a statement of overriding considerations. (CEQA Guidelines, §§ 15091 and 15093.) Mitigation measures may either be integrated into proposed projects or imposed as mitigation for identified significant environmental impacts.

## E.7 Mitigation of Vehicle Miles Traveled

The Natural Resources Agency determined mitigation to reduce VMT is feasible.<sup>14</sup> CEQA requires mitigation of significant environmental impacts. Independent of the CEQA Guidelines, courts have found that this requirement includes consideration of measures to reduce the driving required by a project. (See, e.g., Cleveland National Forest Foundation v. San Diego Association of Governments (2017) 17 Cal.App.5th 413; Ukiah Citizens for Safety First v. City of Ukiah (2016) 248 Cal.App.4th 256; California Clean Energy Committee v. City of Woodland (2014) 225 Cal. App. 4th 173.)

The OPR Technical Advisory on Evaluating Transportation Impacts in CEQA is one in a series of advisories provided by OPR as a service to professional planners, land use officials, and CEQA practitioners. OPR issues technical assistance on issues that broadly affect the practice of land use planning and the CEQA (Pub. Resources Code, § 21000 et seq.). (Gov. Code, § 65040, subds. (g), (l), (m).) The purpose of the technical advisory is to provide advice and recommendations, which agencies and other entities may use at their discretion. The document does not alter CEQA Lead Agency discretion in preparing environmental documents subject to CEQA, and while it should not be construed as legal advice it is the best resource for state recommendations to local lead agencies in implementing sound CEQA documents. **The determination of whether any particular measure is feasible in connection with a specific project is to be made by the CEQA Lead Agency.**

OPR's Technical Advisory lists several types of potential mitigation measures for VMT and explains VMT impacts are largely regional in nature, therefore mitigation may also be regional in scope. Thus, regional mitigation programs to reduce VMT may be an effective way to reduce such impacts.

### E.7.1 Definition of Mitigation

Mitigation is defined in Section 15370:

*Section 15370. Mitigation*

*"Mitigation" includes:*

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.*
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.*
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.*
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.*

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[https://resources.ca.gov/CNRALegacyFiles/ceqa/docs/2018\\_CEQA\\_Final\\_Statement\\_of%20Reasons\\_111218.pdf](https://resources.ca.gov/CNRALegacyFiles/ceqa/docs/2018_CEQA_Final_Statement_of%20Reasons_111218.pdf)

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*(e) Compensating for the impact by replacing or providing substitute resources or environments, including through permanent protection of such resources in the form of conservation easements.*

*(1. Change without regulatory effect amending Note filed 10-6-2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 40). 2. Amendment of subsection (e) and amendment of Note filed 12-28-2018; operative 12-28-2018 pursuant to Government Code section 11343.4(b)(3) (Register 2018, No. 52).)*

*Note: Authority cited: Section 21083, Public Resources Code. Reference: Sections 21002, 21002.1, 21081 and 21100(c), Public Resources Code; and Masonite Corporation v. County of Mendocino (2013) 218 Cal.App.4th 230.*

Prior to the implementation of SB 743 through the updated CEQA Guidelines, the need to provide measures to avoid, minimize, rectify, reduce, and/or compensate for transportation impacts was generally accomplished through fair share payment or VMT impact fee programs funding capital infrastructure projects based on a nexus to maintaining an operational level of service on transportation facilities.

#### *Additionality*

This analysis did not address the issue of additionality for potential project that could be include in a Ventura County Mitigation Bank program as its purpose was to obtain the cost estimate of reducing VMT by investment in off-site multimodal transportation improvements. However, only projects that are additional would be eligible for CEQA mitigation or funding under a mitigation bank, generally meaning “they would not have occurred without funding from the VMT mitigation bank.”<sup>15</sup>

The principle of additionality is that a CEQA mitigation must not have occurred without the actions or funding of the mitigation measure by the project applicant. CARB defines additional practices as those that are “beyond any reduction required through regulation or action that would have otherwise occurred in a conservative business-as-usual scenario”<sup>16</sup> California regulation defines the businesses-usual scenario as the “set of conditions reasonably expected to occur within the offset project boundary in the absence of the financial incentives provided by offset credits, taking into account all current laws and regulations, as well as current economic and technological trends.”<sup>17</sup>

For the mitigation of VMT-related impacts, additional mitigation may come in the form of on-site or localized actions or off-site actions. The additionality of on-site or localized measure would be determined between the CEQA Lead Agency and the project application. The additionality of an off-site improvement should have a clear definition on a countywide scale to ensure consistency across lead agencies.

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<sup>15</sup> [Vehicle Miles Traveled-Focused Transportation Impact Study Guide](#), Caltrans, May 20, 2020

<sup>16</sup> CARB, “California Air Resources Board’s Process for the Review and Approval of Compliance Offset Protocols in Support of the Cap-and-Trade Regulation.”

<sup>17</sup> Title 17, California Code of Regulations, section 95802(a).

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The proposed additionality test specific to this program is used to draw a clear line for the determination of additionality for off-site multimodal transportation improvements is a project or portion of a project that is not funded by an identified funding source in a lead agencies' capital improvement program nor the SCAG Transportation Improvement Program through a grant or funding source controlled by an agency. These projects are considered to have committed funding under a near-term fiscal constrain and any mitigation funds used on these projects would not be additional. Projects that would be considered additional would include those identified by a CEQA Lead Agency, but without a funded commitment such as identified by a local roadway safety plan, active transportation plan, or other document.

### E.7.2 Project Avoidance and Minimization Measures

Some project proponents incorporate “avoidance and minimization measures” or “environmental commitments” into the project design as part of the project description, and the CEQA Guidelines also reference these features in Section 15064(f)(2) and 15126.4(a)(1)(A). Examples of project design features that may address environmental impacts include construction traffic management plans, use of energy efficient lighting, solar panels, construction lighting that will be shielded and directed away from neighboring properties, and building standards in excess of the requirements of Title 24 Building Code. These are not considered mitigation measures because they are part of the project that is undergoing environmental review. Nonetheless, in order to address an environmental impact, project design features that include impact avoidance and/or minimization measures must be described, and their effectiveness in reducing or avoiding potential impacts

While not “mitigation”, a good practice is to include those project design features that address environmental impacts in the mitigation monitoring and reporting program.

### E.7.3 Documentation of Mitigation

The level of analysis and discussion of mitigation measures in CEQA documentation are discussed in section 15126.4:

*§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects.*

*(a) Mitigation Measures in General.*

*(1) An EIR shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy.*

*(A) The discussion of mitigation measures shall distinguish between the measures which are proposed by project proponents to be included in the project and other measures proposed by the lead, responsible or trustee agency or other persons which are not included but the Lead Agency determines could reasonably be expected to reduce adverse impacts if required as conditions of approving the project. This discussion shall identify mitigation measures for each significant environmental effect identified in the EIR.*

*(B) Where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified. Formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project’s environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will be considered, analyzed, and potentially incorporated in the mitigation measure. Compliance with a regulatory permit or other similar process may be identified as mitigation if compliance would result in implementation of measures that would be reasonably expected, based on substantial evidence in the record, to reduce the significant impact to the specified performance standards.*

*(2) Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally-binding instruments. In the case of the adoption of a plan, policy, regulation, or other public project, mitigation measures can be incorporated into the plan, policy, regulation, or project design.*

*(4) Mitigation measures must be consistent with all applicable constitutional requirements, including the following:*

*(A) There must be an essential nexus (i.e. connection) between the mitigation measure and a legitimate governmental interest. Nollan v. California Coastal Commission, 483 U.S. 825 (1987); and*

*(B) The mitigation measure must be “roughly proportional” to the impacts of the project. Dolan v. City of Tigard, 512 U.S. 374 (1994). Where the mitigation measure is an ad hoc exaction, it must be “roughly proportional” to the impacts of the project. Ehrlich v. City of Culver City (1996) 12 Cal.4th 854.*

#### E.7.4 Mitigation Plans

## Section 15370 of the California Code of Regulations - Mitigation ( )

Practical considerations sometimes preclude development of detailed mitigation plans at the time of project consideration. In such cases, courts have permitted lead agencies to defer some of the details of mitigation measures provided that the agency commits itself to mitigation and analyzes the different mitigation alternatives that might ultimately be incorporated into the project. (See, e.g., Sacramento Old City Assn. v. City Council (1991) 229 Cal.App.3d 1011, 1028–1030.)

Section 15126.4, subdivision (a)(1)(B), states the Lead Agency “shall” not defer identification of mitigation measures. This binding requirement is clearly stated in a number of cases. (See, e.g., Preserve

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Wild Santee, supra, 210 Cal.App.4th 260; Rialto Citizens for Responsible Growth, supra, 208 Cal.App.4th 899; City of Maywood, supra, 208 Cal.App.4th 362; CBE, supra, 184 Cal.App.4th 70; Gray v. County of Madera, supra, 167 Cal.App.4th 1099; San Joaquin Raptor Rescue Center, supra, 149 Cal.App.4th 645; Endangered Habitats League, supra, 131 Cal.App.4th 777; Defend the Bay, supra, 119 Cal.App.4th 1261.)

The 2018 CEQA amendments describe situations when deferral of the specific details of mitigation may be allowable under CEQA, including which commitments the agency should make in the environmental document. Specifically, the amendments explain that deferral may be permissible when it is impractical or infeasible to fully formulate the details of a mitigation measure at the time of project approval and the agency commits to mitigation. (See, e.g., Oakland Heritage Alliance v. City of Oakland (2011) 195 Cal.App.4th 884 (deferral of mitigation was proper where practical considerations prohibited devising mitigation measures early in the planning process, and the agency committed to performance criteria); Defend the Bay, supra, 119 Cal.App.4th 1261 (deferral of specifics of mitigation measures was permissible where practical considerations prohibited devising such measures for a general plan amendment and zoning change); and Preserve Wild Santee, supra, 210 Cal.App.4th 260 (deferral of mitigation details was improper where performance standards were not specified and CEQA Lead Agency did not provide an explanation for why such standards were impractical or infeasible to provide at the time of certification of the EIR).)

Further, these changes clarify that **when deferring the specifics of mitigation, the CEQA Lead Agency should adopt specific performance standards and provide a list of the types of possible mitigation measures that would achieve the standard.** This approach is summarized in Defend the Bay v. City of Irvine, supra. In that case, the court stated that deferral may be appropriate where the CEQA Lead Agency “lists the alternatives to be considered, analyzed and possibly incorporated into the mitigation plan.” (Defend the Bay, supra, at p. 1275; see also Laurel Heights Improvement Association v. Regents of the University of California (1988) 47 Cal.3d 376; Rialto Citizens for Responsible Growth, supra, 208 Cal.App.4th 899; Gray v. County of Madera, supra, 167 Cal.App.4th 1099; San Joaquin Raptor Rescue Center, supra, 149 Cal.App.4th 645; Endangered Habitats League, supra, 131 Cal.App.4th 777.)

Adoption of performance standards in the environmental document is described by the court in Rialto Citizens for Responsible Growth v. City of Rialto, supra. There, the court ruled that where mitigation measures incorporated specific performance criteria and were not so open-ended that they allowed potential impacts to remain significant, deferral was proper. (Rialto Citizens for Responsible Growth, supra, 208 Cal.App.4th 899; see also Laurel Heights, supra, 47 Cal.3d 376; Preserve Wild Santee, supra, 210 Cal.App.4th 260; City of Maywood, supra, 208 Cal.App.4th 362; CBE, supra, 184 Cal.App.4th 70; Gray v. County of Madera, supra, 167 Cal.App.4th 1099; San Joaquin Raptor Rescue Center, supra, 149 Cal.App.4th 645; Endangered Habitats League, supra, 131 Cal.App.4th 777.)

Finally, **the amendments explain that such deferral may be appropriate “where another regulatory agency will issue a permit for the project and is expected to impose mitigation requirements independent of the CEQA process so long as the EIR included performance criteria and the CEQA Lead Agency committed itself to mitigation.”** (Clover Valley Foundation v. City of Rocklin (2011) 197



Cal.App.4th 200, 237; see also Oakland Heritage Alliance, *supra*, 195 Cal.App.4th 884; Defend the Bay, *supra*, 119 Cal.App.4th 1261.)

Section 15126.4 Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects describes options for mitigating reductions to greenhouse gases, which would include VMT reduction strategies intended to reduce greenhouse gas emissions.

*(c) Mitigation Measures Related to Greenhouse Gas Emissions. Consistent with section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. Measures to mitigate the significant effects of greenhouse gas emissions may include, among others:*

*(1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the Lead Agency's decision;*

*(2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures, such as those described in Appendix F;*

*(3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions;*

*(4) Measures that sequester greenhouse gases;*

*(5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions. Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Sections 5020.5, 21002, 21003, 21083.05, 21084.1 and 21100, Public Resources Code; Citizens of Goleta Valley v. Board of Supervisors, (1990) 52 Cal.3d 553; Laurel Heights Improvement Association v. Regents of the University of California, (1988) 47 Cal.3d 376; Gentry v. City of Murrieta (1995) 36 Cal.App.4th 1359; Laurel Heights Improvement Association v. Regents of the University of California (1993) 6 Cal.4th 1112; Sacramento Old City Assn. v. City Council of Sacramento (1991) 229 Cal.App.3d 1011; San Franciscans Upholding the Downtown Plan v. City & Co. of San Francisco (2002) 102 Cal.App.4th 656; Ass'n of Irrigated Residents v. County of Madera (2003) 107 Cal.App.4th 1383; and Environmental Council of Sacramento v. City of Sacramento (2006) 142 Cal.App.4th 1018; Clover Valley Foundation v. City of Rocklin (2011) 197 Cal.App.4th 200; Preserve Wild Santee v. City of Santee (2012) 210 Cal.App.4th 260; and Rialto Citizens for Responsible Growth v. City of Rialto (2012) 208 Cal.App.4th 899.*

### E.7.5 AMP Performance Criteria

This program sets performance criteria for VMT reduction, whereas a CEQA Lead Agency may commit mitigation to a significant impact by obtaining a fair share cost payment towards VMT reduction measures to be determined at a later date if it is impractical or infeasible to fully formulate a mitigation measure at the time of the Project environmental documentation.

### E.7.6 Mitigation Monitoring

In order to ensure that the mitigation measures and project revisions identified in the EIR or negative declaration are implemented, the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the CEQA Lead Agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.

According to Sections 21081.6 and 21081.7, Public Resources Code:

- *(b) Where the project at issue is the adoption of a general plan, specific plan, community plan or other plan-level document (zoning, ordinance, regulation, policy), the monitoring plan shall apply to policies and any other portion of the plan that is a mitigation measure or adopted alternative. The monitoring plan may consist of policies included in plan-level documents. The annual report on general plan status required pursuant to the Government Code is one example of a reporting program for adoption of a city or county general plan.*
- *(c) The public agency may choose whether its program will monitor mitigation, report on mitigation, or both. "Reporting" generally consists of a written compliance review that is presented to the decision making body or authorized staff person. A report may be required at various stages during project implementation or upon completion of the mitigation measure. "Monitoring" is generally an ongoing or periodic process of project oversight. There is often no clear distinction between monitoring and reporting and the program best suited to ensuring compliance in any given instance will usually involve elements of both. The choice of program may be guided by the following:*
  - *Reporting is suited to projects which have readily measurable or quantitative mitigation measures or which already involve regular review. For example, a report may be required upon issuance of final occupancy to a project whose mitigation measures were confirmed by building inspection.*
  - *Monitoring is suited to projects with complex mitigation measures, such as wetlands restoration or archeological protection, which may exceed the expertise of the local agency to oversee, are expected to be implemented over a period of time, or require careful implementation to assure compliance.*
  - *Reporting and monitoring are suited to all but the most simple projects. Monitoring ensures that project compliance is checked on a regular basis during and, if*

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*necessary after, implementation. Reporting ensures that the approving agency is informed of compliance with mitigation requirements.*

- *(d) Lead and responsible agencies should coordinate their mitigation monitoring or reporting programs where possible. Generally, lead and responsible agencies for a given project will adopt separate and different monitoring or reporting programs. This occurs because of any of the following reasons: the agencies have adopted and are responsible for reporting on or monitoring different mitigation measures; the agencies are deciding on the project at different times; each agency has the discretion to choose its own approach to monitoring or reporting; and each agency has its own special expertise.*
- *(e) At its discretion, an agency may adopt standardized policies and requirements to guide individually adopted monitoring or reporting programs. Standardized policies and requirements may describe, but are not limited to:*
  - The relative responsibilities of various departments within the agency for various aspects of monitoring or reporting, including lead responsibility for administering typical programs and support responsibilities.
  - The responsibilities of the project proponent.
  - Agency guidelines for preparing monitoring or reporting programs.
  - General standards for determining project compliance with the mitigation measures or revisions and related conditions of approval.
  - Enforcement procedures for noncompliance, including provisions for administrative appeal.
  - Process for informing staff and decision makers of the relative success of mitigation measures and using those results to improve future mitigation measures.
- *(f) Where a trustee agency, in timely commenting upon a draft EIR or a proposed mitigated negative declaration, proposes mitigation measures or project revisions for incorporation into a project, that agency, at the same time, shall prepare and submit to the lead or responsible agency a draft monitoring or reporting program for those measures or revisions. The lead or responsible agency may use this information in preparing its monitoring or reporting program.*
- *(g) When a project is of statewide, regional, or areawide importance, any transportation information generated by a required monitoring or reporting program shall be submitted to the transportation planning agency in the region where the project is located and to the California Department of Transportation. Each transportation planning agency and the California Department of Transportation shall adopt guidelines for the submittal of such information.*

### E.7.7 Mitigation Banks

In addition to the impact fee program model that is widely used to mitigate impacts from land use developments, it is possible that the examples and models of “mitigation banks” discussed below could provide an avenue for mitigating VMT impacts of transportation projects under SB 743. For example, Caltrans and its local/regional partners who sponsor projects on the state highway system (SHS)

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regularly pay in-lieu fees to mitigate impacts to biological resources at off-site locations with comparable habitat values. These in lieu fees are often paid to separate agencies or third parties such as a non-profit conservancies that ultimately carry out the biological mitigation activity as separate stand-alone projects. It is important to note that the technical and regulatory protocols regarding the nexus between biological impacts and mitigations is complex and wide-ranging. However, there are three essential parallels to the potential mitigation of VMT impacts in the future:

1. In-lieu fees could be used to fund a wide variety of VMT-reducing strategies needed to mitigate related impacts;
2. VMT-specific methodologies and protocols would be required to demonstrate the nexus between VMT impacts and mitigations to ensure the adequacy of mitigation under CEQA as revised by SB 743, and;
3. There would need to be a comparable mechanism in place to collect these funds and pass them through to a party that would carry out those strategies in order to demonstrate that their implementation is reasonably assured.

### E.7.8 Partial Funding of Mitigation

The discussions surfaced the idea of using a VMT mitigation offset as a source of supplemental financing for capital projects that are a bit short of total financing. For example, a government that is \$1 million short of funding for extending a rail line or bicycle lane, could sell off a part of the VMT reduction from that project as offsets to finance the unfunded portion of project cost. This kind of payment would blend elements from the offset exchange mitigation transaction with the regional fee and planned transit investment approaches.

But appellate decisions interpreting CEQA currently prohibit the technique of gradually stockpiling parts of financing for mitigation. The reasoning is that there is no assurance these projects will actually be built and the mitigation carried out. The exception is Caltrans which the courts recognized had the scale and financial capacity to carry out mitigation projects over time.

This may be less of an issue for less costly projects that can be financed incrementally, such as a bike lane. That limitation could be overcome by a mitigation broker paying for the capital shortfall in advance and then selling off the VMT reduction mitigation credit subsequently. Neal Peacock's paper provides examples of annual reports demonstrating that VMT impact fees are being collected in sufficient volumes, year to year, to effectively funding congestion mitigation (road construction) projects.

## E.8 Impact Fee Nexus and Proportionality

While the AMP does not propose impact fees, the potential application of impact fees to mitigate VMT impacts was explored. The use of a fair share contribution to a transportation improvement project while not part of a fee program or structure, would nevertheless need to be consistent with all applicable constitutional requirements such as having a nexus to a legitimate governmental interest and

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being roughly proportional to the impact. (CEQA Guidelines § 15126.4(a)(4) Furthermore if a jurisdiction in Ventura County were to implement a VMT-based impact fee, either for CEQA mitigation or general transportation system impact assessment, the following findings would support their VMT fee implementation.

Therefore, the AMP reviews the standards of the Section 66000 of the Government Code to recommend appropriate mitigation standards to CEQA lead agencies and to provide guidance for CEQA lead agencies if they were to establish a fee program based on a VMT metric.

It should be noted that a fee program that was established prior to a CEQA assessment of a proposed project would not be able to be used as mitigation due to additionality requirements, however participation in such a program could be substantial evidence of “avoidance and minimization measures” or “environmental commitments” which could be used to avoid or minimize VMT impacts as part of a project’s description.

### E.8.1 Impact Fee Requirements

As background, the imposition of impact fees is one authorized method of financing public infrastructure and capital improvements, including vehicles, fixtures, and equipment, (collectively, the “Public Facilities”), necessary to mitigate the impacts of new development. The term Public Facilities excludes maintenance, salaries, and other programming/servicing costs. Impact fees are limited by both the California and federal constitutions, and further limited by the California Mitigation Fee Act (Government Code Sections 66000 et seq.). A fee is “a monetary exaction, other than a tax or special assessment, which is charged by a local agency to the applicant in connection with approval of a development project for the purpose of defraying all or a portion of the cost of public facilities related to the development project...” (California Government Code, Section 66000). A fee may be imposed for each type of Public Facility required for new development, with the payment of the fee typically occurring prior to the beginning of construction of a dwelling unit or non-residential building. Fees are often imposed at final map recordation, issuance of a certificate of occupancy, or, more commonly, issuance of a building permit.

AB 1600, which created Section 66000 et seq. of the Government Code, was enacted by the State of California in 1987, and requires that a public agency re-evaluate their Development Impact Fees every five (5) years and make findings that the funds collected are still needed to complete the identified projects and there is a reasonable relationship between the fee and purpose for which it was collected.

In 2006, Government Code Section 66001 was amended to clarify that a fee cannot include costs attributable to existing deficiencies but can fund costs used to maintain the existing LOS or meet an adopted level of service that is consistent with the general plan.

In 2020, Government Code Section 66019 was amended to require that any increase in the existing LOS must be justified, and that impact fees imposed on residential property must be on a per-square foot basis, unless a different basis is justified in the study.

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Section 66000 et seq. of the Government Code thus requires that all public agencies satisfy the following requirements when establishing, increasing, or imposing a fee as a condition of new development:

1. Identify the purpose of the fee. [Government Code Section 66001, subd. (a)(1)];
2. Identify the use to which the fee will be put. [Government Code Section 66001, subd. (a)(2)];
3. Determine that there is a reasonable relationship between the fee's use and the type of development on which the fee is to be imposed. [Government Code Section 66001, subd. (a)(3)]; and
4. Determine how there is a reasonable relationship between the need for the public facility and the type of development project on which the fee is to be imposed. [Government Code Section 66001, subd. (a)(4)].

Additionally, for adjudicatory (ad hoc) fees, the study must demonstrate how there is a reasonable relationship between the amount of each fee and the cost of the Public Facilities or portion of the Public Facilities attributable to the development on which each fee is imposed. [Government Code Section 66001, subd. (b)].

Presented below are the legal requirements as they relate to the calculation and imposition of a VMT based impact fee.

### **E.8.2 Purpose of Fee [Government Code Section 66001(A)(1)]**

The purpose of a VMT fee would be to fund Public Facilities that would reduce and/or mitigate VMTs generated by future development, including but not limited to multi-modal infrastructure, vehicles, equipment, and other capital improvements and investments (the "Public Facilities"). The CEQA Lead Agency evaluates VMT impacts for development projects and establishes (i) a baseline for mitigating future VMT increases resulting from new development, and (ii) a framework to identify Public Facilities that mitigate future increases in overall VMTs resulting from future development. Specifically, the impact VMTs resulting from future development, translates into greater impacts on the local jurisdiction's transportation network and regional greenhouse gas emissions. Therefore, such increases in VMTs from future development would be offset in each local jurisdiction, through the construction of Public Facilities that reduce overall local VMTs. The fee applicable to a given project will depend on the total VMTs generated by the project and the target VMT reduction level.

### **The Use to Which the Fee is to be Put [Government Code Section 66001(A)(2)]**

The fee should fund Public Facilities identified in the jurisdiction's capital improvement program. These improvements would offset the increases in VMT resulting from future development, by reducing overall VMT in the respective local jurisdiction.

### **There is a Reasonable Relationship Between the Fee's Use and the Type of Development Project Upon Which the Fee is Imposed (Benefit Relationship) [Government Code Section 66001(A)(3)]**

The fee should be used to fund Public Facilities that reduce or mitigate VMT impacts of future development, and in turn reduce/mitigate impacts to the local mobility network and regional greenhouse gas emission levels. Notably, VMT impacts will be determined on a project-by-project basis for each new development. Therefore, the fee attributable to a development project will be proportional to that project's VMT impacts.

**There is a Reasonable Relationship Between the Need for the Public Facility and the Type of Development Project Upon Which the Fee is Imposed (Impact Relationship) [Government Code Section 66001(A)(4)]**

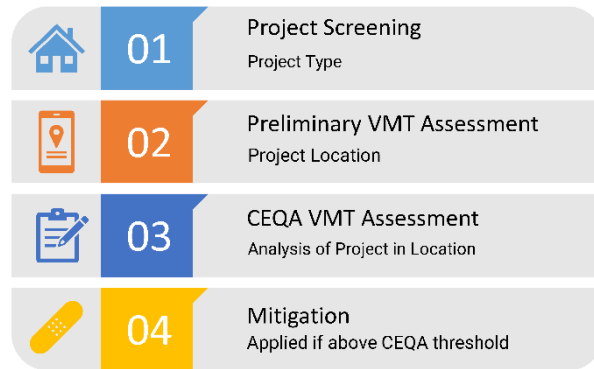
New development within a local jurisdiction, irrespective of location, contributes to the direct and cumulative impacts on the mobility network and regional greenhouse gas emission levels. As a result, the burden created by future development necessitates additional Public Facilities that reduce and/or offset VMT impacts of future development, consistent with a jurisdiction's capital facilities programs. As VMT impacts are determined on a project-by-project basis, the need for additional Public Facilities is directly linked to the increase in VMTs resulting from a development project.

**There is a Reasonable Relationship Between the Amount of the Fee and the Cost of the Public Facilities Attributable to the Development Upon Which the Fee is Imposed (Rough Proportionality Relationship) [Government Code Section 66001(B)]**

Each individual development project and its related increase in population and/or employment, along with the cumulative impacts of all development in the County, will impact the overall VMT. In order to maintain the current quality of life, health, and safety, certain Public Facilities that reduce or mitigate such increases in VMT, would need to be constructed or activated. Thus, the amount of the fee and the cost of Public Facilities associated with the project, are proportional to the overall VMT generated by the project.

## Appendix F: Example Case Studies of VMT Assessment

Appendix F describes example case studies of VMT assessment to provide for proactive identification of the potential for significant impacts under CEQA to streamline and achieve the goals of reducing greenhouse gas emissions, develop multimodal transportation networks to promote public health and diversify land uses to support infill development.

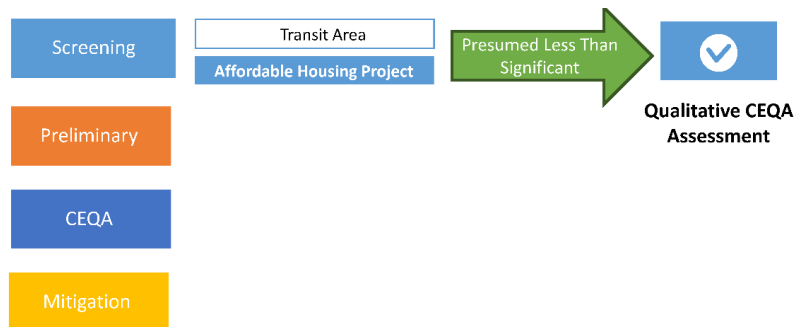


The five example case studies are:

1. An affordable housing development
2. Housing development in a low VMT area
3. Housing development in a high VMT area
4. Housing development in a higher VMT area
5. Housing development in highest VMT area

**Example Case Study #1: Affordable Housing**

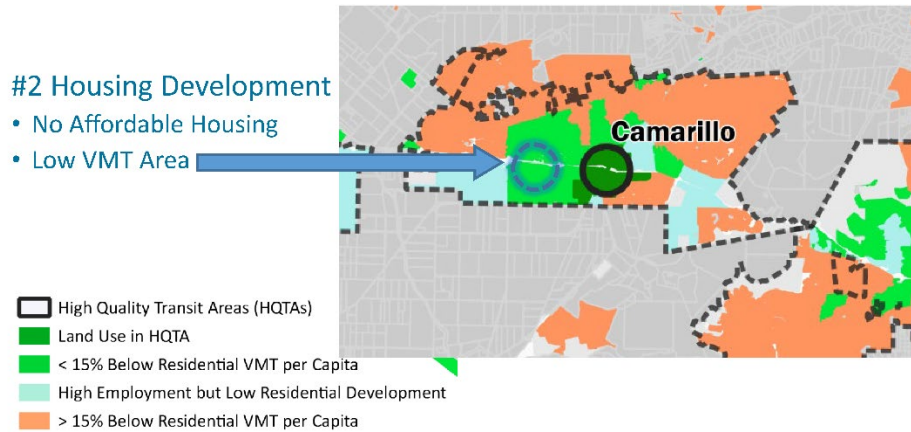
The screening step of the VMT assessment methodology leads to a presumption of less than significant due to the project being affordable housing—without a need to assess the VMT of the project itself.



**Example Case Study #2: Housing Project in Low VMT Area**

A housing project in a low VMT area may not screen, however based on review of the outputs of the VCTM model the project would be expected to have VMT characteristics below the CEQA Lead Agency threshold.

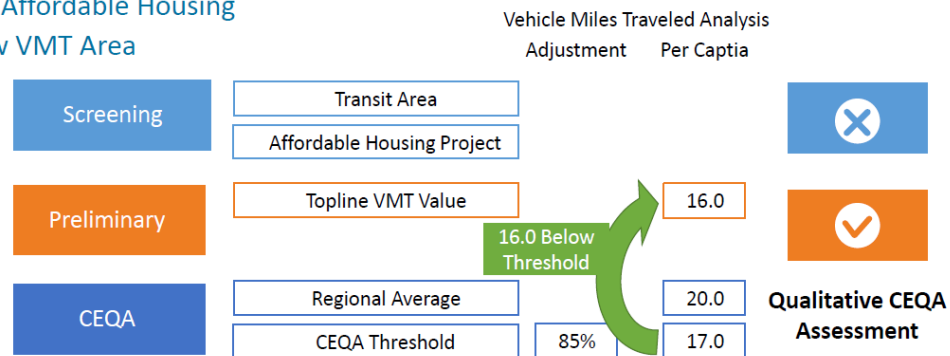




Based on a CEQA Lead Agency threshold of 17.0 VMT per capita and a VCTM topline output of 16.0 VMT per capita for the traffic analysis zone containing the project, the project would be expected to be less than significant under CEQA.

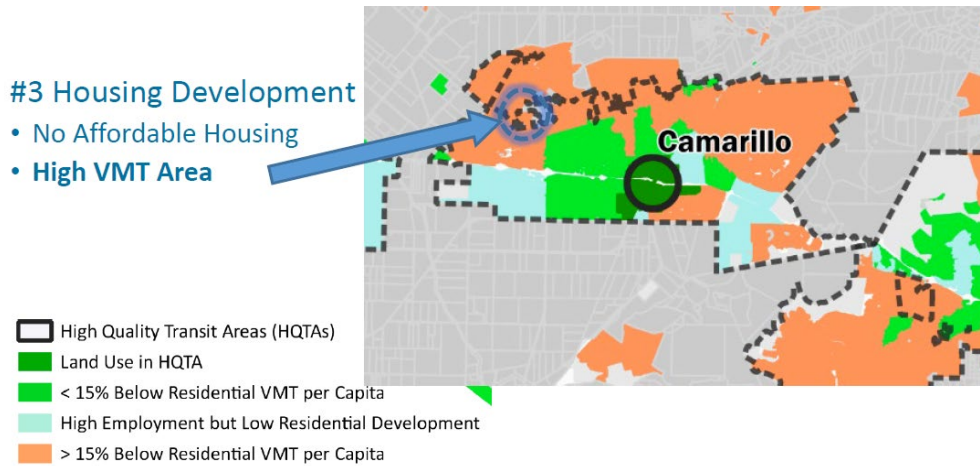
### #2 Housing Development

- No Affordable Housing
- Low VMT Area



### Example Case Study #3: Housing Project in High VMT Area

A housing project in a high VMT area would not screen and the VCTM output would indicate the potential for a significant impact.



Since the project had the preliminary assessment, the Project Proponent has the opportunity to proactively include VMT reduction strategies to avoid potentially significant impacts.

**#3 Housing Development**

- No Affordable Housing
- High VMT Area

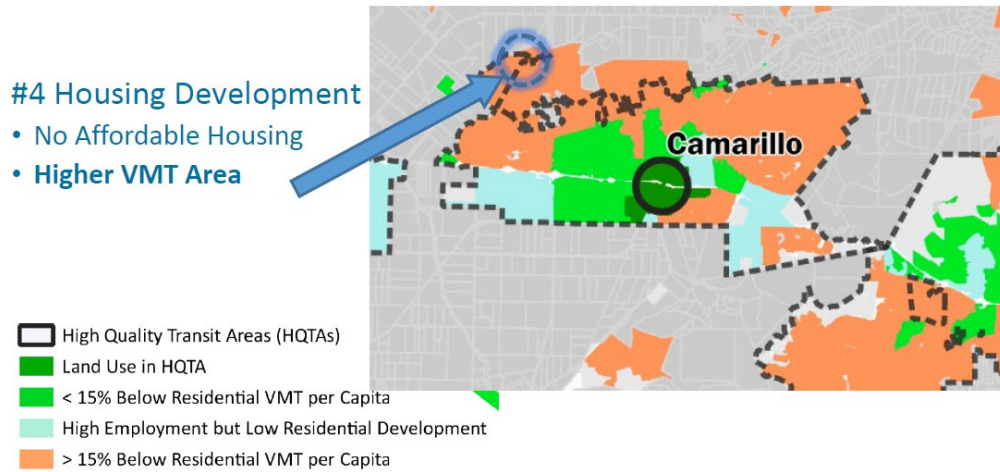
		Vehicle Miles Traveled Analysis		
		Adjustment	Per Capita	
Screening	Transit Area			✗
	Affordable Housing Project			
Preliminary	Topline VMT Value		18.9	✗
	Project Elements	10%	17.0	
CEQA	Regional Average		20.0	✓
	CEQA Threshold	85%	17.0	

Proactive Project Elements

**Quantitative CEQA Assessment**

**Example Case Study #4: Housing Project in Higher VMT Area**

Similar to Case Study #3, a housing project in a higher VMT area would not screen and the VCTM output would indicate the potential for a significant impact.



Since the project had the preliminary assessment, the Project Proponent has the opportunity to proactively include VMT reduction strategies to avoid potentially significant impacts. However, even with project elements, the project would not be able to reduce the impact to less than significant. Therefore, it would need to apply additional mitigations under a mitigation plan to reduce the project to a less than significant impact to VMT.

**#4 Housing Development**

- No Affordable Housing
- Higher VMT Area

		Vehicle Miles Traveled Analysis			
		Adjustment	Per Capita		
Screening	Transit Area			✗	
	Affordable Housing Project				
Preliminary	Topline VMT Value		23.0	✗	Quantitative CEQA Assessment
	Project Elements	10%	20.7		
CEQA	Regional Average		20.0	✗	Mitigation Plan
	CEQA Threshold	85%	17.0		
Mitigation	Mitigations	16%	17.0	✓	

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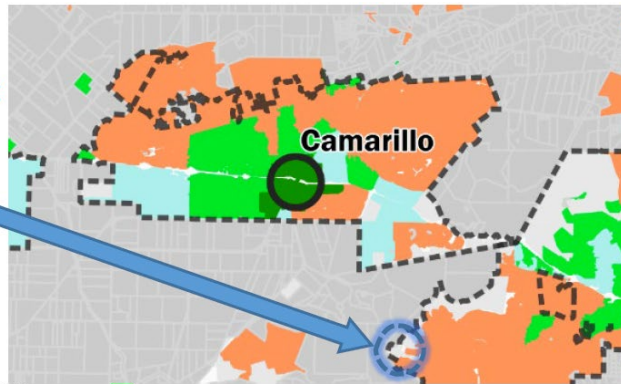
**Example Case Study #5: Housing Project in Highest VMT Area**

Projects in the highest VMT areas that do not screen from analysis would need to perform all feasible mitigations. If, after applying those mitigations, the project is unable to reduce the impact to less than significant the CEQA Lead Agency could make a Statement of Overriding Conditions.

#5 Housing Development

- No Affordable Housing
- Highest VMT Area

- High Quality Transit Areas (HQTAs)
- Land Use in HQTA
- < 15% Below Residential VMT per Capita
- High Employment but Low Residential Development
- > 15% Below Residential VMT per Capita



#5 Housing Development

- No Affordable Housing
- Highest VMT Area

Vehicle Miles Traveled Analysis  
Adjustment Per Capita

		Adjustment	Per Capita		
Screening	Transit Area			⊗	Quantitative CEQA Assessment
	Affordable Housing Project				
Preliminary	Topline VMT Value		28.0	⊗	Mitigation Plan
	Project Elements	10%	25.2		
CEQA	Regional Average		20.0	⊗	Statement of Overriding Considerations
	CEQA Threshold	85%	17.0		
Mitigation	Mitigations	20%	19.6	⊗	

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## Appendix G: VMT Reduction Strategies

### Category: Land Use

#### 1. Increase Residential Density

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Increasing residential density is a land use strategy that has the potential to shift single-occupancy vehicle trips to other modes and therefore decrease project-related VMT. Projects with higher density of dwelling units compared to the national average (9.1 du/acre) are likely to reduce distances people travel and provide greater option for the mode of travel they choose. This measure is most successful when applied to larger developments.

The elasticity of VMT with respect to residential density has been observed to be -0.22, meaning a one percent increase in residential density results in a 0.22 percent decrease in VMT (Stevens 2016).

**Assuming a 10 percent increase in residential density, the measure would result in a 2.2 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 0-25.0 percent based on multifamily residential having 25 percent less VMT per capita than rural residential housing in Ventura County.

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-1** summarizes the RACM measures that are relevant to this strategy.

**Table E-1: VCAPCD RACM Nexus with Increase Residential Density**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
14.3	Land Use/Development Alternatives	Y	Y	Cities, County

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*

**Source:**

- Stevens, M. 2016. *Does Compact Development Make People Drive Less?* Journal of the American Planning Association 83:1(7–18), DOI: 10.1080/01944363.2016.1240044. November. Available: [https://www.researchgate.net/publication/309890412\\_Does\\_Compact\\_Development\\_Make\\_People\\_Drive\\_Less](https://www.researchgate.net/publication/309890412_Does_Compact_Development_Make_People_Drive_Less). Accessed: January 2021.

## 2. Increase Job Density

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Increasing job density is a land use strategy that has the potential to shift single-occupancy vehicle trips to other modes and therefore decrease project-related VMT. Projects with higher density of jobs compared to the national average (145 jobs/acre) are likely to reduce distances people travel and provide greater option for the mode of travel they choose. This measure is most successful when applied to larger developments.

The elasticity of VMT with respect to residential density has been observed to be -0.07, meaning a one percent increase in residential density results in a 0.07 percent decrease in VMT (Stevens 2016).

**Assuming a 10 percent increase in job density, the measure would result in a 0.7 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 0-30.0 percent.

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-2** summarizes the RACM measures that are relevant to this strategy.

**Table E-2: VCAPCD RACM Nexus with Increase Job Density**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
14.3	Land Use/Development Alternatives	Y	Y	Cities, County

### Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.

### Source:

- Stevens, M. 2016. *Does Compact Development Make People Drive Less?* Journal of the American Planning Association 83:1(7–18), DOI: 10.1080/01944363.2016.1240044. November. Available: [https://www.researchgate.net/publication/309890412\\_Does\\_Compact\\_Development\\_Make\\_People\\_Drive\\_Less](https://www.researchgate.net/publication/309890412_Does_Compact_Development_Make_People_Drive_Less). Accessed: January 2021.

## 3. Increase Density (Residential or Job)

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Increasing density is a land use strategy that has the potential to shift single-occupancy vehicle trips to other modes and therefore decrease project-related VMT. Projects with higher density of jobs compared to the national average (refer to ITE Trip Generation Manual) are likely to reduce distances people travel and provide greater option for the mode of travel they choose.

The elasticity of VMT with respect to residential and/or job density has been observed to be -0.12, meaning a one percent increase in residential density results in a 0.12 percent decrease in VMT (Brownstone 2009). **Assuming a 10 percent increase in job density, the measure would result in a 1.2 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 0-30.0 percent. The measure is best quantified for project sites with less than ½-mile radius.

This measure can be supported by measures from the VCAPCD’s RACM. **Table 3** summarizes the RACM measures that are relevant to this strategy.

**Table E-3: VCAPCD RACM Nexus with Increased Density (Residential or Job)**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
14.3	Land Use/Development Alternatives	Y	Y	Cities, County

**Reference:**

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Stevens, M. 2016. *Does Compact Development Make People Drive Less?* Journal of the American Planning Association 83:1(7–18), DOI: 10.1080/01944363.2016.1240044. November. Available: [https://www.researchgate.net/publication/309890412\\_Does\\_Compact\\_Development\\_Make\\_People\\_Drive\\_Less](https://www.researchgate.net/publication/309890412_Does_Compact_Development_Make_People_Drive_Less). Accessed: January 2021.

#### 4. Provide Transit-Oriented Development

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Providing transit-oriented development (TOD) is a land use strategy that has the potential to decrease project-related VMT by increasing access to public transit. TOD refers to projects built in compact, walkable areas that have easy access to public transit, ideally in a location with a mix of uses, including housing, retail offices, and community facilities. Project should be within a ten-minute walk (0.5 mile) of a high-frequency transit station (either rail, or bus with headways less than 15 minutes). Incorporate

adequate bike and pedestrian access to transit. Project site residents, employees, and visitors would have access to high-quality public transit, thereby encouraging transit ridership.

VMT reduction can be calculated using the ratio of transit mode share for a TOD compared to the surrounding city. This ratio has been observed to be around 4.9 for TODs in California (Lund et al. 2004). The formula for estimating VMT reduction in Ventura County is:

$$A = \frac{B \times C}{D} \text{ where}$$

*A = VMT Reduction*

*B = 3.0% (transit mode share in surrounding city – Ventura County)*

*C = 4.9 (ratio of transit mode share for a TOD compared to surrounding city)*

*D = 85.1% (auto mode share in surrounding city – Ventura County)*

**The measure results in a 20 percent reduction in VMT based on current travel characteristics in Ventura County.** The range of effectiveness for this measure is estimated to be 6.9-31.0 percent in California, depending on existing transit use.

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-4** summarizes the RACM measures that are relevant to this strategy.

**Table E-4: VCAPCD RACM Nexus with Provide Transit Oriented Development**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
7.17	Transit Oriented Development	Y	Y	ARB, Cities, County, SCAG, VCAPCD
7.12	Incentives to increase density around transit centers	Y	Y	Cities, County
14.7	Incentives to increase density around transit centers	Y	Y	Cities, County

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

**Source:**

- Lund, H., R. Cervero, and R. Wilson. 2004. *Travel Characteristics of Transit-Oriented*



*Development in California*. January. Available: <https://community-wealth.org/sites/clone.community-wealth.org/files/downloads/report-lund-cerv-wil.pdf>. Accessed: January 2021.

## 5. Provide Mixed Use Development

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Providing mixed use development is a land use strategy that has the potential to decrease VMT by reducing trip lengths and encouraging walking and other non-auto modes of transport. Combining various land uses, such as office, commercial, institutional, and residential in a single building or on a single site in an integrated development project with functional interrelationships and a coherent physical design encourage walking and other non-auto modes of transport from residential to office/commercial/institutional locations (and vice versa). The residential units should be within ¼-mile of parks, schools, or other civic uses. High-quality mixed-use development projects also minimize the need for external trips by including services/facilities for day care, banking/ATM, restaurants, vehicle refueling, and shopping. In suburban settings, a mixed-use development can be achieved by locating various land uses within ¼ mile of one another.

The elasticity of VMT with respect to increase in land use diversity has been observed to be -0.09, meaning a one percent increase in land use diversity results in a 0.09 percent decrease in VMT (Ewing and Cervero 2010). **Assuming a 100 percent increase in land use diversity (which reflects a minimal increase in land use mix in a development compared to baseline), the measure would result in a 9 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 9-30.0 percent.

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-5** summarizes the RACM measures that are relevant to this strategy.

**Table E-5: VCAPCD RACM Nexus with Provide Mixed Use Development**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
14.3	Land Use/Development Alternatives	Y	Y	Cities, County, SCAG, VCTC

### Reference:

- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document*.
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

### Source:

- Ewing, R., and Cervero, R. 2010. "Travel and the Built Environment – A Meta-Analysis." Journal of the American Planning Association.

## 6. Increase Destination Accessibility

Project Site | Infrastructure

### Targeted Trip Reduction: All Trips

Increasing destination accessibility by locating projects in an area with high accessibility to destinations is a land use strategy that has the potential to decrease project related VMT by reducing trip lengths. Destination accessibility is measured in terms of the number of jobs or other attractions reachable within a given travel time. In practice, it can be represented by the distance to a downtown or major job center. Destination accessibility tends to be highest at central locations and lowest at peripheral ones.

The elasticity of VMT with respect to increase in destination accessibility has been observed to be -0.2, meaning a one percent increase in destination accessibility results in a 0.2 percent decrease in VMT (Ewing and Cervero 2010). **Assuming a project is 8 miles to a downtown or job center, the measure would result in a 6.7 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 6.7-20.0 percent.

### Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

### Source:

- Ewing, R., and Cervero, R., "Travel and the Built Environment - A Meta-Analysis." Journal of the American Planning Association, (2010). Table E-4.

## 7. Integrate Affordable and Below Market Rate Housing

Project Site | Infrastructure

### Targeted Trip Reduction: Low-income Household Trips

Integrating affordable and below market rate housing is a land use strategy that has the potential to decrease project-related VMT by reducing commute trip lengths and increasing access to transit of below-income households. Below market rate housing provides greater opportunity for lower income families to live closer to jobs centers and achieve jobs/housing match near transit. This strategy potentially encourages building a greater percentage of smaller units that allow a greater number of families to be accommodated on infill and transit-oriented development sites within a given building footprint and height limit. Lower income families tend to have lower levels of auto ownership, allowing buildings to be designed with less parking which, in some cases, represents the difference between a project being economically viable or not. The measure is appropriate for residential and mixed-use projects.

A four percent reduction in vehicle trips for each deed-restricted below market rate unit has been observed (Nelson\Nygaard 2005). **Assuming a project has 1 percent below market rate housing, the measure would result in a 0.04 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 0.04 – 1.20 percent.

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-6** summarizes the RACM measures that are relevant to this strategy.

**Table E-6: VCAPCD RACM Nexus with Integrate Affordable and Below Market Rate Housing**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
14.6	Transportation for Livable Communities/Housing Incentives Program	Y	Y	SCAG, State, VCTC

**Reference:**

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Nelson\Nygaard, 2005. *Crediting Low-Traffic Developments (p.15)*.  
<http://www.montgomeryplanning.org/transportation/documents/TripGenerationAnalysisUsingURBEMIS.pdf>

## 8. Orient Project Toward Non-Auto Corridor

Project Site | Infrastructure

**Targeted Trip Reduction: All Trips**

Orienting a project toward a non-auto corridor is a land use strategy that has the potential to decrease project-related VMT by shifting single-occupancy vehicle use to transit, bike, and/or walk modes. This measure is achieved by orienting a project towards a planned or existing transit, bicycle, or pedestrian corridor. Use of the non-auto corridor is encouraged by minimizing set back distances and implementing other strategies including neighborhood design, density and diversity of development, transit accessibility and pedestrian and bicycle network improvements.

The range of effectiveness for VMT reduction from orienting a project toward a non-auto corridor is estimated to be 0.25 – 0.5% (SMAQMD). **Orienting a project toward an existing non-auto corridor result in a 0.5 percent reduction in VMT whereas orienting a project toward a planned non-auto corridor result in a 0.25 percent reduction in VMT.**

**Reference:**

- 
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Sacramento Metropolitan Air Quality Management District (SMAQMD). "Recommended Guidance for Land Use Emission Reductions."  
<http://www.airquality.org/ceqa/GuidanceLUEmissionReductions.pdf>

## 9. Locate Project Near Bike Path/Bike Lane

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Locating a project near a bike path or bike lane is a land use strategy that has the potential to decrease project-related VMT by shifting single-occupancy vehicle use to bike. A project can be designed within ½ mile of an existing or planned Class I path or Class II bike facility. To achieve highest VMT reduction, the design should include a comparable network that connects the project uses to the existing offsite facilities and grouped with the strategies to increase accessibility to increase the opportunities for multi-modal travel.

**The effectiveness of this strategy has been observed to be 0.625 percent decrease in VMT (CCAP 2005).**

**Reference:**

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Center for Clean Air Policy (CCAP). *Transportation Emission Guidebook*.  
[http://www.ccap.org/safe/guidebook/guide\\_complete.html](http://www.ccap.org/safe/guidebook/guide_complete.html); TIAX Results of 2005 Literature Search Conducted by TIAX on behalf of SMAQMD.

## 10. Improve Street Connectivity

Off-Site | TDM

Targeted Trip Reduction: All Trips

Improving street connectivity is a land use strategy that has the potential to decrease project related VMT by reducing auto trip lengths. A project has improved street connectivity if it has a higher density of vehicle intersections compared to the surrounding region. Vehicle intersection density can be used as a proxy for street connectivity improvements.

The elasticity of VMT with respect to increase in intersection density has been observed to be -0.14, meaning a one percent increase in destination accessibility results in a 0.14 percent decrease in VMT

(Fehr & Peers 2009). **Assuming a 10 percent increase in intersection density in an area with a typical density of 36 intersections per square mile, the measure would result in a 1.4 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 0.0-30.0 percent.

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-7** summarizes the RACM measures that are relevant to this strategy.

**Table E-7: VCAPCD RACM Nexus with Improve Street Connectivity**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
7.17	Transit Oriented Development	Y	Y	ARB, Cities, County, SCAG, VCAPCD

**Reference:**

- California Air Pollution Control Officers Association. (2021). Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.
- San Diego Association of Governments. (2019). Mobility Management VMT Reduction Calculator Tool – Design Document.
- California Air Pollution Control Officers Association. (2010). Quantifying Greenhouse Gas Mitigation Measures.

**Source:**

- Fehr & Peers. 2009. Proposed Trip Generation, Distribution, and Transit Mode Split Forecasts for the Bayview Waterfront Project Transportation Study.

## Category: Trip Reduction Programs

### 11. Implement Commute Trip Reduction Program (Voluntary)

Project Site | TDM

Targeted Trip Reduction: Commute Trips

Implementing a voluntary trip reduction program is a strategy that has the potential to decrease project related VMT by reducing commute trips. Trip reduction programs are offered through employers and typically include carpool or vanpool programs, subsidized or discounted transit passes, bike amenities, commute trip-reduction marketing, and/or preferential parking permit programs. These programs discourage single occupancy vehicle trip and encourage alternative modes of transportation.

Voluntary trip reduction programs have been shown to decrease VMT four to six percent for participating employees (Boarnet et al. 2014). VMT reduction from this measure can be calculated based on the percent of employees eligible for the program. The formula for estimating VMT reduction is:

$$A = B \times C \text{ where}$$

*A = VMT Reduction*

*B = 4.0 - 6.0% (VMT reduction for participating employees)*

*C = 0 – 100% (share of participating employees)*

The range of effectiveness for this measure is estimated to be 0 - 6 percent, depending on percent of employees eligible. **Assuming 20 percent employee eligibility, the measure results in around 0.8 percent reduction in VMT.**

This measure can be supported by several measures from the VCAPCD’s RACM. **Table E-8** summarizes the RACM measures that are relevant to this strategy.

**Table E-8: VCAPCD RACM Nexus with Implement Commute Trip Reduction Program (Voluntary)**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.1	Commute Solutions	Y	Y	Employers, Transit Operators, VCTC
3.2	Parking Cash-Out	Y	Y	ARB, Employers
3.3	Employer Rideshare Program Incentives	Y	Y	Employers, VCAPCD, VCTC
3.4	Implement Parking Charge Incentive Program	Y	Y	Cities, County, Employers
3.5	Preferential Parking for Carpools and Vanpools	Y	Y	Employers, VCAPCD
3.6	Employee Parking Fees	N	N	
3.7	Merchant Transportation Incentives	N	N	
3.8	Purchase vans for vanpools	Y	Y	Employers
3.9	Encourage merchants and employers to subsidize the cost of transit for employees	Y	Y	VCAPCD, VCTC
3.17	Showers and Lockers at Work	Y	Y	Cities, County, State
3.18	Voluntary Employer Parking Cash-out Subsidy	Y	Y	Cities, County, Employers, State
8.1	Financial Incentives, Including Zero Bus Fares	Y	Y	Employers

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
8.3	Preferential parking for carpoolers	Y	Y	Cities, County, Employers, VCTC
8.4	Credits and incentives for carpoolers	Y	Y	Cities, County, Employers, VCTC
8.5	Employers provide vehicles to carpoolers for running errands or emergencies	Y	Y	Cities, County, Employers
8.7	Guaranteed ride home	Y	Y	Employers, VCTC
10.1	Bike racks at work site	Y	Y	Cities, County, Employers, VCTC

**Reference:**

- California Air Pollution Control Officers Association. (2021). Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.
- San Diego Association of Governments. (2019). Mobility Management VMT Reduction Calculator Tool – Design Document.
- California Air Pollution Control Officers Association. (2010). Quantifying Greenhouse Gas Mitigation Measures.

**Source:**

- Boarnet, M., H. Hsu, and S. Handy. 2014. *Impacts of Employer-Based Trip Reduction Programs and Vanpools on Passenger Vehicle Use and Greenhouse Gas Emissions*. September. Available: [https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts\\_of\\_Employer-Based\\_Trip\\_Reduction\\_Programs\\_and\\_Vanpools\\_on\\_Passenger\\_Vehicle\\_Use\\_and\\_Greenhouse\\_Gas\\_Emissions\\_Policy\\_Brief.pdf](https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts_of_Employer-Based_Trip_Reduction_Programs_and_Vanpools_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf). Accessed: January 2021.

## 12. Implement Commute Trip Reduction Program (Mandatory Implementation and Monitoring)

Project Site | TDM

### Targeted Trip Reduction: Commute Trips

Implementing a trip reduction program with mandatory implementation and monitoring is a strategy that has the potential to decrease project related VMT by reducing commute trips. Trip reduction programs are offered through employers and typically include carpool or vanpool programs, subsidized or discounted transit passes, bike amenities, commute trip-reduction marketing, and/or preferential parking permit programs. These programs discourage single occupancy vehicle trip and encourage alternative modes of transportation. The mandatory program differs from the voluntary program in that employers would be required to offer the program and have regular monitoring and reporting on program use. Mandatory commute trip reduction programs may also have established performance standards.

Trip reduction programs with mandatory implementation and monitoring have been shown to decrease VMT 26 percent for participating employees (Nelson\Nygaard 2015). VMT reduction from this measure can be calculated based on the percent of employees eligible for the program. The formula for estimating VMT reduction is:

$$A = B \times C \text{ where}$$

*A = VMT Reduction*

*B = 26% (VMT reduction for participating employees)*

*C = 0 – 100% (share of participating employees)*

The range of effectiveness for this measure is estimated to be 0 - 26 percent, depending on percent of employees eligible. **Assuming 20 percent employee eligibility, the measure results in around 5.2 percent reduction in VMT.**

This measure can be supported by several measures from the VCAPCD’s RACM. **Table E-9** summarizes the RACM measures that are relevant to this strategy.

**Table E-9: VCAPCD RACM Nexus with Commute Trip Reduction Program (Voluntary)**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.1	Commute Solutions	Y	Y	Employers, Transit Operators, VCTC
3.2	Parking Cash-Out	Y	Y	ARB, Employers
3.3	Employer Rideshare Program Incentives	Y	Y	Employers, VCAPCD, VCTC



Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.4	Implement Parking Charge Incentive Program	Y	Y	Cities, County, Employers
3.5	Preferential Parking for Carpools and Vanpools	Y	Y	Employers, VCAPCD
3.6	Employee Parking Fees	N	N	
3.7	Merchant Transportation Incentives	N	N	
3.8	Purchase vans for vanpools	Y	Y	Employers
3.9	Encourage merchants and employers to subsidize the cost of transit for employees	Y	Y	VCAPCD, VCTC
3.17	Showers and Lockers at Work	Y	Y	Cities, County, State
3.18	Voluntary Employer Parking Cash-out Subsidy	Y	Y	Cities, County, Employers, State
8.1	Financial Incentives, Including Zero Bus Fares	Y	Y	Employers
8.3	Preferential parking for carpoolers	Y	Y	Cities, County, Employers, VCTC
8.4	Credits and incentives for carpoolers	Y	Y	Cities, County, Employers, VCTC
8.5	Employers provide vehicles to carpoolers for running errands or emergencies	Y	Y	Cities, County, Employers
8.7	Guaranteed ride home	Y	Y	Employers, VCTC
10.1	Bike racks at work site	Y	Y	Cities, County, Employers, VCTC

**Reference:**

- California Air Pollution Control Officers Association. (2021). Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.
- San Diego Association of Governments. (2019). Mobility Management VMT Reduction Calculator Tool – Design Document.
- California Air Pollution Control Officers Association. (2010). Quantifying Greenhouse Gas Mitigation Measures.

**Source:**

- Nelson/Nygaard Consulting Associates. 2015. *Genentech–South San Francisco Campus TDM and Parking Report*. June. Available: <http://ci-ssf->

ca.granicus.com/MetaViewer.php?view\_id=2&clip\_id=859&meta\_id=62028. Accessed: January 2021.

### 13. Implement Commute Trip Reduction Marketing

Project Site | TDM

Targeted Trip Reduction: Commute Trips

Implementing a trip reduction program through marketing is a strategy that has the potential to decrease project related VMT by reducing commute trips. Trip reduction programs are offered through employers and typically include carpool or vanpool programs, subsidized or discounted transit passes, bike amenities, commute trip-reduction marketing, and/or preferential parking permit programs. These programs discourage single occupancy vehicle trip and encourage alternative modes of transportation. The mandatory program differs from the voluntary program in that employers would be required to offer the program and have regular monitoring and reporting on program use. Mandatory commute trip reduction programs may also have established performance standards.

Trip reduction programs with mandatory implementation and monitoring have been shown to decrease VMT 26 percent for participating employees (Nelson\Nygaard 2015). VMT reduction from this measure can be calculated based on the percent of employees eligible for the program. The formula for estimating VMT reduction is:

$$A = B \times C \text{ where}$$

*A = VMT Reduction*

*B = 26% (VMT reduction for participating employees)*

*C = 0 – 100% (share of participating employees)*

The range of effectiveness for this measure is estimated to be 0 - 26 percent, depending on percent of employees eligible. **Assuming 20 percent employee eligibility, the measure results in around 5.2 percent reduction in VMT.**

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-10** summarizes the RACM measure that is relevant to this strategy.

**Table E-10: VCAPCD RACM Nexus with Implement Commute Trip Reduction Program (Voluntary)**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.1	Commute Solutions	Y	Y	Employers, Transit Operators, VCTC

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document*.
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Nelson/Nygaard Consulting Associates. 2015. *Genentech–South San Francisco Campus TDM and Parking Report*. June. Available: [http://ci-ssf-ca.granicus.com/MetaViewer.php?view\\_id=2&clip\\_id=859&meta\\_id=62028](http://ci-ssf-ca.granicus.com/MetaViewer.php?view_id=2&clip_id=859&meta_id=62028). Accessed: January 2021.

## 14. Provide Ridesharing Program

Project Site | TDM

### Targeted Trip Reduction: Commute Trips

Implementing a ridesharing program is a strategy that has the potential to decrease project related VMT by reducing commute trips. Ridesharing programs are typically offered through employers but can also be implemented by non-employer agencies. An employer can provide and promote ridesharing by:

- Managing and/or funding a ride-sharing program
- Designating a certain percentage of parking spaces for ride sharing vehicles
- Designating adequate passenger loading and unloading and waiting areas for ride-sharing vehicles
- Providing a web site or message board for coordinating rides

Ridesharing programs with have been shown to decrease VMT up to 5 percent for participating employees in suburban locations (Ewing 1993). VMT reduction from this measure can be calculated based on the percent of employees participating in the program. The formula for estimating VMT reduction is:

$$A = B \times C \text{ where}$$

*A = VMT Reduction*

*B = 0-5% (VMT reduction for participating employees)*

*C = 0 – 100% (share of participating employees)*

The range of effectiveness for this measure is estimated to be 0 - 20 percent, depending on percent of employees participating. **Assuming 20 percent employee participate, the measure results in around 0.8 percent reduction in VMT in a suburban location.**

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-11** summarizes the RACM measures that are relevant to this strategy.

**Table E-11: VCAPCD RACM Nexus with Implement Ridesharing Program**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.3	Employer Rideshare Program Incentives	Y	Y	Employers, VCAPCD, VCTC
8.10	Rideshare and Vanpool Services (Non-employer based)	Y	Y	CTC, Transit Operators, Cities, County

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

**Source:**

- Ewing, R. 1993. “TDM, Growth Management and the Other Four out of Five Trips.” *Transportation Quarterly*, Vol. 48, No. 3.

## 15. Implement Subsidized or Discounted Transit Program

Project Site | TDM

### Targeted Trip Reduction: Commute Trips

Implementing a subsidized or discounted transit program is a strategy that has the potential to decrease project related VMT by reducing commute trips by reducing the cost of travel by transit and thus making transit a more attractive travel option. Subsidized or discounted transit programs can be both employee-based or resident-based. An employer or agency can provide and promote ridesharing for employees or residents by:

- Provide subsidized/discounted or daily or monthly public transit passes for employees and/or residents
- Provide free transfers between all shuttles and transit to participants

The elasticity of transit boardings with respect to transit fare price has been observed to be 0.43, meaning a one percent decrease in transit fare price results in a 0.43 percent increase in transit

boardings (Taylor 2008). VMT reduction from this measure can be calculated based on the percent of residents/employees eligible in the program. The formula for estimating VMT reduction is:

$$A = B \times C \times D \times E \times F \text{ where}$$

*A = VMT Reduction*

*B = 0.43 (elasticity of transit boardings with respect to transit fare price)*

*C = 0 – 100% (share of participating employees)*

*D = 3% (transit commute mode share for Ventura County)*

*E = 0-100% (transit subsidy)*

*F = 0-100% (project generated VMT from employees/residents)*

**Assuming a program provides 100 percent transit subsidy (free transit use), 20 percent employee/resident eligibility, and 100 percent project generated VMT from employees/residents a project, the measure would result in around 0.13 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 0 – 0.65 percent in Ventura County, depending on percent of employees participating.

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-12** summarizes the RACM measures that are relevant to this strategy.

**Table E-12: VCAPCD RACM Nexus with Implement Subsidized or Discounted Transit Program**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
1.13	Half Price Fares on Feeder Bus Services	N	Y	<i>(not economically feasible)</i>
8.1	Financial Incentives, Including Zero Bus Fares	Y	Y	Employers

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

**Source:**

- Taylor, B., D. Miller, H. Iseki, and C. Fink. 2008. Nature and/or Nurture? Analyzing the Determinants of Transit Ridership Across US Urbanized Areas. Transportation Research Part A:

Policy and Practice, 43(1), 60-77. Available:  
<https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.367.5311&rep=rep1&type=pdf>.  
Accessed: January 2021.

## 16. Provide Employer-Sponsored Vanpool

Project Site | TDM

### Targeted Trip Reduction: Commute Trips

An employer-sponsored vanpool program is a strategy that has the potential to decrease project related VMT by reducing commute trips by replacing single-occupancy auto trips with vanpool trips. Vanpooling is a flexible form of public transportation that provides a cost-effective a convenient ridesharing option for groups of 5 to 15 people. Rider charges are normally set based on vehicle and operating cost. An employer can sponsor vanpooling by:

- Purchasing or leasing vans for employee use
- Subsidizing the cost of at least program administration
- Preferential parking for vanpool

Employee vanpool participation rate has been observed to be 2.7 percent, average length of one-way vanpool commute trips is 42.0 miles, and average vanpool occupancy has been observed to be 6.25 occupants (SANDAG 2019). VMT reduction from this measure can be calculated based on the average length of one-way vehicle commute trips in the region. The formula for estimating VMT reduction is:

$$A = \frac{((1 - B) \times C) + (B \times \frac{D}{E})}{((1 - B) \times C) + (B \times D)} \text{ where}$$

*A = VMT Reduction*

*B = 2.7% (percent of employees that participate in vanpool)*

*C = 18.0 miles (average length of one-way vehicle commute trip in Ventura County)*

*D = 42.0 (average length of one-way vanpool commute trip)*

*E = 6.25 occupants (average vanpool occupancy including driver)*

**An employer-sponsored vanpool program is estimated to reduce VMT around 5.11 percent.**

This measure can be supported by several measures from the VCAPCD's RACM. **Table E-13** summarizes the RACM measures that are relevant to this strategy.

**Table E-13: VCAPCD RACM Nexus with Provide Employer-Sponsored Vanpool**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.5	Preferential Parking for Carpools and Vanpools	Y	Y	Employers, VCAPCD
3.8	Purchase vans for vanpools	Y	Y	Employers
6.3	Regional Parking Regulations to Provide Incentives for alternative transportation modes (vanpools)	Y	Y	Cities, County, SCAG, VCTC
8.7	Guaranteed ride home	Y	Y	Employers, VCTC
8.10	Rideshare and Vanpool Services	Y	Y	CTC, Transit Operators, Cities, County

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

**Source:**

- SANDAG. 2018. Commute Behavior Survey.
- SANDAG. 2018. SANDAG Vanpool Program
- Transportation Research Board. 2005. *“TCRP Report 95 Chapter 5 Buspools and Vanpools.”* [trb.org/Publications/TCRPReport95.aspx](http://trb.org/Publications/TCRPReport95.aspx)

## 17. Price Workplace Parking

Project Site | TDM

### Targeted Trip Reduction: Commute Tr

Pricing workplace parking is a strategy that has the potential to decrease project related VMT by reducing commute trips by increase the cost of personal auto travel to disincentivizing auto trips. Pricing workplace parking may include:

- explicitly charging for parking for its employees
- implementing above market rate pricing
- validating parking only for invited guests
- not providing employee parking and transportation allowances
- educating employees about available alternatives

The elasticity of parking demand with respect to parking price has been observed to be -0.4, meaning a one percent increase in parking price results in a 0.4 percent decrease in parking demand (Lehner & Peer 2019). VMT reduction from this measure can be calculated based on the change in parking price and share of employees paying for parking. The formula for estimating VMT reduction is:

$$A = B \times C \times D \text{ where}$$

*A = VMT Reduction*

*B = Proposed change in parking price (if baseline parking is free, set to 50%)*

*C = 0 – 100% (share of employees paying for parking)*

*D = 0.4 (elasticity of parking demand with respect to parking price)*

**Assuming the baseline parking is free, 20 percent employee eligibility, the measure would result in around 4 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 0 – 20 percent in Ventura County, depending on percent of employees participating. This strategy is also dependent on parking management of adjacent street and lot parking to reduce the unintended consequences of employees parking in adjacent areas.

This measure can be supported by several measures from the VCAPCD’s RACM. **Table E-14** summarizes the RACM measures that are relevant to this strategy.

**Table E-14: VCAPCD RACM Nexus with Price Workplace Parking**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.4	Implement Parking Charge Incentive Program	Y	Y	Cities, County, Employers
3.6	Employee Parking Fees	N	N	Not technologically feasible because the region is not urbanized enough to make it effective and could have negative effect to public parking areas (curb parking).
5.8	On-Street Parking Restrictions	N	N	No authority to implement
5.29	On-Street Parking Restrictions	Y	Y	State, County, Cities
7.5	Area-wide tax for parking	N	N	No authority to implement
7.6	Increase parking fees	N	N	No authority to implement
7.7	Graduated pricing starting with highest in Central Business District	N	N	No authority to implement



Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
7.19	Increase fees for parking garages and meters during ozone episodes	N	N	<i>Not economically feasible</i>
7.20	Charge city-owned parking garage pass holders a fee for more than one entrance and exit each day	N	N	<i>Not economically feasible</i>

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

**Source:**

- SANDAG. 2018. Commute Behavior Survey.
- SANDAG. 2018. SANDAG Vanpool Program
- Transportation Research Board. 2005. *“TCRP Report 95 Chapter 5 Buspools and Vanpools.”*  
trb.org/Publications/TCRPReport95.asp

## 18. Implement Employee Parking Cash-Out

Project Site | TDM

### Targeted Trip Reduction: Commute Trips

Implementing employee parking cash-out is a strategy that has the potential to decrease project related VMT by reducing commute trips by incentivizing employees to not use personal auto to commute. Employee parking cash-out is when employers provide employees with a choice to forgo their current subsidized/free parking for a cash payment equivalent to or greater than the cost of the parking space.

The VMT reduction for employees eligible for parking cash-out has been observed to be 12 percent (Shoup 2005). VMT reduction from this measure can be calculated based on the share of employees eligible for parking. The formula for estimating VMT reduction is

$$A = B \times C \text{ where}$$

*A = VMT Reduction*

*B = 12% (VMT reduction for employees eligible for parking cash-out)*

*C = 0 – 100% (share of employees eligible for parking cash-out program)*

Assuming 20 percent employee eligibility, the measure would result in around 2.4 percent reduction in VMT. The range of effectiveness for this measure is estimated to be 0 – 20 percent, depending on percent of employees participating.

This measure can be supported by measures from the VCAPCD’s RACM. Table E-15 summarizes the RACM measures that are relevant to this strategy.

**Table E-15: VCAPCD RACM Nexus with Price Workplace Parking**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.2	Parking Cash-Out	Y	Y	ARB, Employers
3.18	Voluntary Employer Parking Cash-out Subside	Y	Y	Cities, County, Employers, State
3.23	Extend parking cash-out rule to more employer	N	N	<i>Requires State legislation</i>

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document*.
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Shoup, D. 2005. Parking Cash Out. Planners Advisory Service, American Planning Association. Available: <http://shoup.bol.ucla.edu/ParkingCashOut.pdf>. Accessed: January 2021.

## 19. Telework and Alternative Work Schedules

Project Site | TDM

### Targeted Trip Reduction: Commute Trips

Broadband internet allows for more efficient telecommuting, telehealth, and other virtual replacements for in-person encounters requiring travel. Telework and alternative work schedule is a strategy that has the potential to decrease project related VMT by reducing commute trips. Telework and alternative work schedules can be a combination of telework, staggered starting times, flexible schedules, or compressed work weeks. **VMT reduction for commute trips has been estimated to be 0.15 percent for 1 percent of employees telecommuting 1 day a week, 0.29 percent for 2 days a week, and 0.44% for 3 days a week.**

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-16** summarizes the RACM measures that are relevant to this strategy.

**Table E-16: VCAPCD RACM Nexus with Price Workplace Parking**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
13.1	Alternative Work Schedules	Y	Y	Employers, VCAPCD
13.2	Modified Work Schedules	Y	Y	Employers, VCAPCD
13.3	Telecommunication - Telecommuting	Y	Y	SCAG, VCAPCD

**Reference:**

- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document*.
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Cambridge Systematics. 2009. “Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions.” Technical Appendices. Prepared for the Urban Land Institute. [reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf](http://reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf)
- Fuhr, J.P. Jr. & Pociask, S.B. (2011). Broadband and Telecommuting: Helping the U.S. Environment and the Economy. *Low Carbon Economy Journal*. Retrieved from <http://www.scirp.org/journal/PaperInformation.aspx?paperID=4227>.

## 20. Provide End of Trip Facilities (such as on-site food service, gym, shower)

Project Site | Infrastructure

### Targeted Trip Reduction: Commute Trips

Providing and maintaining end of trip facilities is a strategy that has the potential to decrease project related VMT by reducing auto-commute trips by making non-motorized travel more attractive. End of trip facilities typically are designed for bicycle riders and include bike parking, showers, secure bicycle/personal lockers and changing spaces for employee use.

Employees with access to end of trip facilities have been observed to be 1.78 times more likely to bike to work than those without such facilities (Buehler 2012). VMT reduction from this measure can be calculated based on the existing bicycle and vehicle trip lengths and commute mode shares. The formula for estimating VMT reduction is:

$$A = \frac{C \times (E \times (B \times E))}{D \times F} \text{ where}$$

*A = VMT Reduction*

*B = 1.78 (bike mode adjustment factor)*

*C = 0.6 miles (existing bicycle trip length in Ventura County)*

*D = 18.0 miles (existing vehicle trip length in Ventura County)*

*E=0.7% (existing bicycle commute mode share in Ventura County)*

*F = 95.8% (existing vehicle commute mode share in Ventura County)*

**The VMT reduction by providing end of trip facilities is estimated to be 6.14% in Ventura County.**

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-17** summarizes the RACM measures that are relevant to this strategy.

**Table E-17: VCAPCD RACM Nexus with End of Trip Facilities**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.17	Showers and Lockers at Work	Y	Y	Cities, County, State
10.1	Bike racks at work sites	Y	Y	Cities, County, Employers, VCTC
10.3	Regional Bike Parking Ordinance for all new construction	N	N	<i>No authority to implement</i>

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

**Source:**

- Buehler, R. 2012. Determinants of bicycle commuting in the Washington, DC region: The role bicycle parking, cyclist showers, and free car parking at work. Transportation Research Part D, 17, 525–531. Available: <http://www.pedbikeinfo.org/cms/downloads/DeterminantsofBicycleCommuting.pdf>. Accessed: January 2021.

**21. Provide Community-Based Travel Planning**

Off-Site | TDM

### Targeted Trip Reduction: Commute Trips

Providing community-based travel planning is a strategy that has the potential to decrease project related VMT by reducing commute trips. CBTP is a residential based approach to outreach that provides households with customized information, incentives, and support to encourage the use of transportation alternatives in place of single occupancy vehicles. Travel advisor administrators consult residents to offer personalized information, incentives, and advice about how members of households can travel in alternative ways that meet their needs.

It is estimated that 19 percent of residents targeted will participate and participating residents have a 12 percent reduction in VMT (MTC 2021). **The measure would result in around 2.3 percent reduction in VMT per resident in a plan/community are targeted for the CBTP program.** The range of effectiveness for this measure is estimated to be 0 – 2.3 percent, depending on share of residents targeted for CBTP.

#### Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*

#### Source:

- Metropolitan Transportation Commission (MTC). Forthcoming June 2021. Plan Bay Area 2050, Supplemental Report.

## 22. Implement School Pool Program

Off-Site | TDM

### Targeted Trip Reduction: School Trip

Implementing a school pool program is a strategy that has the potential to decrease project related VMT by reducing auto-school trips by facilitating carpooling for school children. A school pool program is an alternative an alternative to auto or bus trips. School pool programs are ridesharing programs that help match parents to transport students to school. It can be a viable school trip reduction option where students cannot walk or bike but do not meet the requirements for bussing.

School VMT reduction is dependent on the share of family participation. School pool program participation has been observed to be up to 35 percent. **Assuming 15 percent of families participate in the school pool program, the measure would result in around 7.2 percent reduction in school VMT.** The range of effectiveness for this measure is estimated to be 0-15.8 percent.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-18** summarizes the RACM measures that are relevant to this strategy.

**Table E-18: VCAPCD RACM Nexus with School Pool Program**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
8.6	School carpools	N	N	No authority to implement

**Reference:**

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Denver Regional Council of Governments (DRCOG). Survey of Schoolpool Participants, April 2008. <http://www.drcog.org/index.cfm?page=SchoolPool>.

### 23. Implement School Bus Program

Off-Site | Infrastructure

Targeted Trip Reduction: School Trips

Implementing a school bus program is a strategy that has the potential to decrease project related VMT by reducing auto-school trips. A school bus program can either create, restore, or expand school bus service in the project area.

School VMT reduction is dependent on the share of family participation. School bus program participation has been observed to be up to 85 percent. **Assuming 50 percent of families participate in the school pool program, the measure would result in around 38 percent reduction in school VMT.** The range of effectiveness for this measure is estimated to be 0-63 percent.

**Reference:**

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- JD Franz Research, Inc.; Lamorinda School Bus Program, 2003 Parent Survey, Final Report; January 2004;

### Category: Parking or Road Pricing/Management

### 24. Provide Electric Vehicle Charging Infrastructure

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Pricing electric vehicle charging infrastructure is a strategy that has the potential replace non-ZEV VMT with ZEV VMT. The charging infrastructure will enable drivers of plug-in hybrid electric vehicles to drive a larger share of miles in electric mode, as opposed to gasoline powered mode. **This measure is not estimated to reduce VMT, however it would substitute fuel trips 1:1 to non-ZEV trips.**

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

## 25. Limit Residential Parking Supply

Project Site | Infrastructure

### Targeted Trip Reduction: Home-Based Trips

Limiting residential parking supply is a strategy that has the potential to decrease project related VMT by reducing home-based trips by adding additional time and inconvenience to trips made by private auto. This strategy can be achieved by eliminating/reducing minimum parking requirements, creating maximum parking requirements, and/or providing shared parking.

Auto commute mode share has been observed to decrease 37 percent for households in areas with scarce parking (Chatman 2013). VMT reduction from this measure can be estimated based on residential parking supply and demand and percent of household VMT that is commute based. The formula for estimating VMT reduction is:

$$A = \frac{B - C}{B} \times D \times E \times F \text{ where}$$

*A = VMT Reduction*

*B = residential parking demand*

*C = project residential parking supply*

*D = (0-100%) percentage of project VMT generated by residents)*

*E = 37% (percent of household VMT that is commute based; Caltrans 2012)*

*F = 37% (percent reduction in commute mode share by driving among households in areas with scarce parking)*

**Assuming a 5 percent undersupply of parking, the VMT reduction by limiting residential parking supply is estimated to be 0.68 percent.** The range of effectiveness of this measure is estimated to be between 0-13.7 percent.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-19** summarizes the RACM measures that are relevant to this strategy.

**Table E-19: VCAPCD RACM Nexus with Limit Residential Parking Supply**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
5.5	Removal of On-Street Parking	N	N	<i>No authority to implement</i>
5.8	On-Street Parking Restrictions	N	N	<i>No authority to implement</i>
5.29	On-Street Parking Restrictions	Y	Y	State, County, Cities
7.8	Buy parking lots and convert to other land use	N	N	<i>Not technologically feasible because the area is too rural to be able to make this effective</i>

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Chatman, D. 2013. Does TOD need the T? On the importance of factors other than rail access. *Journal of the American Planning Association* 79(1). Available: <https://trid.trb.org/view/1243004>. Accessed: January 2021.

## 26. Unbundle Residential Parking Costs from Property Cost

Project Site | Infrastructure

### Targeted Trip Reduction: Home-Based Trips

Unbundling residential parking costs from property costs is a strategy that has the potential to decrease project related VMT by reducing home-based trips by requiring those who wish to purchase parking spaces to do so at an additional cost. This strategy can be achieved by pricing parking separately from home rents/purchase prices.

The elasticity of vehicle ownership with respect to increase in vehicle costs has been observed to be -0.4, meaning a one percent increase in vehicle ownership costs results in a 0.4 percent decrease in vehicle ownership (Litman 2020). VMT reduction from this measure can be calculated based on the parking cost per space relative to vehicle ownership cost. The formula for estimating VMT reduction is:

$$A = \frac{B}{C} \times D \times E \text{ where}$$

*A = VMT Reduction*

*B = Annual parking cost per space*



$C = \$9,282$  (average annual vehicle cost, AAA 2019)

$D = -0.4$  (elasticity of vehicle ownership with respect to total vehicle cost)

$E = 1.01$  (Adjustment factor from vehicle ownership to VMT, FHWA 2017)

**Assuming a \$25/month (\$300/year) parking fee, the measure would result in around 1.31 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 0 – 15.7 percent in, depending on the parking cost.

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

**Source:**

- Litman, T. 2020. Parking Requirement Impacts on Housing Affordability. June. Available: <https://www.vtpi.org/park-hou.pdf>. Accessed: January 2021.
- AAA. 2019. Your Driving Costs. September. Available: <https://exchange.aaa.com/wp-content/uploads/2019/09/AAA-Your-Driving-Costs-2019.pdf>. Accessed: January 2021.
- Federal Highway Administration (FHWA). 2017. National Household Travel Survey – 2017 Table E-Designer. Annual VMT / Vehicle by Count of Household Vehicles in California. Available: <https://nhts.ornl.gov/>. Accessed: March 2021.

## 27. Implement Market Price Public Parking (On-Street)

Off Site | Infrastructure

### Targeted Trip Reduction: All Trips

Implementing market pricing for on-street public parking is a strategy that has the potential to decrease project related VMT by reducing vehicle trips by adding additional cost to auto trips. This strategy can be achieved by price all on-street parking in a community and is most effective when implemented near central business districts, employment centers, and retail centers. This strategy can be used in combination with pricing project site parking to deter parking spillover. Paid parking encourages park once behavior, area-wide mode shifts to transit and bike/walk.

The elasticity of parking demand with respect to parking price has been observed to be 0.4, meaning a one percent increase in parking costs results in a 0.4 percent decrease in parking demand (Pierce & Shoup 2013). VMT reduction from this measure can be calculated based on the increase in parking price and the percentage of trips parking on street. The formula for estimating VMT reduction is:

$$A = B \times C \times D \text{ where}$$

$A = \text{VMT Reduction}$

$B = (0\text{-}100\%) \text{ Percent Increase in parking price}$

$C = 0.4$  (elasticity of parking demand with respect to parking cost)

$D = (0-100\%)$  percent of trips parking on street

**Assuming a 25 percent increase in parking fee and 75 percent of trips parking on street, the measure would result in around 7.5 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 0 – 30 percent in.

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Pierce, G., and D. Shoup. 2013. Getting the Prices Right: An Evaluation of Pricing Parking by Demand in San Francisco. *Journal of the American Planning Association* 79(1)67–81. May. Available: <https://www.tandfonline.com/doi/pdf/10.1080/01944363.2013.787307?needAccess=true>. Accessed: January 2021.

## 28. Require Residential Area Parking Permits

Off Site | Infrastructure

### Targeted Trip Reduction: Home-Based Trips

Requiring residential area parking permits is a strategy that has the potential to decrease project related VMT by reducing home-based vehicle trips by adding additional cost to vehicle ownership. This strategy can be achieved by requiring the purchase of residential parking permits for long-term use of on-street parking in residential areas. This strategy can be used in combination with pricing project site parking to deter parking spillover.

The elasticity of VMT with respect to vehicle ownership price has been observed to be 0.45, meaning a one percent increase in vehicle ownership costs due to parking permit requirement results in a 0.45 percent decrease in VMT (Cambridge Systematics 2009). VMT reduction from this measure can be calculated based on the increase in parking price and the percentage of trips parking on street. The formula for estimating VMT reduction is:

$$A = \frac{B}{C} \times D \times E \text{ where}$$

$A = \text{VMT Reduction}$

$B = \text{Annual parking permit cost}$

$C = \$9,282$  (average annual vehicle cost, AAA 2019)

$D = -0.45$  (elasticity of VMT with respect to total vehicle cost)

**Assuming a \$25/month (\$300/year) parking permit cost, the measure would result in around 1.45 percent reduction in VMT.**

**Reference:**

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Cambridge Systematics. Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions. Technical Appendices. Prepared for the Urban Land Institute. [http://www.movingcooler.info/Library/Documents/Moving%20Cooler\\_Appendix%20B\\_Effectiveness\\_102209.pdf](http://www.movingcooler.info/Library/Documents/Moving%20Cooler_Appendix%20B_Effectiveness_102209.pdf).
- AAA. 2019. Your Driving Costs. September. Available: <https://exchange.aaa.com/wp-content/uploads/2019/09/AAA-Your-Driving-Costs-2019.pdf>. Accessed: January 2021.

## 29. Implement Area or Cordon Pricing

Off Site | Infrastructure

### Targeted Trip Reduction: All Trips

Implementing area or cordon pricing is a strategy that has the potential to decrease project related VMT by reducing vehicle trips by adding additional cost to vehicle trips. This strategy can be achieved by charging a toll to enter an area by vehicle. Cordon pricing is typically used at central business districts or urban centers and pricing can vary by time-of-day/congestion levels. Cordon pricing can result in mode shift if there are transit or non-motorized alternatives.

The elasticity of VMT with respect to vehicle ownership price has been observed to be 0.45, meaning a one percent increase in vehicle ownership costs due to parking permit requirement results in a 0.45 percent decrease in VMT (Cambridge Systematics 2009). VMT reduction from this measure can be calculated based on the increase in parking price and the percentage of trips parking on street. The formula for estimating VMT reduction is:

$$A = \frac{B}{C} \times D \times E \text{ where}$$

$A = \text{VMT Reduction}$

$B = \text{Annual cordon pricing toll cost}$

$C = \$9,282$  (average annual vehicle cost, AAA 2019)

$D = -0.45$  (elasticity of VMT with respect to total vehicle cost)

**Assuming a \$100/month (\$1200/year) cordon toll cost, the measure would result in around 5.8 percent reduction in VMT.**

**Reference:**

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Cambridge Systematics. Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions. Technical Appendices. Prepared for the Urban Land Institute. [http://www.movingcooler.info/Library/Documents/Moving%20Cooler\\_Appendix%20B\\_Effectiveness\\_102209.pdf](http://www.movingcooler.info/Library/Documents/Moving%20Cooler_Appendix%20B_Effectiveness_102209.pdf).
- AAA. 2019. Your Driving Costs. September. Available: <https://exchange.aaa.com/wp-content/uploads/2019/09/AAA-Your-Driving-Costs-2019.pdf>. Accessed: January 2021.

### 30. Install Park-and-Ride Lots

Off Site | Infrastructure

**Targeted Trip Reduction: Commute Trips**

Installing park-and-ride lots in coordination with transit agencies is a strategy that has the potential to decrease project related VMT by reducing commute trips by shifting trips to transit or carpooling.

**Installing park-and-ride lots has been observed to reduce VMT by 0.1-0.5%.**

**Reference:**

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Washington State Department of Transportation. Cost Effectiveness of Park-and-Ride Lots in the Puget Sound Area. <http://www.wsdot.wa.gov/research/reports/fullreports/094.1.pdf>

## Category: Neighborhood Design

### 31. Construct or Improve Bike Facility

Off Site | TDM

**Targeted Trip Reduction: All Trips**

Constructing or improving a bike facility is a strategy that has the potential to decrease project related VMT by enabling mode shift to biking. This strategy can be achieved by incorporating bike lanes, routes, and share-use paths (Class I, II, or IV) into the street system, improving bicycle network connectivity, adding/improving bike wayfinding, and/or increasing bicycle access to transit hubs.

VMT reduction from this measure can be estimated based on factors such as percent of plan/community VMT on parallel roadway and existing regional average bike and vehicle trip length. The formula for estimating VMT reduction is:

$$A = B \times \frac{F}{I} \times (C + D) \times E \times G \text{ where}$$

*A = VMT Reduction*

*B = (0-100%) percent of plan/community VMT on parallel roadway*

*C = 0.001 (active transportation adjustment factor, CARB 2020)*

*D = 0.001 (credits for key destinations near project, CARB 2020)*

*E = 1 (growth factor adjustment for facility type, CARB 2020)*

*F = 334 (annual days of use of new facility, NOAA 2017)*

*G = 0.5 miles (Existing regional average one-way bicycle trip length)*

*H = 7.5 miles (Existing regional average one-way vehicle trip length)*

*I = 365 (Days per Year)*

**Assuming a new class II bike lane in Ventura County is constructed where 100 percent of plan/community VMT is on parallel roadways, parallel roadways have ADT>24,000, 4-6 key destinations within ½ mile, the VMT reduction is estimated to be 0.01 percent.** The range of effectiveness of this measure is estimated to be between 0-0.8 percent.

**An alternative calculation is a 2 percent reduction within a project site and connections off-site in an urban/suburban context, with 1 percent reduction within the project site. With 1 percent or lower within a project site and connecting off-site in a rural site.**

This measure can be supported by several measures from the VCAPCD’s RACM. **Table E-20** summarizes the RACM measures that are relevant to this strategy.

**Table E-20: VCAPCD RACM Nexus with Construct or Improve Bike Facility**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.4	Bike lockers at Metro stations, park & ride lots, other locations	N	N	<i>Not economically feasible</i>
10.5	Development of bicycle travel facilities	Y	Y	Cities, County, VCTC
10.7	Inclusion of bicycle lanes on throughfare projects	Y	Y	Cities, County, State

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.8	Bicycle lanes on arterial and frontage roads	Y	Y	Cities, County, State
10.9	Bicycle Route lighting	Y	Y	Cities, County, State
10.10	Expedite bicycle projects from the RTP/SCS	Y	Y	Cities, County, SCAG, VCTC
10.11	Complete Streets	Y	Y	Cities, County, Transit Operators
10.15	Greenway Network	Y	Y	Cities, County
10.16	First Mile/Last Mile Program	Y	Y	VCTC, Transit Operators
15.2	Pedestrian and Bicycle Overpasses Where Safety Dictates	Y	Y	Cities, County
15.3	Require inclusion of bicycle lanes on state and federally funded thoroughfare projects	N	N	No authority to implement. Not economically feasible.
15.4	Require inclusion of paved shoulders adequate for bicycle use on state or federally funded reconstruction or widening of federal collectors	N	N	No authority to implement. Not economically feasible.
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document*.
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- California Air Resources Board (CARB). 2020. Quantification Methodology for the Strategic Growth Council’s Affordable Housing and Sustainable Communities Program. September. Available: [https://ww2.arb.ca.gov/sites/default/files/classic/cc/capandtrade/auctionproceeds/draft\\_sgc\\_a\\_hsc\\_qm\\_091620.pdf](https://ww2.arb.ca.gov/sites/default/files/classic/cc/capandtrade/auctionproceeds/draft_sgc_a_hsc_qm_091620.pdf). Accessed: January 2021.
- National Oceanic and Atmospheric Administration (NOAA). 2021. Global Historical Climatology Network–Daily (GHCN-Daily), Version 3. 2015-2019 Average of Days Per Year with Precipitation >0.1 Inches. Available: <https://www.ncdc.noaa.gov/access/search/data-search/daily->

summaries?bbox=38.922,-120.071,38.338,-119.547&place=County:1276&dataTypes=PRCP&startDate=2015-01-01T00:00:00&endDate=2019-01-01T23:59:59. Accessed: May 2021.

### 32. Construct or Improve Bike Boulevard

Off Site | TDM

#### Targeted Trip Reduction: All Trips

Constructing or improving a bike boulevard is a strategy that has the potential to decrease project related VMT by enabling mode shift to bike and walking. This strategy can be achieved by including a bicycle boulevard (Class III) that connects to a larger existing bike network.

Bicycle ridership has been observed to increase on average by 114 percent after a bike boulevard is built (Schwartz 2021). The formula for estimating VMT reduction is:

$$A = B \times \frac{D \times (F - (C \times F))}{E \times G} \text{ where}$$

*A = VMT Reduction*

*B = (0-100%) percent of plan/community VMT on parallel roadway*

*C = 1.14 (bike mode adjustment factor)*

*D = 0.5 miles (Existing regional average one-way bicycle trip length)*

*E = 7.5 miles (Existing regional average one-way vehicle trip length)*

*F = 1% (Existing regional bicycle commute mode share)*

*G = 96% miles (Existing regional vehicle commute mode share)*

**Assuming a new class III bike boulevard is constructed in Ventura County where 100 percent of plan/community VMT is on parallel roadways, the VMT reduction is estimated to be 0.01 percent.** The range of effectiveness of this measure is estimated to be between 0-0.2 percent.

This measure can be supported by several measures from the VCAPCD’s RACM. **Table E-21** summarizes the RACM measures that are relevant to this strategy.

**Table E-21: VCAPCD RACM Nexus with Construct or Improve Bike Boulevard**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.5	Development of bicycle travel facilities	Y	Y	Cities, County, VCTC

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.7	Inclusion of bicycle lanes on throughfare projects	Y	Y	Cities, County, State
10.8	Bicycle lanes on arterial and frontage roads	Y	Y	Cities, County, State
10.10	Expedite bicycle projects from the RTP/SCS	Y	Y	Cities, County, SCAG, VCTC
10.11	Complete Streets	Y	Y	Cities, County, Transit Operators
10.15	Greenway Network	Y	Y	Cities, County
10.16	First Mile/Last Mile Program	Y	Y	VCTC, Transit Operators
15.2	Pedestrian and Bicycle Overpasses Where Safety Dictates	Y	Y	Cities, County
15.3	Require inclusion of bicycle lanes on state and federally funded thoroughfare projects	N	N	No authority to implement. Not economically feasible.
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document*.

**Source:**

- C Schwartz, S. 2021. Planning for Stress Free Connections: Estimating VMT Reductions. February.

### 33. Expand Bikeway Network

Off Site | TDM

Targeted Trip Reduction: All Trips

Expanding the existing bikeway network is a strategy that has the potential to decrease project related VMT by enabling mode shift to biking. This strategy can be achieved by improving bicycle network connectivity by adding more miles of bike facilities, adding/improving bike wayfinding, improving bicycle safety and convenience, and/or increasing bicycle access to transit hubs.

The elasticity of the number of bike commuters with respect to bikeway miles per 10,000 population has been observed to be 0.25, meaning a one percent increase in bikeway miles per 10,000 population results in a 0.25 percent increase in bike commuters (Pucher & Buehler 2011). VMT reduction from this



measure can be estimated based on factors such as the percent increase of bikeway miles in the plan/community and existing regional average bike and vehicle trip length. The formula for estimating VMT reduction is:

$$A = \frac{B \times C \times E \times G}{D \times F} \text{ where}$$

*A = VMT Reduction*

*B = (percent increase in bikeway miles in plan/community)*

*C = bike mode share*

*D = vehicle mode share*

*E = 0.5 miles (Existing regional average one-way bicycle trip length)*

*F = 7.5 miles (Existing regional average one-way vehicle trip length)*

*G = 0.25 (elasticity of bike commuters with respect to bikeway miles per 10,000 population)*

**Assuming a 10 percent increase in bikeway miles for a plan/community in Ventura County, the VMT reduction is estimated to be 0.002 percent.** The range of effectiveness of this measure is estimated to be between 0-5.0 percent.

**Alternatively, a 1 percent increase in bicycle commute share per each additional miles of bicycle lanes per square mile implemented.**

This measure can be supported by several measures from the VCAPCD’s RACM. **Table E-22** summarizes the RACM measures that are relevant to this strategy.

**Table E-22: VCAPCD RACM Nexus with Expand Bikeway Network**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.4	Bike lockers at Metro stations, park & ride lots, other locations	N	N	<i>Not economically feasible</i>
10.5	Development of bicycle travel facilities	Y	Y	Cities, County, VCTC
10.7	Inclusion of bicycle lanes on throughfare projects	Y	Y	Cities, County, State
10.8	Bicycle lanes on arterial and frontage roads	Y	Y	Cities, County, State
10.9	Bicycle Route lighting	Y	Y	Cities, County, State
10.10	Expedite bicycle projects from the RTP/SCS	Y	Y	Cities, County, SCAG, VCTC

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.11	Complete Streets	Y	Y	Cities, County, Transit Operators
10.15	Greenway Network	Y	Y	Cities, County
10.16	First Mile/Last Mile Program	Y	Y	VCTC, Transit Operators
15.2	Pedestrian and Bicycle Overpasses Where Safety Dictates	Y	Y	Cities, County
15.3	Require inclusion of bicycle lanes on state and federally funded thoroughfare projects	N	N	<i>No authority to implement. Not economically feasible.</i>
15.4	Require inclusion of paved shoulders adequate for bicycle use on state or federally funded reconstruction or widening of federal collectors	N	N	<i>No authority to implement. Not economically feasible.</i>
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*

**Source:**

- Pucher, J., and Buehler, R. 2011. Analysis of Bicycling Trends and Policies in Large North American Cities: Lessons for New York. March. Available: [http://www.utrc2.org/sites/default/files/pubs/analysis-bike-final\\_0.pdf](http://www.utrc2.org/sites/default/files/pubs/analysis-bike-final_0.pdf). Accessed: January 2021.

### 34. Provide Pedestrian Network Improvement

Off Site | TDM

**Targeted Trip Reduction: All Trips**

Providing pedestrian network improvements is a strategy that has the potential to decrease project related VMT by enabling mode shift to walking. This strategy can be achieved increasing/improving sidewalk coverage, pedestrian network connectivity, streetscapes, pedestrian crossing, compact communities, narrower roadways, shorter block lengths, access to transit hubs, and parks/public spaces.

The elasticity of VMT with respect to the ratio of sidewalk-to-streets has been observed to be -0.05, meaning a one percent increase in the ratio of sidewalk-to-streets results in a 0.05 percent decrease in VMT (Frank et al. 2011). The formula for estimating VMT reduction is:

$$A = \left( \frac{C}{B} - 1 \right) \times D \text{ where}$$

*A = VMT Reduction*

*B = existing sidewalk length*

*C = (existing + measure) sidewalk length in study area*

*D = 0.05 (elasticity of VMT with respect to the ratio of sidewalk-to-streets)*

**Assuming a 10 percent increase in sidewalk miles for a plan/community in Ventura County, the VMT reduction is estimated to be 0.5 percent.** The range of effectiveness of this measure is estimated to be between 0-6.4 percent.

This measure can be supported by several measures from the VCAPCD’s RACM. **Table E-23** summarizes the RACM measures that are relevant to this strategy.

**Table E-23: VCAPCD RACM Nexus with Provide Pedestrian Network Improvement**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
9.2	Encouragement of Pedestrian Travel	Y	Y	SCAG, VCTC, VCAPCD
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC
10.10	Expedite bicycle projects from the RTP/SCS	Y	Y	Cities, County, SCAG, VCTC
10.11	Complete Streets	Y	Y	Cities, County, Transit Operators
10.15	Greenway Network	Y	Y	Cities, County
10.16	First Mile/Last Mile Program	Y	Y	VCTC, Transit Operators
15.2	Pedestrian and Bicycle Overpasses Where Safety Dictates	Y	Y	Cities, County

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*

**Source:**

- Pucher, J., and Buehler, R. 2011. Analysis of Bicycling Trends and Policies in Large North American Cities: Lessons for New York. March. Available: [http://www.utrc2.org/sites/default/files/pubs/analysis-bike-final\\_0.pdf](http://www.utrc2.org/sites/default/files/pubs/analysis-bike-final_0.pdf). Accessed: January 2021.

### 35. Provide Traffic Calming Measures

Off Site | Infrastructure

**Targeted Trip Reduction: All Trips**

Providing traffic calming measures is a strategy that has the potential to decrease project related VMT by enhancing multi-modal safety and shifting travel to biking and walking modes. This strategy can be achieved by incorporating roadway designs that reduce vehicle speeds including marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chockers, and others. **VMT reduction from traffic calming measures has been estimated to be 0.25-1.00 percent VMT.**

**Reference:**

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Cambridge Systematics. 2009. "Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions." Technical Appendices. Prepared for the Urban Land Institute. [reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf](http://reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf)

### 36. Create Urban Non-Motorized Zones

Off Site | Infrastructure

**Targeted Trip Reduction: All Trips**

Creating urban non-motorized zones is a strategy that has the potential to decrease project related VMT by encouraging non-motorized travel. These strategies are typically employed in central business districts or major activity centers. **VMT reduction from non-motorized zones has been shown to be insignificant in suburban locations like Ventura County.**

This measure can be supported by measures from the VCAPCD's RACM. **Table E-24** summarizes the RACM measures that are relevant to this strategy.

**Table E-24: VCAPCD RACM Nexus with Create Urban Non-Motorized Zones**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
9.1	Establish Auto Free Zones and Pedestrian Malls	Y	Y	Cities, County

**Reference:**

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Cambridge Systematics. 2009. "Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions." Technical Appendices. Prepared for the Urban Land Institute. [reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf](http://reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf)
- Pucher J., Dill, J., and Handy, S. Infrastructure, Programs and Policies to Increase Bicycling: An International Review. February 2010. Preventive Medicine 50 (2010) S106–S125. [http://policy.rutgers.edu/faculty/pucher/Pucher\\_Dill\\_Handy10.pdf](http://policy.rutgers.edu/faculty/pucher/Pucher_Dill_Handy10.pdf)

### 37. Dedicated Land for Bike Trails

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Dedicating land for bike trails is a strategy that has the potential to decrease project related VMT by encouraging mode shift to biking. This strategy would provide for or contribute to funds to dedicate land for bicycle trails linking the project to designated bike commuting routes. **VMT reduction dedicating land for bike trails can be estimated to be like expanding the bike network and would be around 0.002 percent in Ventura County.**

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-25** summarizes the RACM measures that are relevant to this strategy.

**Table E-25: VCAPCD RACM Nexus with Dedicate Land for Bike Trails**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.4	Bike lockers at Metro stations, park & ride lots, other locations	N	N	<i>Not economically feasible</i>
10.5	Development of bicycle travel facilities	Y	Y	Cities, County, VCTC

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.7	Inclusion of bicycle lanes on throughfare projects	Y	Y	Cities, County, State
10.8	Bicycle lanes on arterial and frontage roads	Y	Y	Cities, County, State
10.9	Bicycle Route lighting	Y	Y	Cities, County, State
10.10	Expedite bicycle projects from the RTP/SCS	Y	Y	Cities, County, SCAG, VCTC
10.11	Complete Streets	Y	Y	Cities, County, Transit Operators
10.15	Greenway Network	Y	Y	Cities, County
10.16	First Mile/Last Mile Program	Y	Y	VCTC, Transit Operators
15.2	Pedestrian and Bicycle Overpasses Where Safety Dictates	Y	Y	Cities, County
15.3	Require inclusion of bicycle lanes on state and federally funded thoroughfare projects	N	N	<i>No authority to implement. Not economically feasible.</i>
15.4	Require inclusion of paved shoulders adequate for bicycle use on state or federally funded reconstruction or widening of federal collectors	N	N	<i>No authority to implement. Not economically feasible.</i>
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

**Reference:**

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**38. Provide Bike Parking in Non-Residential Projects**

Project Site | Infrastructure

**Targeted Trip Reduction: All Trips**

Providing bike parking in non-residential projects is a strategy that has the potential to decrease project related VMT by encouraging mode shift to biking. **VMT reduction is estimated to be 0.6 percent.**

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-26** summarizes the RACM measures that are relevant to this strategy.

**Table E-26: VCAPCD RACM Nexus with Provide Bike Parking in Non-Residential Projects**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.1	Bike racks at work sites	Y	Y	Cities, County, Employers, VCTC
10.3	Regional Bike Parking Ordinance for all new construction	N	N	<i>No authority to implement</i>
10.4	Bike lockers at Metro stations, park & ride lots, other locations	N	N	<i>Not economically feasible</i>
10.5	Development of bicycle travel facilities	Y	Y	Cities, County, VCTC
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

**Reference:**

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Cambridge Systematics. 2009. "Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions." Technical Appendices. Prepared for the Urban Land Institute. [reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf](http://reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf)
- Center For Clean Air Policy (CCAP) Transportation Emission Guidebook. [http://www.ccap.org/safe/guidebook/guide\\_complete.html](http://www.ccap.org/safe/guidebook/guide_complete.html)

### 39. Provide Bike Parking in Multi-Unit Residential Projects

Project Site | Infrastructure

**Targeted Trip Reduction: All Trips**

Providing bike parking in multi-unit residential projects is a strategy that has the potential to decrease project related VMT by encouraging mode shift to biking. **VMT reduction from this strategy can be estimated to be similar providing bike parking in non-residential buildings and would be around 0.062 percent.**

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-27** summarizes the RACM measures that are relevant to this strategy.

**Table E-27: VCAPCD RACM Nexus with Provide Bike Parking in Multi-Unit Residential Projects**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.3	Regional Bike Parking Ordinance for all new construction	N	N	<i>No authority to implement</i>
10.5	Development of bicycle travel facilities	Y	Y	Cities, County, VCTC
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

**Reference:**

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

#### 40. Implement Conventional Carshare Program

Off Site | TDM

##### Targeted Trip Reduction: Auto Trips

Implementing conventional carshare program is a strategy that has the potential to decrease project related VMT by auto- trips. A conventional carshare program provides on-demand access to a shared fleet of vehicles on an as-needed bases. Car-share programs can be residential-, employer-, or transit station-based. The range of effectiveness for this measure is estimated to be 0 – 0.7 percent, depending on factors such as the number of vehicles deployed and share of population with access to the program. **A conventional carshare program in Ventura County can be estimated to have 0.15 percent VMT reduction**, which is the estimated VMT reduction for San Diego’s Car2go carshare program. San Diego’s Car2go program deployed over 800 vehicles.

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document*.
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Martin, E. and S. Shaheen. 2016. The Impacts of Car2go on Vehicle Ownership, Modal Shift, Vehicle Miles Traveled, and Greenhouse Gas Emissions: An Analysis of Five North American Cities. July. Available: <https://tsrc.berkeley.edu/publications/impacts-car2go-vehicle-ownership-modal-shift-vehicle-miles-traveled-and-greenhouse-gas>. Accessed: March 2021.



## 41. Implement Electric Carshare Program

Off Site | TDM

### Targeted Trip Reduction: Auto Trips

Implementing an electric carshare program is a strategy that has the potential to decrease project related VMT by auto- trips. An electric carshare is similar in many ways to a conventional carshare. An electric carshare may generate additional VMT if EVs need to be shuttled to and from charging points. **An electric carshare program in Ventura County can be estimated to have 0.15 percent VMT reduction**, which is the estimated VMT reduction for San Diego’s Car2go carshare program. San Diego’s Car2go program deployed over 800 vehicles.

### Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.

### Source:

- Martin, E. and S. Shaheen. 2016. The Impacts of Car2go on Vehicle Ownership, Modal Shift, Vehicle Miles Traveled, and Greenhouse Gas Emissions: An Analysis of Five North American Cities. July. Available: <https://tsrc.berkeley.edu/publications/impacts-car2go-vehicle-ownership-modal-shift-vehicle-miles-traveled-and-greenhouse-gas>. Accessed: March 2021.

## 42. Implement Pedal (Non-Electric) Bikeshare Program

Off Site | TDM

### Targeted Trip Reduction: All Trips

Implementing a pedal (non-electric) bikeshare program is a strategy that has the potential to decrease project related VMT by shifting to bicycle travel mode. A pedal bikeshare is typically a bike-share station, kiosk, or rack near commercial or transit hubs. Pedal bikeshare programs provide users with on-demand access to pedal bikes for short term rentals.

The vehicle to bikeshare substitution rate has been calculated to be 19.6 percent (McQueen et al. 2020). The average one-way trip length for bikeshare is observed to be 1.4 miles (Lazarus et al. 2019). The daily bikeshare trips per person is observed to be 0.021 (MTC 2017). VMT reduction from this measure can be estimated based on factors such as the share of population with access to the bikeshare and existing regional average vehicle trip length. The formula for estimating VMT reduction is:

$$A = \frac{B \times C \times D \times E}{F \times G} \text{ where}$$

*A = VMT Reduction*

*B = 0-100% (change in percent of residences in plan/community with access to bikeshare system without measure)*

*C = 0.021 (daily bikeshare trips per person)*

*D = 19.6% (vehicle to bikeshare substitution rate)*

*E = 1.4 miles per trip (bikeshare average one-way trip length)*

*F = 2.7 (daily vehicle trips per person)*

*G = 7.5 miles (Existing regional average one-way vehicle trip length)*

Assuming a 100 percent increase in share of population with access to bikeshare system in plan/community in Ventura County, the VMT reduction is estimated to be 0.03 percent. The range of effectiveness of this measure is estimated to be between 0-0.03 percent.

This measure can be supported by measures from the VCAPCD’s RACM. Table E-28 summarizes the RACM measures that are relevant to this strategy.

**Table E-28: VCAPCD RACM Nexus with Implement Pedal (Non-Electric) Bikeshare Program**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.2	Bike Share	Y	Y	Cities, County, Transit Operators
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document*.
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Lazarus, J., J. Pourquier, F. Feng, H. Hammel, and S. Shaheen. 2019. *Bikesharing Evolution and Expansion: Understanding How Docked and Dockless Models Complement and Compete – A Case Study of San Francisco*. Paper No. 19-02761. Annual Meeting of the Transportation Research Board: Washington, D.C. Available: <https://trid.trb.org/view/1572878>. Accessed: January 2021.

- McQueen, M., G. Abou-Zeid, J. MacArthur, and K. Clifton. 2020. Transportation Transformation: Is Micromobility Making a Macro Impact on Sustainability? Journal of Planning Literature. November. Available: <https://doi.org/10.1177/0885412220972696>. Accessed: March 2021.
- Metropolitan Transportation Commission (MTC). 2017. Plan Bay Area 2040 Final Supplemental Report–Travel Modeling Report. July. Available: [http://2040.planbayarea.org/files/2020-02/Travel\\_Modeling\\_PBA2040\\_Supplemental%20Report\\_7-2017.pdf](http://2040.planbayarea.org/files/2020-02/Travel_Modeling_PBA2040_Supplemental%20Report_7-2017.pdf). Accessed: January 2021.

### 43. Implement Electric Bikeshare Program

Off Site | TDM

Targeted Trip Reduction: All Trips

Implementing an electric bikeshare program is a strategy that has the potential to decrease project related VMT by shifting to bicycle travel mode. An electric bikeshare is similar in many ways to a pedal bikeshare. Electric bikeshares are slightly more effective at VMT reduction than their pedal counterparts because vehicle to bikeshare substitution rate is higher than vehicle to conventional bikeshare and electric bike trips tend to be longer.

The vehicle to electric bikeshare substitution rate has been calculated to be 35 percent (compared to 19.6 percent for conventional) (Fitch et al. 2020). The average one-way trip length for electric bikeshare is observed to be 2.1 miles (compared to 1.4 miles for conventional) (Fitch et al. 2021). The daily electric bikeshare trips per person is observed to be 0.021 (same as conventional) (MTC 2017). VMT reduction from this measure can be estimated based on factors such as the share of population with access to the bikeshare and existing regional average vehicle trip length. The formula for estimating VMT reduction is:

$$A = \frac{B \times C \times D \times E}{F \times G} \text{ where}$$

*A = VMT Reduction*

*B = 0-100% (change in percent of residences in plan/community with access to bikeshare system without measure)*

*C = 0.021 (daily bikeshare trips per person)*

*D = 35% (vehicle to bikeshare substitution rate)*

*E = 2.1 miles per trip (bikeshare average one-way trip length)*

*F = 2.7 (daily vehicle trips per person)*

*G = 7.5 miles (Existing regional average one-way vehicle trip length)*

**Assuming a 100 percent increase in share of population with access to electric bikeshare system in plan/community in Ventura County, the VMT reduction is estimated to be 0.08 percent.** The range of effectiveness of this measure is estimated to be between 0-0.08 percent.

This measure can be supported by measures from the VCAPCD’s RACM. Table E-29 summarizes the RACM measures that are relevant to this strategy.

**Table E-29: VCAPCD RACM Nexus with Implement Electric Bikeshare Program**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.2	Bike Share	Y	Y	Cities, County, Transit Operators
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.

**Source:**

- Fitch, D., H. Mohiuddin, and S. Handy. 2021. Examining the Effects of the Sacramento Dockless E-Bike Share on Bicycling and Driving. MDPI: Sustainability. January. Available: <https://www.mdpi.com/2071-1050/13/1/368>. Accessed: March 2021.
- Metropolitan Transportation Commission (MTC). 2017. Plan Bay Area 2040 Final Supplemental Report–Travel Modeling Report. July. Available: [http://2040.planbayarea.org/files/2020-02/Travel\\_Modeling\\_PBA2040\\_Supplemental%20Report\\_7-2017.pdf](http://2040.planbayarea.org/files/2020-02/Travel_Modeling_PBA2040_Supplemental%20Report_7-2017.pdf). Accessed: January 2021.

#### 44. Implement Scooter-Share Program

Off Site | TDM

Targeted Trip Reduction: All Trips

Implementing a scooter-share program is a strategy that has the potential to decrease project related VMT by shifting to scooter travel mode. A scooter-share is similar in many ways to a bikeshare. Scooter-shares are more effective at VMT reduction than their bike counterparts because vehicle to scooter-share substitution rate is higher than vehicle to conventional and electric bikeshare and scooter trips tend to be longer.

The vehicle to electric bikeshare substitution rate has been calculated to be 38.5 percent (compared to 35 percent for electric bike) (McQueen et al. 2020). The average one-way trip length for scooter-share is observed to be 2.14 miles (compared to 2.1 miles for electric bike) (PBOT. 2021). The daily electric scooter-share trips per person is observed to be 0.021 (same as conventional/electric bike) (MTC 2017). VMT reduction from this measure can be estimated based on factors such as the share of population with access to the scooter-share and existing regional average vehicle trip length. The formula for estimating VMT reduction is:

$$A = \frac{B \times C \times D \times E}{F \times G} \text{ where}$$

*A = VMT Reduction*

*B = 0-100% (change in percent of residences in plan/community with access to bikeshare system without measure)*

*C = 0.021 (daily scooter-share trips per person)*

*D = 38.5% (vehicle to bikeshare substitution rate)*

*E = 2.14 miles per trip (bikeshare average one-way trip length)*

*F = 2.7 (daily vehicle trips per person)*

*G = 7.5 miles (Existing regional average one-way vehicle trip length)*

**Assuming a 100 percent increase in share of population with access to scooter-share system in plan/community in Ventura County, the VMT reduction is estimated to be 0.07 percent.** The range of effectiveness of this measure is estimated to be between 0-0.07 percent.

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.

**Source:**

- McQueen, M., G. Abou-Zeid, J. MacArthur, and K. Clifton. 2020. Transportation Transformation: Is Micromobility Making a Macro Impact on Sustainability? *Journal of Planning Literature*. November. Available: <https://doi.org/10.1177/0885412220972696>. Accessed: March 2021.
- Portland Bureau of Transportation (PBOT). 2021. Portland Bureau of Transportation E-Scooter Dashboard. Available: <https://public.tableau.com/profile/portland.bureau.of.transportation#!/vizhome/PBOTE-ScooterTripsDashboard/ScooterDashboard>. Accessed: March 2021.
- Metropolitan Transportation Commission (MTC). 2017. Plan Bay Area 2040 Final Supplemental Report–Travel Modeling Report. July. Available: [http://2040.planbayarea.org/files/2020-02/Travel\\_Modeling\\_PBA2040\\_Supplemental%20Report\\_7-2017.pdf](http://2040.planbayarea.org/files/2020-02/Travel_Modeling_PBA2040_Supplemental%20Report_7-2017.pdf). Accessed: January 2021.

## 45. Implement Preferential Rideshare Parking Program

Project Site | TDM

Targeted Trip Reduction: Commute Trips

Implementing a preferential ridesharing parking program is a strategy that has the potential to decrease project related VMT by reducing commute trips. An employer can provide preferential parking by:

- Designating parking in convenient locations for rideshare
- Offering free or reduced parking fees for rideshare
- Offering priority or reserved parking for rideshare

The VMT reduction for this strategy can be estimated to be like implementing an employer rideshare program. The range of effectiveness for this measure is estimated to be 0 - 20 percent, depending on percent of employees participating. **Assuming 20 percent employee participate, the measure results in around 0.8 percent reduction in VMT in a suburban location.**

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-30** summarizes the RACM measures that are relevant to this strategy.

**Table E-30: VCAPCD RACM Nexus with Implement Preferential Rideshare Parking Program**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.3	Employer Rideshare Program Incentives	Y	Y	Employers, VCAPCD, VCTC
8.10	Rideshare and Vanpool Services (Non-employer based)	Y	Y	CTC, Transit Operators, Cities, County

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

**Source:**

- Ewing, R. 1993. “TDM, Growth Management and the Other Four out of Five Trips.” *Transportation Quarterly*, Vol. 48, No. 3

## Category: Transit

All transit VMT reduction strategies should be done in coordination with local transit agencies.

### 46. Extend Transit Network Coverage or Hours

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Extending transit network coverage or hours is a strategy that has the potential to decrease project related VMT by shifting trips to transit. The strategy can be implemented by adding new transit stops and starting services earlier in the morning and/or extending services to late-night hours to accommodate alternative-shift workers.

The elasticity of transit demand with respect to service miles or service hours has been observed to be 0.7, meaning a one percent increase in transit service miles/hours results in a 0.7 percent increase in transit demand (Handy et al. 2013). VMT reduction from this measure can be estimated based on factors such as the percent increase of transit service miles/hours and existing regional transit mode share. The formula for estimating VMT reduction is:

$$A = B \times C \times D \times E \times F \text{ where}$$

*A = VMT Reduction*

*B = percent increase in transit frequency*

*C = 0.5 (elasticity of transit demand with respect to service frequency)*

*D = 3% transit mode share*

*E = 85.1% vehicle mode share*

*F = 57.8% (mode shift factor – reduction in vehicle trips associated with a reduction in person trips considering vehicle occupancy)*

Assuming 10 percent increase in transit hours/miles in plan/community in Ventura County, the measure would result in around 12.1 percent reduction in VMT. The range of effectiveness for this measure is estimated to be 0 – 25.2 percent, depending on increase in service.

This measure can be supported by measures from the VCAPCD’s RACM. Table E-31 summarizes the RACM measures that are relevant to this strategy.

**Table E-31: VCAPCD RACM Nexus with Extend Transit Network Coverage or Hours**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
1.5	Expansion of Public Transportation Systems	Y	Y	Transit Operators, VCTC

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Handy, S., K. Lovejoy, M. Boarnet, and S. Spears. 2013. Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions. October. Available: [https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts\\_of\\_Transit\\_Service\\_Strategies\\_on\\_Passenger\\_Vehicle\\_Use\\_and\\_Greenhouse\\_Gas\\_Emissions\\_Policy\\_Brief.pdf](https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts_of_Transit_Service_Strategies_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf). Accessed: January 2021.

## 47. Increase Transit Service Frequency/Speed

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Increasing transit service frequency or speed is a strategy that has the potential to decrease project related VMT by shifting trips to transit. The strategy can be implemented by increasing transit frequency on one or more transit lines serving the plan/community to reduce headways and thus reduce transit waiting times and overall travel times.

The elasticity of transit demand with respect to frequency of service has been observed to be 0.5, meaning a one percent increase in the number of bus arrivals in an hour result in a 0.5 percent increase in transit demand (Handy et al. 2013). VMT reduction from this measure can be estimated based on factors such as the percent increase of transit frequency and existing regional transit mode share. The formula for estimating VMT reduction is:

$$A = \frac{B \times C \times D \times F}{E} \text{ where}$$

*A = VMT Reduction*

*B = percent increase in transit frequency*

*C = 0.5 (elasticity of transit demand with respect to service frequency)*

*D = 3% transit mode share*

*E = 85.1% vehicle mode share*

*F = 57.8% (mode shift factor – reduction in vehicle trips associated with a reduction in person trips considering vehicle occupancy)*

**Assuming 10 percent increase in transit frequency in plan/community in Ventura County, the measure would result in around 10.2 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 0 – 34.6 percent, depending on increase in frequency.



**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document*.

**Source:**

- Handy, S., K. Lovejoy, M. Boarnet, and S. Spears. 2013. Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions. October. Available: [https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts\\_of\\_Transit\\_Service\\_Strategies\\_on\\_Passenger\\_Vehicle\\_Use\\_and\\_Greenhouse\\_Gas\\_Emissions\\_Policy\\_Brief.pdf](https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts_of_Transit_Service_Strategies_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf). Accessed: January 2021.

## 48. Implement Transit-Supportive Roadway Treatments

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Implementing transit supportive roadway treatments is a strategy that has the potential to decrease project related VMT by shifting trips to transit. The strategy involves building sidewalk/crosswalk safety enhancements, creating new paths to transit stops, transit signal priority, bus-only signal phasing, queue jumping for transit, curb extensions to speed passenger loading, and dedicated bus lanes. Roadway treatments are intended to improve transit travel time and reliability.

The elasticity of transit demand with respect to transit travel time has been observed to be -0.4, meaning a one percent decrease in transit travel time results in a 0.4 percent increase in transit demand (TRB 2007). VMT reduction from this measure can be estimated based on factors such as the percent decrease of transit travel time and existing regional transit and vehicle mode share. The formula for estimating VMT reduction is:

$$A = \frac{B \times C \times D \times F}{E} \text{ where}$$

*A = VMT Reduction*

*B = percent decrease in transit travel time*

*C = 0.4 (elasticity of transit demand with respect to transit travel time)*

*D = 3% transit mode share*

*E = 85.1% vehicle mode share*

*F = 57.8% (mode shift factor – reduction in vehicle trips associated with a reduction in person trips considering vehicle occupancy)*

Assuming 10 percent increase in transit frequency in plan/community in Ventura County, the measure would result in around 8.2 percent reduction in VMT.

This measure can be supported by measures from the VCAPCD’s RACM. Table E-32 summarizes the RACM measures that are relevant to this strategy.

**Table E-32: VCAPCD RACM Nexus with Implementing Transit-Supportive Roadway Treatments**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
1.15	Shorter Distance from Buildings to Bus Stops	N	N	Not economically feasible, however, some jurisdictions may already have existing requirements for new developments
1.18	Bus Signal Priority	Y	Y	Transit Operators
1.20	Installation of additional platforms, double tracks, concrete ties, bridges, signal relocation	Y	Y	Cities, Rail Transit Agencies
2.2	Fixed Lanes for Buses and Carpools on Arterials	Y	Y	Caltrans, SCAG, VCTC
5.1	Develop Intelligent Transportation Systems	Y	Y	Caltrans, Cities, County, SCAG, Transit Operators, VCTC
5.9	Bus Pullouts in Curbs for Passenger Loading	Y	Y	Cities, County, Transit Operators, VCTC
10.11	Complete Streets	Y	Y	Cities, County, VCTC, Transit Operators

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document*.
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Transportation Research Board (TRB). 2007. Transit Cooperative Research Program Report 118: Bus Rapid Transit Practitioner’s Guide. Available: [https://nacto.org/docs/usdg/tcrp118brt\\_practitioners\\_kittleson.pdf](https://nacto.org/docs/usdg/tcrp118brt_practitioners_kittleson.pdf). Accessed: January 2021.

## 49. Reduce Transit Fares

Off Site | TDM

Targeted Trip Reduction: All Trips

Reducing transit fares is a strategy that has the potential to decrease project related VMT by shifting trips to transit by reducing transit fares on transit lines serving the plan/community. The elasticity of transit demand with respect to transit fare has been observed to be -0.3, meaning a one percent decrease in transit fare results in a 0.3 percent increase in transit demand (Handy et al. 2013). VMT reduction from this measure can be estimated based on factors such as the percent decrease of transit travel time and existing regional transit and vehicle mode share. The formula for estimating VMT reduction is:

$$A = \frac{B \times C \times D \times F}{E} \text{ where}$$

*A = VMT Reduction*

*B = percent decrease in transit fare*

*C = 0.3 (elasticity of transit demand with respect to transit fare)*

*D = 3% transit mode share*

*E = 85.1% vehicle mode share*

*F = 57.8% (mode shift factor – reduction in vehicle trips associated with a reduction in person trips considering vehicle occupancy)*

**Assuming 10 percent decrease in transit frequency in plan/community in Ventura County, the measure would result in around 6.1 percent reduction in VMT.**

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-33** summarizes the RACM measures that are relevant to this strategy.

**Table E-33: VCAPCD RACM Nexus with Reducing Transit Fares**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
1.13	Half Price Fares on Feeder Bus Service	N	Y	Not economically feasible
8.1	Financial Incentives, Including Zero Bus Fares	Y	Y	Employers

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document*.
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- Handy, S., K. Lovejoy, M. Boarnet, and S. Spears. 2013. Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions. October. Available: [https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts\\_of\\_Transit\\_Service\\_Strategies\\_on\\_Passenger\\_Vehicle\\_Use\\_and\\_Greenhouse\\_Gas\\_Emissions\\_Policy\\_Brief.pdf](https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts_of_Transit_Service_Strategies_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf). Accessed: January 2021.

## 50. Provide Bike Parking Near Transit

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Providing bike parking near transit is a strategy that has the potential to decrease project related VMT by encouraging mode shift to biking. This reduction strategy should be implemented as part of the ‘Provide Bike Parking in Non-Residential Projects’ strategy. This measure can be supported by measures from the VCAPCD’s RACM. **Table E-34** summarizes the RACM measures that are relevant to this strategy.

**Table E-34: VCAPCD RACM Nexus with Provide Bike Parking Near Transit**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.1	Bike racks at work sites	Y	Y	Cities, County, Employers, VCTC
10.3	Regional Bike Parking Ordinance for all new construction	N	N	<i>No authority to implement</i>
10.4	Bike lockers at Metro stations, park & ride lots, other locations	N	N	<i>Not economically feasible</i>
10.5	Development of bicycle travel facilities	Y	Y	Cities, County, VCTC
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

**Reference:**

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

## 51. Provide Local Shuttles

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Providing local shuttles is a strategy that has the potential to decrease project related VMT by shifting trips to transit. The strategy can be implemented by adding shuttle service within a zone (for example a commercial center) or between attractions (for example between an office and transit station). To quantify the VMT reduction, use the methodology to quantify VMT reduction due to transit network expansion.

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-35** summarizes the RACM measures that are relevant to this strategy.

**Table E-35: VCAPCD RACM Nexus with Provide Local Shuttles**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
1.5	Expansion of Public Transportation Systems	Y	Y	Transit Operators, VCTC

### Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

## 52. Microtransit NEV (neighborhood electric vehicles)

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Supporting microtransit NEV (neighborhood electric vehicles) has the potential to decrease project related VMT by shifting trips to transit. Microtransit services are flexible and can be designed to fulfill the mobility needs of a community where trips are typically less than 2 miles long. **Microtransit NEV has been estimated to have 0.04 reduction in VMT.**

This measure can be supported by measures from the VCAPCD’s RACM. **Table E-36** summarizes the RACM measures that are relevant to this strategy.

**Table E-36: VCAPCD RACM Nexus with Microtransit NEV (Neighborhood Electric Vehicles)**

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
1.5	Expansion of Public Transportation Systems	Y	Y	Transit Operators, VCTC

**Reference:**

- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document*.
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

**Source:**

- WSP. 2019. “Draft TDM Off-Model Methodology—March 2019 Revision.” Memo to SANDAG.

## Category: Cleaner Vehicles and Fuels

### 53. Use Cleaner-Fuel Vehicles

Off Site | TDM

Targeted Trip Reduction: All Trips

Using cleaner-fuel vehicles is a strategy that has the potential replace non-ZEV VMT with ZEV VMT. Cleaner-fuel vehicles include electric vehicles, natural gas vehicles, and vehicles powered renewable diesel or natural gas. **This measure is not estimated to reduce VMT, however it would substitute fuel trips 1:1 to non-ZEV trips.**

**Reference:**

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

## Appendix F: CEQA Lead Agency VMT Thresholds of Significance

This section will be updated as CEQA Lead Agencies develop guidelines for VMT thresholds of significance. Agencies are not required to enact their own agencywide thresholds of significance, and can use thresholds from peer agencies or utilize the OPR [Technical Advisory On Evaluation Transportation Impacts in CEQA](#).

**Table F-1: CEQA Lead Agency VMT Thresholds of Significance**

Jurisdiction	CEQA Transportation Guidelines	Threshold
Camarillo	City of Camarillo CEQA Environmental Guidelines	Residential project results in per capita VMT that exceeds 85 percent of existing regional or city average VMT. Office project results in per employee VMT that exceeds 85 percent of existing regional average VMT.
Fillmore	-	-
Moorpark	-	-
Ojai	-	-
Oxnard	City of Oxnard CEQA Guidelines	Interim VMT thresholds in development.
Port Hueneme	2045 General Plan	Has not yet established VMT thresholds.
City of Ventura	-	-
Santa Paula	-	-
Simi Valley	-	-
Thousand Oaks	-	-
Ventura County	2040 General Plan EIR	15 percent below baseline level with specific values for different types of land uses